PLANNING AND BUILDING DEPARTMENT

PLANNING DIVISION

Placerville Office: 2850 Fairlane Court, Placerville, CA 95667
South Lake Tahoe Office: 924 B Emerald Bay Road, South Lake Tahoe, CA 96150
https://www.eldoradocounty.ca.gov/Home

Placerville Office:	Placerville Office:	Placerville Office:	South Lake Tahoe Office:
Building:	**Planning:**	**Code Enforcement:**	**All Services:**
(530) 621-5315	**(530) 621-5355**	**(530) 621-5999**	**(530) 573-3330**
bldgdept@edcgov.us	planning@edcgov.us	cdacode.enforcement@edcgov.us	plan-buildSLT@edcgov.us

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

NOTICE IS HEREBY GIVEN that the County of El Dorado, as lead agency, has prepared a Mitigated Negative Declaration (MND) for the below referenced Project. The Draft MND analyzes the potential environmental effects associated with the proposed Project in accordance with the California Environmental Quality Act (CEQA). This Notice of Intent (NOI) is to provide responsible agencies and other interested parties with notice of the availability of the Draft MND and solicit comments and concerns regarding the environmental issues associated with the proposed Project.

LEAD AGENCY: County of El Dorado, 2850 Fairlane Court, Placerville, CA 95667

CONTACT: County Planner: Anna Quan, 530-621-5753

PROJECT: CUP23-0007/Durock Road AM/PM

PROJECT LOCATION: The property, identified by Assessor's Parcel Numbers 109-080-012 and 109-080-013, consists of 3.69 acres and is located at the southwest corner of the intersection between South Shingle Road and Durock Road, in the Shingle Springs Area, Supervisorial District 4.

PROJECT DESCRIPTION: A Conditional Use Permit request for the proposed construction and ongoing operation of a new ARCO AM/PM that would consist of a 3,349-square-foot convenience store, a 100-foot-long automatic car wash, a 4,606-square-foot fuel canopy with six (6) fuel islands and twelve (12) fueling positions, and three (3) underground storage tanks. The project site would be served by El Dorado Irrigation District. Electric service would be provided through Pacific Gas & Electric facilities.

PUBLIC REVIEW PERIOD: The public review period for the Draft MND set forth in CEQA for this project is **30** days, beginning **September 18, 2025**, and ending **October 17, 2025**. Any written comments must be received within the public review period. Copies of the Draft MND for this project may be reviewed and/or obtained in the County of El Dorado Planning and Building Department, 2850 Fairlane Court, Placerville, CA 95667, during normal business hours or online at https://edc-trk.aspgov.com/etrakit/. In order to view attachments, please login or create an E-Trakit account and search the project name or application file number in the search box.

Please direct your comments to: County of El Dorado, Planning and Building Department, County Planner: Anna Quan, 2850 Fairlane Court, Placerville, CA 95667 or EMAIL: planning@edcgov.us

PUBLIC HEARING: A public hearing before the Planning Commission has not been scheduled. Once that date has been determined, a public notice will be issued.

COUNTY OF EL DORADO
PLANNING AND BUILDING DEPARTMENT
KAREN L. GARNER, Director
September 17, 2025

DRAFT MITIGATED NEGATIVE DECLARATION

FILE: CUP23-0007 / Durock Road AM/PM

PROJECT NAME CUP23-0007 – Durock Road AM/PM

NAME OF APPLICANT: Marc Strauch

ASSESSOR'S PARCEL NO.: 109-080-012, 109-080-013 **SECTION:** 1 **T:** 09N **R:** 9E

LOCATION: The project site, identified by Assessor's Parcel Numbers 109-080-012 and 109-080-013, consists of 3.69 acres and is located at the southwest corner of the intersection between South Shingle Road and Durock Road, in the Shingle Springs Area.

☐ **GENERAL PLAN AMENDMENT:** **FROM:** **TO:**

☐ **REZONING:** **FROM:** **TO:**

☐ **TENTATIVE PARCEL MAP**

☐ **SUBDIVISION:**

SUBDIVISION (NAME):

☒ **SPECIAL USE PERMIT TO ALLOW:** drive-through automatic car wash in Community Commercial zone.

☐ **OTHER:** A Conditional Use Permit request for the proposed construction and ongoing operation of a new ARCO AM/PM that would consist of a 3,349-square-foot convenience store, a 100-foot-long automatic car wash, a 4,606-square-foot fuel canopy with six (6) fuel islands and twelve (12) fueling positions, and three (3) underground storage tanks. The project site would be served by El Dorado Irrigation District. Electric service would be provided through Pacific Gas & Electric facilities.

REASONS THE PROJECT WILL NOT HAVE A SIGNIFICANT ENVIRONMENTAL IMPACT:

☐ **NO SIGNIFICANT ENVIRONMENTAL CONCERNS WERE IDENTIFIED DURING THE REVISED INITIAL STUDY.**

☒ **MITIGATION HAS BEEN IDENTIFIED WHICH WOULD REDUCE POTENTIALLY SIGNIFICANT IMPACTS.**

☐ **OTHER:**

In accordance with the authority and criteria contained in the California Environmental Quality Act (CEQA), State Guidelines, and El Dorado County Guidelines for the Implementation of CEQA, the County Environmental Agent analyzed the project and determined that the project will not have a significant impact on the environment. Based on this finding, the Planning Department hereby prepares this MITIGATED NEGATIVE DECLARATION. A period of thirty (30) days from the date of filing this mitigated negative declaration will be provided to enable public review of the project specifications and this document prior to action on the project by COUNTY OF EL DORADO. A copy of the project specifications is on file at the County of El Dorado Planning Services, 2850 Fairlane Court, Placerville, CA 95667.

This Mitigated Negative Declaration was adopted by the *Hearing Body* on *Date*.

_____

Executive Secretary

COUNTY OF EL DORADO
PLANNING AND BUILDING DEPARTMENT
INITIAL STUDY
ENVIRONMENTAL CHECKLIST

Project Title: CUP23-0007/Durock Road AM/PM

Lead Agency Name and Address: El Dorado County, 2850 Fairlane Court, Placerville, CA 95667

Contact Person: Anna Quan, Senior Planner | **Phone Number:** (530) 621-5753

Applicant's Name and Address: Strauch and Company, 193 Blue Ravine Road, Suite 135, Folsom, CA 95630

Project Location: The project parcel is located on the southwestern corner of the intersection of South Shingle Road and Durock Road in the Shingle Springs Area.

Assessor's Parcel Number: 109-080-012, 109-080-013 **Acres:** 3.69 acres

Sections: S: 1 **T:** 09N **R:** 9E

General Plan Designation: Commercial (C)

Zoning: Community Commercial (CC)

Description of Project: The project site is located at the southwestern corner of the intersection of South Shingle Road and Durock Road in Shingle Springs, El Dorado County, California within the Shingle Springs U.S. Geologic Survey 7.5-minute topographic quadrangle. The project site is in township T09N, range R9E, section 1, and comprises two parcels (Assessor's Parcel Numbers: 109-080-012 and 109-080-013). A parcel merger is conditioned as part of this project. The geographic coordinates for the centroid of the project are 38.6604 N, 120.9375 W. The project site is bordered to the north by Durock Road and a "park and ride" commuter parking lot beyond, to the east by South Shingle Road and scattered commercial buildings beyond, to the south by Foothill pine woodland, and to the west by a commercial building with single-family residences beyond.

The proposed project consists of a 3,349-square-foot ARCO am/pm gas station with a 4,606-square-foot canopy covering a total of six fueling islands (twelve [12] vehicle fueling positions [VFPs]), and an automatic 100-foot-long car wash on a currently undeveloped approximately 3.7-acre Community Commercial zoned project site. Per Chapter 130.22 of the County Zoning Code, the gas station and convenience market are uses allowed by right; however, because the drive-through automatic car wash is categorized under Automotive and Equipment, Repair Shops, the approval of a Conditional Use Permit is required. The fueling facility will require the installation of three (3) underground fuel storage tanks. All proposed site developments have been located on the eastern half of the parcels, which would leave the western half of the site undeveloped. Site access is proposed to be from a drive aisle running around the western and southern perimeter of the developed portions of the site. This drive aisle will connect Durock Road to South Shingle Road and contain one access point into the developed portions of the site. The access point will be located approximately 100-feet south of the proposed encroachment with Durock Road.

The site may be accessed through a full-access driveway on Durock Road. On South Shingle Road, right-turn ingress will be permitted. A left-turn pocket on South Shingle Road will also be proposed. Only right-turn egress will be permitted.

The proposed 100-foot-long car wash is located parallel to the eastern property line. The circulation route for the car wash requires vehicles to enter the site and drive northward and then eastward, around the fuel canopy area. The entrance to the car wash is from a dedicated drive aisle located north of the car wash and

Description of Project (continued):

approximately 30-feet east of the fuel canopy (see Figure 1). Vehicles will exit the car wash from the south side of the car wash and will be directed around a U-turn drive aisle which connects circulation flows back to the drive aisle south of the fuel canopy area.

Once El Dorado County's US-50 / Ponderosa Road Interchange Phase 1B – Durock Road Realignment project (CIP #36104008) is completed, the driveway on South Shingle Road would allow full access with use of the new two-way left-turn lane on South Shingle Road. In addition, Durock Road will be realigned, and the second proposed driveway for the project would connect to the Park-and-Ride lot to the north. The Park-and-Ride lot would have right-only ingress and egress onto South Shingle Road.

Environmental Setting: There is no existing development on the project site. The northeast corner of the parcel is disturbed, with a dirt and gravel surface that is informally used for truck and vehicle parking. The southeast corner of the parcel contains both Foothill pine woodland and annual grassland habitat. The whole eastern half of the parcel, where the project is proposed, is relatively flat, while the western half slopes down to the west. The elevation of the project parcel ranges from approximately 1,530 feet in the east to approximately 1,480 feet at the lowest point in the west. The sloped western half of the parcel, where development is not proposed, contains Foothill pine woodland habitat.

Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

1. El Dorado County Surveyor
2. El Dorado County Building Services
3. El Dorado County Environmental Management Department
4. El Dorado County Department of Transportation
5. El Dorado County Air Quality Management District
6. El Dorado County Fire Protection District
7. El Dorado Irrigation District

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun? At the time of the application request, seven Tribes: Wilton Rancheria, Ione Band of Miwok Indians, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Shingle Springs Band of Miwok Indians, T'si-Akim Maidu, United Auburn Indian Community of the Auburn Rancheria, Washoe Tribe of Nevada and California, had requested to be notified of proposed projects for consultation in the project area. Consultation notices were sent on April 5, 2023. Staff received a response from two tribes: from United Auburn Indian Community of the Auburn Rancheria on April 10, 2023 and from Shingle Springs Band of Miwok Indians on May 1, 2023. This was within a 30-day period from the date of staff's mailing of consultation notices. UAIC deferred to Shingle Springs Band of Miwok Indians, and Shingle Springs Band of Miwok Indians officially requested consultation under AB 52 for this project. Staff responded with all requested documentation. Shingle Springs Band of Miwok Indians closed consultation on October 1, 2024. Pursuant to the archaeological resources study conducted by SWCA Environmental Consultants that incorporates the cultural records search results from the North Central Information Center, there is low potential for locating prehistoric-period cultural resources or historic-period cultural resources in the immediate vicinity. The project site is not known to contain either Tribal Cultural Resources (TCRs) or historic-period resources.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

	Aesthetics		Agriculture and Forestry Resources		Air Quality
	Biological Resources		Cultural Resources		Energy
	Geology / Soils		Greenhouse Gas Emissions		Hazards & Hazardous Materials
	Hydrology / Water Quality		Land Use / Planning		Mineral Resources
	Noise		Population / Housing		Public Services
	Recreation		Transportation		Tribal Cultural Resources
	Utilities / Service Systems		Wildfire		Mandatory Findings of Significance
			None	X	None with Mitigation Incorporated

DETERMINATION

On the basis of this initial evaluation:

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

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

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

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

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

Printed Name Anna Quan, Senior Planner For: El Dorado County

Signature: _____ Date: 9/12/2025

Printed Name Ande Flower, Planning Manager For: El Dorado County

Signature:  Date: 9/12/2025

PROJECT DESCRIPTION

Introduction

This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts resulting from the proposed project. The proposed project consists of the development of a 3,349-square-foot Arco AM/PM gas station with a 4,606 square-foot canopy covering a total of six fueling islands (twelve [12] vehicle fueling positions, three [3] underground fuel storage tanks, and an automatic 100-foot-long drive-through car wash on a currently undeveloped approximately 3.7-acre parcel. The development will occur on the eastern half of the parcel, and the western half will remain undeveloped.

Throughout this Initial Study, please reference the following Attachments:

Attachment A: Location/Vicinity Map
Attachment B: Assessor's Parcel Map
Attachment C: General Plan Land Use Map
Attachment D: Zoning Map
Attachment E: Biological Resources Reports
Attachment F: Oak Resources Technical Report
Attachment G: Air Quality and Greenhouse Gas Report
Attachment H: Acoustical Report
Attachment I: Traffic Impact Study
Attachment J: Left Turn Lane Exhibit
Attachment K: Mitigation Monitoring and Reporting Program

Project Location and Surrounding Land Uses

The project is located at the southwestern corner of the intersection between Durock Road and South Shingle Road in the Shingle Springs Community Region, El Dorado County, California within the Shingle Springs U.S. Geologic Survey 7.5-minute topographic quadrangle. The project is in township T 09N, range R9E, section 1, and comprises two parcels (APNs 109-080-012 and 109-080-013). The geographic coordinates for the centroid of the project are 38.6604 N, 120.9375 W. The project site is bordered to the north by Durock Road and a "park and ride" commuter parking lot beyond, to the east by South Shingle Road and scattered commercial buildings beyond, to the south by Foothill pine woodland, and to the west by a commercial building with single-family residences beyond.

Project Characteristics

1. Transportation/Circulation/Parking

Site access is proposed from a drive aisle running along the western and southern perimeter of the developed portions of the site (see Figure 1). This drive aisle will connect Durock Road to South Shingle Road and contain one access point into the developed portions of the site. The access point will be located approximately 100-feet south of the proposed encroachment with Durock Road. The drive aisle may be accessed through a full-access driveway on Durock Road. On South Shingle Road, right-turn ingress will be permitted. A left-turn pocket will also be proposed. Only right-turn egress will be permitted on to South Shingle Road.

The proposed 100-foot-long car wash is located parallel to the eastern property line. The circulation route for the car wash requires vehicles to enter the site and drive northward and then eastward, around the fuel canopy area. The entrance to the car wash is from a dedicated drive aisle located north of the car wash and approximately 30-feet east from the fuel canopy (see Figure 1). Vehicles will exit the car wash from the south side of the car wash and will be directed around a U-turn drive aisle which connects circulation flows back to the drive aisle south of the fuel canopy area.

Once El Dorado County's US-50 / Ponderosa Road Interchange Phase 1B – Durock Road Realignment project (CIP #36104008) is completed, the driveway on South Shingle Road would allow full access with use of the new two-way left-turn lane on South Shingle Road. In addition, Durock Road will be realigned, and the second proposed driveway for the project would connect to the Park-and-Ride lot to the north. The Park-and-Ride lot would have right-only ingress and egress onto South Shingle Road.

2. Utilities and Infrastructure

Pacific Gas and Electric Company (PG&E) will provide electrical service to the proposed project. PG&E has existing delivery infrastructure and customers in the vicinity of this proposed gas station development. PG&E already provides electrical service to an existing gas station across South Shingle Road from the proposed project site. PG&E also holds an 80-foot-wide easement for electric transmission facilities over and across the northerly line of APN: 109-080-012 (the northern project parcel). Said easement provides PG&E the rights of ingress and egress to its facilities and easement area, including during construction of said gas station. PG&E's easement also stipulates that no party shall erect or construct any building or other structure, or drill or operate any well, within said easement. Therefore, no buildings, canopies, or other structures associated with said gas station may be built within the easement area and the project design meets this requirement. Said easement also grants PG&E the rights to trim and to cut down and clear away any and all trees on either side of said easement which in the opinion of PG&E may be a hazard to any existing facilities.

Water and sewer services will be provided by El Dorado Irrigation District (EID). The carwash will include an oil/sand separator and reclamation system for water conservation. Solid waste removal will take place once per day by a local waste management company, El Dorado Disposal, under contract with the business.

3. Construction Considerations

All construction activities associated with the project would be required to conform to federal and state laws, applicable agency and department requirements and would be subject to building permits from El Dorado County Building Services.

Project Schedule and Approvals

This Initial Study has been completed as a requirement of the discretionary action of the CUP for the drive-through carwash, as the gas station and convenience store are "by-right" uses and do not trigger CEQA review. However, the entire project is being reviewed in this initial study with analysis and disclosure of the environment effects of all project elements. This Initial Study is being circulated for a 30-day public and agency review and comment period. Written comments on the Initial Study should be submitted to the project planner indicated in the Summary section, above. Following the close of the written comment period, the Initial Study and associated Mitigated Negative Declaration will be considered by the Lead Agency (El Dorado County) in a public hearing and the Mitigated Negative Declaration will be adopted if

it is determined to comply with the California Environmental Quality Act (CEQA). The Lead Agency will also determine whether to approve the project.

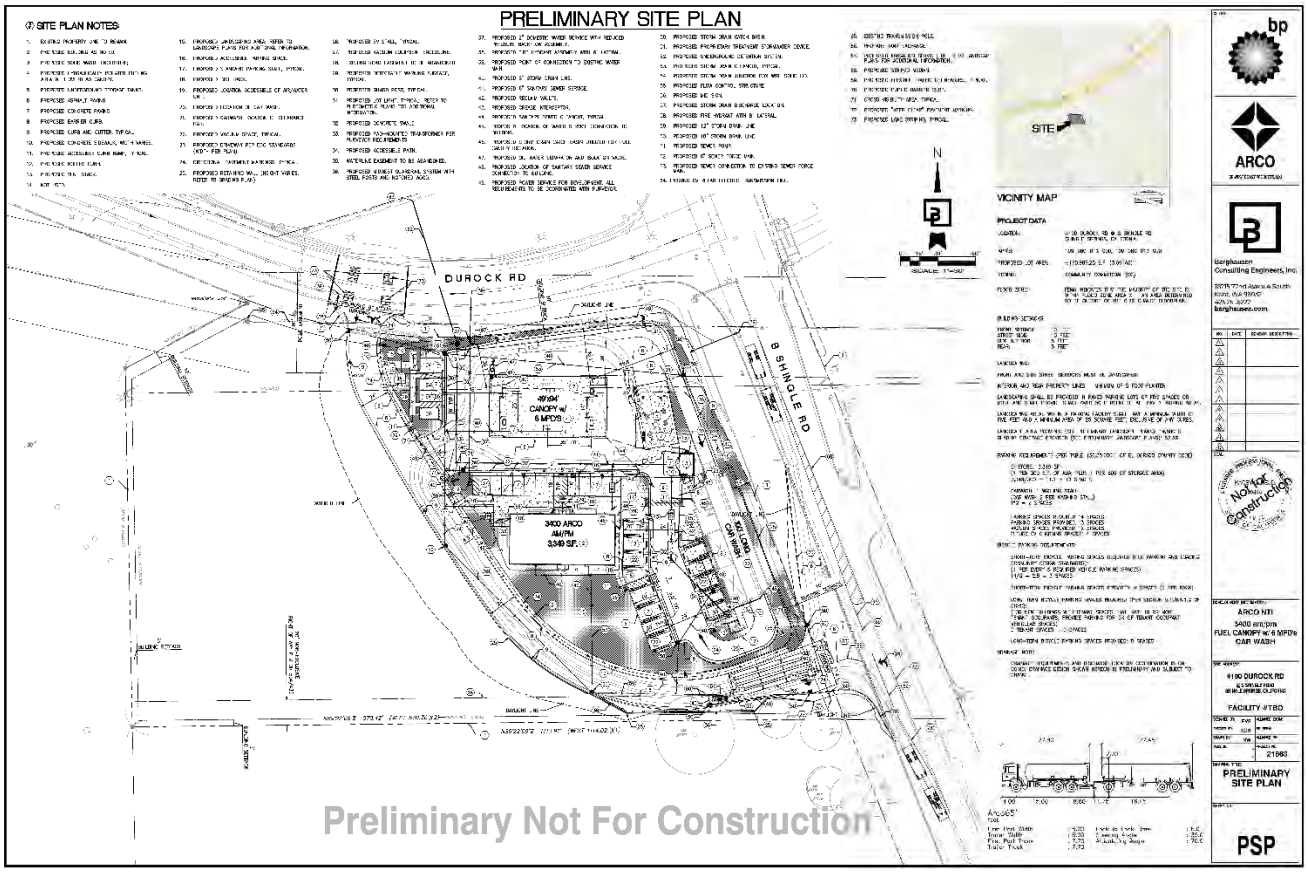


Figure 1 Project Site Plan

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is a substantial argument that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of Mitigation Measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the Mitigation Measures, and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8. The explanation of each issue should identify:

   a. the significance criteria or threshold, if any, used to evaluate each question; and
   b. the mitigation measure identified, if any, to reduce the impact to less than significant.

ENVIRONMENTAL IMPACTS

1. AESTHETICS. *Except as provided in Public Resources Code Section 21099, would the project:*	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?				X
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			**X**	
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			**X**	

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

No federal regulations are applicable to aesthetics in relation to the proposed project.

State Laws, Regulations, and Policies

In 1963, the California State Legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California (Caltrans, 2015). The state highway system includes designated scenic highways and those that are eligible for designation as scenic highways. There are no officially designated scenic highways in the vicinity of the project site. No scenic highway segments can be seen from the project site, and the project site cannot be seen from any scenic highway segments.

Local Laws, Regulations, and Policies

The County has several standards and ordinances that address issues relating to visual resources. Many of these can be found in the County Zoning Ordinance (Title 130 of the County Code). The Zoning Ordinance consists of descriptions of the zoning districts, including identification of uses allowed by right or requiring a Conditional Use Permit and specific development standards that apply in particular districts based on parcel size and land use density. These development standards often involve limits on the allowable size of structures, required setbacks, and design guidelines. Included are requirements for setbacks and allowable exceptions, the location of public utility distribution and transmission lines, architectural supervision of structures facing a state highway, height limitations on structures and fences, outdoor lighting, and wireless communication facilities.

Article 3 of the Zoning Ordinance contains general requirements for various types of development in the county, including standards regulating parking, landscaping, lighting, and other design elements. Chapter 130.34 of the Zoning Ordinance establishes outdoor lighting standards and requires that all outdoor lighting shall be located, adequately shielded, and directed such that no direct light falls outside the property line, or into the public right-of-way. It also states that outdoor lighting criteria for lighting practices and systems are contained in the adopted Outdoor Lighting Standards (Resolution 199-2015).

Development projects in the County subject to discretionary review, such as the proposed project, are typically subject to design review to ensure the development is consistent with applicable regulations and design standards and is compatible with surrounding development. The aspects of design considered in the design review process include architectural design, site design, adequacy of streets and accessways for all modes of travel, energy consumption, protection of environmentally sensitive features, safety, noise, and other relevant considerations.

Visual resources are classified as 1) scenic resources or 2) scenic views or vistas. Scenic resources include specific features of a viewing area (or viewshed) such as trees, rock outcroppings, and historic buildings. They are specific features that act as the focal point of a viewshed and are usually foreground elements. Scenic views or vistas are elements of the broader viewshed such as mountain ranges, valleys, and ridgelines. They are usually middle ground or background elements of a viewshed that can be seen from a range of viewpoints, often along a roadway or other corridor.

A list of the county's scenic views/vistas and resources is presented in Table 5.3-1 of the El Dorado County General Plan EIR (p. 5.3-3). This list includes areas along highways where viewers can see large water bodies (e.g., Lake Tahoe and Folsom Reservoir), river canyons, rolling hills, forests, or historic structures or districts that are reminiscent of El Dorado County's heritage. There are no designated scenic views/vistas or resources visible from the project site, and the project site cannot be seen from any locations designated as scenic views/vistas or resources.

The existing condition of the project site consists of a disturbed and partially graded area in the northeast corner of the project site and grassland and Foothill Pine Woodland in the rest of the site. The dirt and gravel area is informally used for truck and vehicle parking. The project site is in an urbanized area with multiple commercial uses in the immediate vicinity, including an existing gas station with convenience market immediately across South Shingle Road from the project site and another approximately 600 feet to the northeast on the north side of Mother Lode Drive.

Discussion:

a. **Scenic Vistas:** The site is not located within a scenic vista, as designated by the county General Plan EIR (El Dorado County, 2003, p. 5.3-3 through 5.3-5). The project does not obstruct a view

of a scenic vista and cannot be seen from a scenic vista. There would be **no impact** from project implementation.

b. **Scenic Resources:** The project site is not visible from an officially designated State Scenic Highway or county-designated scenic highway (Caltrans, 2024), and no scenic highway segments can be seen from the project site. There are no notable trees, rock outcropping, historic buildings, historic structures, or similar features on, or in the vicinity of the project site. There would be **no impact** from project implementation.

c. **Visual Character:** The project is in an urbanized area and proposes development of a fuel station, convenience market, and car wash, all of which are standard uses in the Community Commercial zone. The proposed development would be visible from Durock Road and South Shingle Road. The site is surrounded by other similarly zoned and developed properties, including an existing fuel station and convenience store across South Shingle Road. The proposed project would not conflict with applicable zoning and other regulations governing scenic quality. Impacts would be **less than significant**.

d. **Light and Glare:** The proposed project would be required to comply with the County lighting ordinance, including the shielding of lights to avoid potential glare during normal operation. Section 130.34.020 of the El Dorado County Zoning Ordinance includes a standard that ensures all outdoor lighting will not fall outside the property line or into the public right-of-way. In addition, light that is generated by the proposed project would be consistent with existing light levels in the project area resulting from similar nearby commercial development. While the proposed project would result in a new source of light and glare, it would not be a substantial addition. Impacts would be **less than significant**.

2. AGRICULTURE AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Locally Important Farmland (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?				**X**
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				**X**
d. Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				**X**

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

No federal regulations are applicable to agricultural and forestry resources in relation to the proposed project.

State Laws, Regulations, and Policies

Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP), administered by the California Department of Conservation (CDC), produces maps and statistical data for use in analyzing impacts on California's agricultural resources (CDC 2008). FMMP rates and classifies agricultural land according to soil quality,

irrigation status, and other criteria. Important Farmland categories are Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. The project parcel and surrounding area is designated as Urban and Built-Up Land in the FMMP map (CDC 2024). No land on the project parcel or vicinity is designated as any of the categories of Important Farmland.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) allows local governments to enter into contracts with private landowners for the purpose of preventing conversion of agricultural land to non-agricultural uses (CDC 2024). In exchange for restricting their property to agricultural or related open space use, landowners who enroll in Williamson Act contracts receive property tax assessments that are substantially lower than the market rate. There are no Williamson Act contracts on the project parcel or surrounding parcels.

Discussion:

a. **Farmland Mapping and Monitoring Program:** The project parcel and surrounding area is designated as Urban and Built-Up Land in the FMMP map. No land on the project parcel or vicinity is designated as any of the categories of Important Farmland. Therefore, there would be **no impact**.

b. **Agricultural Uses:** The project parcel is zoned for commercial uses and the site is not located within a Williamson Act Contract. Project implementation would not result in a conflict with zoning or a Williamson Act contract. There would be **no impact**.

c-d. **Loss of Forest land or Conversion of Forest land:** The site is not designated as Timberland Preserve Zone (TPZ) according to the General Plan and Zoning Ordinance nor is there any forestland onsite. Although there are trees on site, the foothill pines and live oak that are present do not provide a commercial use other than firewood. Three (3) oak trees are proposed for removal as part of the project, which does not result in the loss of forest land or timberland. There would be **no impact**.

e. **Conversion of Farmland or Forest Land:** There is no nearby agriculture or forest land that could be influenced by activities on the project site. The project does not change conditions outside the project site that would affect agricultural operations or activities on forest lands. There is no mechanism for the project to indirectly result in the conversion of agriculture land or forest land to another use. Therefore, there would be **no impact**.

3. AIR QUALITY. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?			**X**	
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-			**X**	

attainment under an applicable federal or state ambient air quality standard?				
c. Expose sensitive receptors to substantial pollutant concentrations?			X	
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

The federal Clean Air Act (CAA) is implemented by the U.S. Environmental Protection Agency (EPA) and sets ambient air limits, the National Ambient Air Quality Standards (NAAQS), for six criteria pollutants: particulate matter of aerodynamic radius of ten-micrometers or less (PM10), particulate matter of aerodynamic radius of 2.5-micrometers or less (PM2.5), carbon monoxide (CO), nitrogen dioxide (NO2), ground-level ozone (O3), sulfur dioxide (SO2), and lead.

The CAA requires the EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The act also mandates that the State submit and implement a State Implementation Plan for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met. El Dorado County is in non-attainment with NAAQS for ozone and PM2.5.

State Laws, Regulations, and Policies

The California Clean Air Act (CCAA) was adopted by the California Air Resources Board (CARB) in 1988. The CARB sets standards for criteria pollutants in California, California Ambient Air Quality Standards (CAAQS), which are generally more stringent than the NAAQS and include the following additional contaminants: visibility-reducing particles, hydrogen sulfide, sulfates, and vinyl chloride. El Dorado County is in non-attainment with CAAQS for ozone and PM10. The proposed project is located within the Mountain Counties Air Basin (MCAB), which comprises seven air districts: the Northern Sierra Air Quality Management District (AQMD), a portion of the Placer County Air Pollution Control District (APCD), Amador County APCD, Calaveras County APCD, the Tuolumne County APCD, the Mariposa County APCD, and a portion of the El Dorado County AQMD, which consists of the western portion of El Dorado County. The El Dorado County Air Quality Management District (EDCAQMD) manages air quality for attainment and permitting purposes within the west slope portion of El Dorado County.

EPA and CARB regulate various stationary sources, area sources, and mobile sources. EPA has regulations involving performance standards for specific sources that may release toxic air contaminants (TACs), known as hazardous air pollutants (HAPs) at the federal level. In addition, EPA has regulations involving emission criteria for off-road sources such as emergency generators, construction equipment, and vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications.

California Air Resources Board and local air districts are responsible for overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, and reviewing air quality-related sections of environmental documents required to comply with CEQA. EDCAQMD regulates air quality through the federal and state Clean Air Acts, district rules, and its permit authority.

Regional Regulations and Policies

El Dorado County Air Quality Management District

The clean air strategy of EDCAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the Clean Air Act and California Clean Air Act.

The Sacramento region is classified as a severe nonattainment area for the 2008 NAAQS. EDCAQMD along with the other air districts which comprise the Sacramento Federal Ozone Nonattainment Area (SFONA), developed the Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan (Ozone Attainment Plan) to demonstrate attainment of the 2008 8-hour NAAQS by an attainment year of 2024 (EDCAQMD et al. 2017). This plan was approved by EDCAQMD and the other air districts that comprise the SFONA on August 24, 2017. The Ozone Attainment Plan was adopted by CARB on November 16, 2017, which was then forwarded to EPA.

Air districts within the Sacramento Federal Nonattainment Area for PM2.5 (SFNA-PM2.5) prepared the PM2.5 Implementation/Maintenance Plan and Redesignation Request for Sacramento PM2.5 Nonattainment Area (PM2.5 Maintenance Plan) to address how the region attained and would continue to attain the 24-hour PM2.5 standard (EDCAQMD et al. 2013). Further, on May 10, 2017, EPA found that the SFNA-PM2.5 attained the 2006 24-hour PM2.5 NAAQS by the attainment date of December 31, 2015. The PM2.5 Maintenance Plan will be updated and submitted in the future based on the clean data finding made by the EPA.

EDCAQMD has adopted rules and regulations as a means of implementing the air quality plans for El Dorado County and has also prepared the Guide to Air Quality Assessment, which provides quantitative emission thresholds and established protocols for the analysis of air quality impacts from project and plans. The Guide to Air Quality Assessment outlines quantitative and qualitative significance criteria, methodologies for the estimation of construction and operational emissions and mitigation measures to reduce significant impacts (EDCAQMD 2002).

EDCAQMD rules applicable to the project include the following:

- Rule 205 – Nuisance. This rule prohibits the discharge from any source such as quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property.

- Rule 215 – Architectural Coatings. This rule requires manufacturers, distributors, and users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of use of these coatings by placing limits on the VOC content of various coating categories.

- Rule 223 – Fugitive Dust. This rule governs the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. It applies to any construction or construction related activities including but not limited to, land clearing, grubbing, scraping, travel on site, and travel on access roads.

- Rule 223-1 – Fugitive Dust – Construction. This rule requires a Fugitive Dust Control Plan be submitted to the Air Pollution Control Officer prior to the start of any construction activity for which a grading permit was issued by El Dorado County.

- Rule 223-2 – Fugitive Dust – Asbestos Hazard Mitigation. This rule reduces the amount of asbestos particulate matter that may be released as a result from construction related activities through the use of required actions or mitigation.

- Rule 224 – Cutback and Emulsified Asphalt Paving Materials. This rule governs the use of asphalt and limits the VOC content in asphalt.

Naturally occurring asbestos (NOA) is also a concern in El Dorado County because it is known to be present in certain soils and can pose a health risk if released into the air. EDCAQMD has adopted an El Dorado County Naturally Occurring Asbestos Review Area Map that identifies those areas more likely to contain NOA (El Dorado County 2018). Parcels identified as Asbestos Review Parcels and that require a grading permit must prepare and implement an Asbestos Dust Mitigation Plan. The parcel containing the proposed project site is identified as an Asbestos Review Parcel. The parcel also contains lands designated as "Quarter Mile Buffer for More Likely to Contain Asbestos or Fault Line." While this information does not prove that NOA is present or absent at the project site, it indicates a potential for NOA to be present.

Discussion:

a. **Air Quality Plan:** The Mountain Counties Air Basin (MCAB) is currently non-attainment for the O3 CAAQS and NAAQS, as well as the California Ambient Air Quality Standards (CAAQS) for PM10 and the PM2.5 NAAQS. While an air quality plan exists for O3, none currently exists for PM10, and the PM2.5 Maintenance Plan is in the process of being resubmitted based on attaining the NAAQS. The Ozone Attainment Plan was developed for application within the Sacramento region, including the MCAB portion of El Dorado County (EDCAQMD et al. 2017). If a project can demonstrate consistency with the Ozone Attainment Plan for ROG and NOx emissions, it would be determined that it would not have a significant cumulative impact with respect to O3.

   Projects within the MCAB portion of the County must demonstrate Ozone Attainment Plan consistency with the following four indicators:

   1. The project does not require a change in the existing land use designation (e.g., a general plan amendment or rezone), or projected emissions of ROG and NOx from a project are equal to or less than the emissions anticipated for the site if development under the existing land use designation;
   2. The project does not exceed the "project alone" significance criteria;

3. The lead agency for the project requires the project to implement any applicable emission reduction measures contained in and/or derived from the Ozone Attainment Plan; and
4. The project complies with all applicable district rules and regulations.

The first way to assess project compliance with the Ozone Attainment Plan is to ensure that the population density and land use are consistent with the growth assumptions used in the plans for the MCAB. The project would not require a change in land use designation, and the proposed use is consistent with the County Zoning Ordinance. Therefore, the proposed project would be consistent with the regional growth forecasts and would not conflict with or exceed the assumptions of the Ozone Attainment Plan.

The second criterion assesses a project's contribution to existing air quality violations. According to the Air Quality & Greenhouse Gas Technical Report conducted by SWCA Environmental Consultants (SWCA 2023), it was determined that the project would not contribute to an air quality violation because construction and operational emissions would not exceed the EDCAQMD thresholds of significance for ROG or NOx emissions (and thus exhaust CO, SO2, PM10, and PM2.5 would also be less than significant). As such, the project would not exceed the "project alone" significance criteria established by the EDCAQMD.

The third criterion is compliance with control measures in the Ozone Attainment Plan. Most of the control strategies in the Ozone Attainment Plan include measures in the categories of transportation and stationary sources. The non-regulatory control measures include; on-road and off-road mobile incentive programs, and an emerging/voluntary urban forest development program. These are followed by the regulatory control measures, which include: indirect source rules and a variety of stationary and area-wide source control measures. CARB's strategy for reducing mobile source emissions includes the following: new engine standards, reducing emissions from in-use fleet, requiring the use of cleaner fuels, supporting the use of alternative fuels, and pursuing long-term advanced technology measures. As these measures are primarily implemented at the state and regional level, rather than for an individual project, the proposed project would not conflict with any of these control measures.

The final criterion is compliance with the EDCAQMD rules and regulations. The EDCAQMD has adopted rules designed specifically to address a variety of air quality impacts through measures that construction and operational related air quality emissions. The project would be required by law to comply with all applicable rules and regulations. Any activities associated with future plans for grading and construction would require a Fugitive Dust Mitigation Plan (FDMP) for grading and construction activities. Such a plan would address grading measures and operation of equipment to minimize and reduce the level of defined particulate matter exposure and/or emissions to a less than significant level. This plan is a requirement of all developments. For this project site, an Asbestos Dust Mitigation Plan will also be required to minimize the potential mobilization of dust that could contain NOA.

In summary, the project would not conflict with the growth assumptions for the region, does not exceed the EDCAQMD significance thresholds after mitigation, would be consistent with all control measures of the Ozone Attainment Plan, and would comply with applicable EDCAQMD rules. Therefore, this impact would be **less than significant**.

b. **Air Quality Standards and Cumulative Impacts:** An Air Quality & Greenhouse Gas Technical Report was conducted by SWCA Environmental Consultants in June 2023. According to the analysis within the Air Quality and Greenhouse Gas Technical Report (SWCA 2023), while project implementation would generate emissions of criteria air pollutants during construction and

operation, the estimated project emissions would not exceed EDCAQMD significance thresholds for both construction and operations. The EDCAQMD significance thresholds for ROG and NOx are 82 pounds per day. The unmitigated construction emissions for ROG and NOx are respectively 64.7 and 24 pounds per day. The unmitigated operational emissions for ROG and NOx are respectively 24.8 and 11.1 pounds per day. Existing regulations implemented at issuance of building and grading permits would ensure that any construction-related fugitive dust emissions would be reduced to acceptable levels. Because the project complies with and is consistent with the EDCAQMD air quality plan and other applicable plans, rules and regulations and does not require a general plan amendment or rezone, it would not result in a cumulatively considerable net increase of any criterial pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. Therefore, this impact would be **less than significant**.

c. **Sensitive Receptors:** Sensitive receptors are children, elderly, people with asthma, and others who are especially sensitive to the effects of air pollutants. Hospitals, schools, and day care centers are examples of sensitive receptor locations. The proposed gas station and car wash use is on a commercially zoned site that is bordered by other commercial uses or public roadways. This impact would be less than significant. A Health Risk Assessment Screening was completed for the project using the CARB 'Gas Station Risk Assessment Screening Tools' (CARB 2022b). The project is below the significant Toxic Air Contaminants (TACs) thresholds from the EDCAQMD's CEQA Guide. The risk assessment estimated a lifetime probability of contracting cancer for the project is 5.73 chances in one million for nearby residences and 1.78 chances in one million for nearby workers which is less than the EDCAQMD's ten chances in one million threshold for project with T-BACT applied. The project's ground-level concentration of non-carcinogenic toxic air contaminants was concluded to result in a chronic hazard index of 0.08 and an acute hazard index of 0.36 which is less than the EDCAQMD Hazard Index of 1. Thus, the project would not expose sensitive receptors to substantial pollutant concentrations. This impact would be **less than significant**.

d. **Objectionable Odors:** Table 3-1 of the Guide to Air Quality Assessment (EDCAQMD, 2002) does not list the proposed use of the parcel for a gas station or car wash as a use known to create objectionable odors. The existing gas station on the opposite side of South Shingle Road from the subject parcel is not known as a source of objectionable odors. In addition, there is an automatic car wash at 4045 Mother Lode Drive, approximately 750 feet from the subject parcel, that is also not known as a source of objectionable odors. The request to construct and operate a gas station and car wash would not be a source of objectionable odors. This impact would be **less than significant**.

4. BIOLOGICAL RESOURCES. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		**X**		
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		**X**		
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				**X**
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			**X**	
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

Endangered Species Act

The Endangered Species Act (ESA) (16 U.S. Code [USC] Section 1531 *et seq*.; 50 Code of Federal Regulations [CFR] Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a substantial portion of their range, as well as protection of the habitats on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. In general, USFWS manages terrestrial and freshwater species, whereas NMFS manages marine and anadromous species.

The ESA defines the term "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC Section 1532). No plant or animal species protected by the ESA have been observed on the project parcel. No threatened or endangered wildlife species are expected to occur on the project site. However, three endangered plant species; Stebbins' morning glory (*Calystegia stebbinsii*), Pine Hill ceanothus (*Ceanothus roderickii*), El Dorado bedstraw (*Galium californicum* ssp. s*ierrae*); and one threatened plant species, Layne's ragwort (*Packera seneciao layneae*); have been observed in similar habitat within 1-mile of the project parcel and have some potential to occur.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC, Chapter 7, Subchapter II) protects migratory birds. Most actions that result in take, or the permanent or temporary possession of, a migratory bird constitute violations of the MBTA. The MBTA also prohibits destruction of occupied nests. USFWS is responsible for overseeing compliance with the MBTA. Vegetation communities on the project site could be used for nesting by various common migratory bird species.

Clean Water Act

Clean Water Act (CWA) Section 404 regulates the discharge of dredged and fill materials into waters of the U.S., which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the aforementioned waters (33 CFR Section 328.3). Areas meeting the regulatory definition of waters of the U.S. are subject to the jurisdiction of U.S. Army Corps of Engineers (USACE) under the provisions of CWA Section 404. Section 401 of the CWA requires an evaluation of water quality when a proposed activity requiring a federal license or permit could result in a discharge to waters of the U.S. In California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) issue water quality certifications. There are no habitats or vegetation communities on the project site that fall within the jurisdiction of the CWA.

State Laws, Regulations, and Policies

California Fish and Game Code

The California Fish and Game Code includes various statutes that protect biological resources, including the Native Plant Protection Act of 1977 (NPPA) and the California Endangered Species Act (CESA). The NPPA (California Fish and Game Code Section 1900-1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized in limited circumstances.

CESA (California Fish and Game Code Section 2050–2098) prohibits state agencies from approving a project that would jeopardize the continued existence of a species listed under CESA as endangered or

threatened. Section 2080 of the California Fish and Game Code prohibits the take of any species that is state listed as endangered or threatened, or designated as a candidate for such listing. California Department of Fish and Wildlife (CDFW) may issue an incidental take permit authorizing the take of listed and candidate species if that take is incidental to an otherwise lawful activity, subject to specified conditions. No plant or animal species listed as threatened or endangered under CESA, or designated as candidates for listing, have been observed on the project parcel. No threatened or endangered wildlife species are expected to occur on the project site. However, eight plant species that receive protection under the NPPA or elements of the Fish and Game Code addressing rare plant species; Stebbins' morning glory (*Calystegia stebbinsii*), chaparral sedge (*Carex xerophila*), Pine Hill ceanothus (*Ceanothus roderickii*), Red Hills soaproot (*Chlorogalum grandiflorum*), Bisbee Peak rush-rose (*Crocanthemum suffretescens*), El Dorado bedstraw (*Galium californicum* ssp. s*ierrae*); Layne's ragwort (*Packera layneae*), and El Dorado County mule ears (*Wyethia reticulata*) have been observed in similar habitat within 1-mile of the project parcel and have some potential to occur.

Similar to the MBTA, California Fish and Game Code Section 3503, 3513, and 3800 protect native and migratory birds, including their active or inactive nests and eggs, from all forms of take. As stated above, vegetation communities on the project site could be used for nesting by various common migratory bird species. In addition, Section 3511, 4700, 5050, and 5515 identify species that are fully protected from all forms of take. However, no designated fully protected species have the potential to occur on the project site.

Streambed Alteration Agreement

Sections 1601 to 1606 of the California Fish and Game Code require that a Streambed Alteration Application be submitted to CDFW for any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake. There are no habitats on the project site that fall within the jurisdiction of Sections 1601 or 1606.

California Native Plant Protection Act

The NPPA (California Fish and Game Code Section 1900–1913) prohibits the taking, possessing, or sale of any plants with a state designation of rare, threatened, or endangered (as defined by CDFW). The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS 2001). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. Plant species with the potential to occur on the project site that have a CNPS rareness designation or that may be protected under the NPPA are listed above in the description of the California Fish and Game Code.

Local Laws, Regulations, and Policies

The El Dorado County General Plan includes policies that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that address potential impacts on special-status plant species or create opportunities for habitat improvement. The General Plan also designates Important Biological Corridors (IBCs) and Priority Conservation Areas (PCAs). The Draft EIR for the General Plan also identifies locations of special-status species occurrences, sensitive habitats, and other important biological resources (e.g., Exhibits 5.12-4, 5.12-6, and 5.12-7) (El Dorado County, 2003). The project site does not occur within an IBC or PCA and the General Plan does not identify any known sensitive biological resources on the subject parcel. However, the subject parcel does occur within an area designated as the

Mitigation Area 1 under the County's Rare Plant Mitigation Fee program. The project site contains gabbroic soils that may be suitable for rare plants endemic to the region.

Discussion:

a. **Special Status Species:** The site is located within the County's Rare Plant Mitigation Area One (1) and has gabbroic soils that may be suitable for special-status plant species endemic to the region. A biological resources report was prepared in July of 2022 by SWCA Environmental Consultants, and a supplemental biological survey report was provided in August of 2025, which incorporated an off-site survey in October 2024, for the 0.87-acre off-site area directly adjacent and south of the 3.7-acre project site (provided as Attachment E). **Fauna (animal life)**: The Biological Resources Report states that no wildlife species listed under either the ESA or CESA were found on the project site, and none have potential to occur. There is potential nesting habitat for birds listed under the Migratory Bird Treaty Act and regulated by the California Fish and Game Code. Depending on the species, birds may nest on trees, shrubs, or on the ground, and on artificial structures such as poles and signs. No special-status species were observed during the supplemental biological survey. **Significance Before Mitigation**: Impacts would be **potentially significant**. The biological resources reports suggest the inclusion of pre-construction surveys for nesting birds prior to the start of ground disturbing development activities. A mitigation measure to address nesting birds has been incorporated into the project as **MM BIO-1**. **Flora (plant life)**: Background research of the project site resulted in 21 special-status plants that occur within the nine (9) quads surrounding the project site, 13 of which are unlikely to occur on the project site. Based on habitat suitability, proximity of recent occurrences, and species' geographic ranges, eight (8) of these species have the potential to occur on the project site: chaparral sedge, Stebbins' morning glory, Pine Hill ceanothus, Red Hills soaproot, Bisbee Peak rush-rose, El Dorado bedstraw, Layne's ragwort, and El Dorado County mule ears. No special status species were observed during the supplemental off-site survey conducted in October 2024. The supplemental survey assessed the off-site 0.87-acre area directly south of the project site and was conducted at a time of year where special-status plants may not have been evident and identifiable. **Significance Before Mitigation**: Impacts would be **potentially significant**. The biological resources reports suggests the inclusion of a protocol-level survey for the eight sensitive species that are likely to occur on the project parcel. This measure has been incorporated into the project mitigation measures as **MM BIO-2**.

MM BIO-1 Nesting Bird and Raptor Protection

The following shall be incorporated on any grading, improvement, or building permit plans. Future development at the Project site shall implement the following measures to protect nesting birds and raptors:

- To minimize impacts to special-status bird species, raptors, and other native birds, potential future development activities (e.g., tree removal, vegetation clearing, ground disturbance, staging, construction of off-site improvements) shall be conducted during the nonbreeding season (approximately September 1 through January 31, as determined by a qualified biologist), when feasible. If project activities are conducted during the nonbreeding season, no further mitigation is required prior to the proposed activity.
- If development activities must commence during the avian nesting season (between February 1 and August 31), within 7 days prior to commencement of work a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for special-status birds, nesting raptors, and other native birds.

Surveys shall be conducted in publicly accessible areas within 0.5 miles of the development activity area for golden eagle, 0.25 miles of the development activity area for white-tailed kite, 500 feet of the development activity area for other raptor species and special-status birds, and 50 feet of the development activity area for non-raptor common native bird nests.

- If no active bird nests are found, the qualified biologist shall submit a report documenting the survey methods and results to the applicant and El Dorado County, and work may proceed. If at any time during the nesting season there is a lapse of two weeks or more with no work, a new survey for nesting birds shall be completed before work proceeds.
- If an active bird nest is found, a no-disturbance buffer shall be established around the nest site until the breeding season has ended or a qualified biologist has determined that the young have fledged or the nest is no longer active.
- The size of the no-disturbance buffer shall be determined by the biologist, based on the sensitivity of the bird species, nesting chronology of the species, disturbance characteristics (type, extent, visibility, duration, and timing), existing ambient conditions, and other factors (e.g., screening from existing structures, vegetation, or topography), as determined by the biologist. Buffers typically shall be 0.5 miles for golden eagle, 0.25 miles for white-tailed kite, 500 feet for other raptors, 100 feet for non-raptor special-status bird species, and at least 20 feet for common non-raptor bird species. The size of the buffer may be adjusted if a qualified biologist determines that such an adjustment shall be unlikely to adversely affect the nest. Any buffer reduction for a special-status bird species shall require coordination with CDFW.
- Daily monitoring of the nest by a qualified biologist during activities shall be required if the activity has potential to adversely affect the nest as determined by the qualified biologist, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project activities, as determined by the qualified biologist.
- Documentation of compliance with this mitigation measure and any required coordination with CDFW shall be provided to El Dorado County before commencement of any project construction activities.

Monitoring Requirement: Planning Services shall verify completion of the requirement prior to issuance of grading and building permit, whichever comes earlier, and during grading and construction in coordination with the applicant and applicant's designees.

Monitoring Responsibility: El Dorado County Planning and Building Department, Planning Services.

Significance After Mitigation: With implementation of **MM BIO-1**, the potential loss of individuals or eggs of special-status birds and other bird species protected under the MBTA and Fish and Game Code as a result of potential future development at the Project site would be avoided. This would reduce potential impacts to a **less-than-significant** level.

MM BIO-2 Special-Status Plant Protection

The following shall be incorporated on any grading, improvement, or building permit plans. Prior to future development at the Project site, the following measures shall be implemented to protect special-status plants:

- Prior to any vegetation clearing, ground disturbing, or construction activities within the Project site, a qualified botanist shall implement protocol-level botanical surveys during the blooming period for the special-status plants with potential to occur in the Project site. The survey shall be conducted during the blooming/identification period closest to the initiation of proposed vegetation clearing or ground disturbance.
- The surveys shall include all areas where habitat potentially suitable for special-status plant species would be removed or disturbed, plus a 25-foot buffer.
- Surveys shall follow methods from CDFW's *Protocols for Surveying and Evaluating Impacts on Special-Status Native Plant Populations and Natural Communities* (CDFW 2018 or most recent version). The qualified botanist shall (1) be knowledgeable about plant taxonomy; (2) be familiar with plants of the Project region, including special-status plants and sensitive natural communities; (3) have experience conducting floristic botanical field surveys as described in CDFW's protocol document; (4) be familiar with the California Manual of Vegetation (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/); and (5) be familiar with federal and state statutes and regulations related to plants and plant collecting.
- If no special-status plants are found, the botanist shall document the findings in a report to the applicant and El Dorado County, and no additional measures are required prior to proposed activities.
- If activities last for more than one year, the botanical surveys described above shall be repeated during the blooming period in subsequent years prior to additional vegetation clearing or ground disturbing activities.
- If special-status plants are found, the botanist shall clearly mark, map, and record their locations. A no-disturbance buffer shall be established surrounding these locations, consisting of high visibility fencing with a minimum 4-foot-tall metal fence posts (such as t-posts). Fencing shall be maintained in place throughout the entirety of all ground disturbance or vegetation removal activities to ensure that the special-status plants are protected from equipment and vehicles, construction personnel, digging, trenching, placement of fill, storage of equipment or materials, and all other activities. All personnel involved in ground disturbance or vegetation removal work shall be informed of the requirement to avoid no-disturbance areas and shall be required to sign an acknowledgement that they have received these instructions and agree to adhere to all mitigation measures.
- If special-status plant species are found that cannot be avoided, appropriate mitigation shall be implemented and shall depend on the species and its protection status.
- For unavoidable impacts to Pine Hill endemics, mitigation shall include compliance with the County's Ecological Preserve Fee Program and Zoning Ordinance Chapter 130.71. The project site is in Mitigation Area 1.
- For unavoidable impacts to special-status plants that are not listed under the federal ESA or CESA, various methods may be used to minimize or compensate for impacts on these species. Depending on the biology of the species affected and the potential for transplanting and reseeding, establishing populations through seed collection or transplantation from the site that is to be affected may be implemented. Seeding or transplanting may be used to create

new plant populations, or to enhance or expand existing populations. This work may be done in coordination with California Native Plant Society. Potential mitigation sites could include suitable locations within or outside the project site. Mitigation could include, or consist of, expanding the affected population on the project site if only a portion of the population is to be removed and suitable habitat is available or can be created to expand the extent of the affected population into a new area. Habitat and individual plants lost shall be mitigated at a minimum 1:1 ratio, considering acreage as well as function and value of the new population and habitat.

- If an affected plant species, whether a Pine Hill Endemic or not, is protected under the federal ESA or CESA, coordination/consultation with USFWS and/or CDFW will be required. A site-specific mitigation strategy to compensate for loss of occupied habitat and individuals, consistent with the requirements of the federal ESA or CESA, will need to be developed and implemented. Actions to compensate for take of the federal ESA or CESA protected species may include preserving and enhancing existing populations and creation of new populations. Elements of the mitigation approach and success criteria required by USFWS or CDFW may include, but would not be limited to:
    - Identification of appropriate mitigation ratios for enhancement, expansion, and creation of target plant populations to fully compensate for direct loss of affected plant populations as well as temporal losses of functions and values.
    - Number and/or density of target plant individuals in the mitigation area.
    - A requirement that compensatory and preserved populations shall be self-producing. Populations would be considered self-producing when plants reestablish annually for a set number of years with no human intervention, such as supplemental seeding.
    - If mitigation includes dedication of conservation easements, identifying responsible parties for long-term management, conservation easement holders, long-term management requirements, and funding sources as determined appropriate by the regulatory agency(ies).
- Documentation of the completion of the mitigation strategy and coordination/consultation process with USFWS or CDFW shall be provided to El Dorado County before commencement of any project activities that could adversely affect the protected plant species. Prior to any ground-disturbing or vegetation-removal activities, a Worker Environmental Awareness Training (WEAT) shall be prepared and administered to the construction crews. The WEAT will include the following: discussion of the state and federal Endangered Species Act, the Clean Water Act, the Project's permits and CEQA documentation, and associated mitigation measures; consequences and penalties for violation or noncompliance with these laws and regulations; identification of special-status wildlife that may be encountered on the project site; location of any avoidance, exclusion, or buffer areas; material to watch for that may indicate the presence of subsurface cultural resources; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a special-status wildlife species or potential cultural resources. A handout summarizing the WEAT information shall be provided to workers to keep on-site for future reference. Upon completion of the WEAT training, workers will sign a form stating that they attended the training, understand the information presented and will comply with the regulations discussed.

Monitoring Requirement: Planning Services shall verify completion of the requirement

prior to issuance of grading and building permit, whichever comes earlier, and during grading and construction in coordination with the applicant and applicant's designees.

Monitoring Responsibility: El Dorado County Planning and Building Department, Planning Services.

Significance After Mitigation: With implementation of **MM BIO-2**, the potential loss of special-status plant species would be avoided to the maximum extent feasible. Compensation for any impacts that cannot be avoided would be accomplished through compliance with the County's Ecological Preserve Fee Program, additional mitigation requirements identified above, and any additional USFWS and/or CDFW required mitigation, as applicable. Implementation of the above-noted approaches would result in no-net-loss of individuals or population functions and values for the affected species. This would reduce potential impacts to a **less-than-significant** level.

b. **Riparian Habitat and Other Sensitive Natural Communities:** The project site does not include any riparian habitat.

The project site is on Rescue very stony sandy loam, which is part of the Rescue soils series or more commonly known as gabbro soils. Gabbro soils are suitable habitats for several special-status plant species. None of the plants were found on-site, and the mitigation measure **MM-BIO-2** will be implemented prior to ground disturbance. In terms of oak trees, the removal of several oak trees will be discussed in section e. below. Thus, impacts will be **less than significant** with mitigation incorporated.

c. **Wetlands:** The project site does not include any jurisdictional waters or wetlands. There is **no impact**.

d. **Migration Corridors:** The project site is not within any wildlife migration corridors. The project site is not within El Dorado County Important Biological Corridor (IBC) overlay. Review of CDFW Mule Deer Migration Corridors (BIOS) also indicate that deer migration corridors do not extend to the project site (CDFW 2024). There would be no impacts. The submitted biological resource report did not identify any finds of protected or special status species or evidence of use as a movement corridor or nursery site. The subject parcel is in a developed portion of the County with roads, commercial sites, and homes on all sides. The project site does not provide a pathway to wildlife between important habitats and does not provide native wildlife nursery sites. There would be **no impact**.

e. **Local Policies:** The project site is located in Mitigation Area 1, which is the Rare Soils Overlay Area. In other words, the project site is on gabbro soils and is required to pay regulatory fees for each commercial square feet ($0.59 per sf) upon building permit issuance. The project site is not located within the IBC overlay or any other local environmental overlays with the goal of preserving and protecting sensitive natural resources within the County. A total of three (3) interior live oak tree are located within the project area and are proposed for removal. All three oak trees have a diameter at breast height (dbh) between 6" and 24". Eight (8) oak trees on or near the project site will be fenced and/or monitored construction, but there is a small chance these trees may be affected by project activities such as clearing, grading, and pruning for clearance requirements. Standard avoidance procedures are required to protect the trees during construction activities. Mitigation fees will be required for the individual oak trees that will be removed to comply with the County's Oak Resources Conservation Ordinance (Title 130, El Dorado County Municipal Ordinance Chapter 130.39) and Oak Resources Management Plan. Tree protection measures

provided in the Oak Resources Technical Report (CTLC 2025) will also need to be implemented. Impacts will be **less than significant**.

f. **Adopted Plans**: There is no adopted Habitat Conservation Plan or Natural Community Conservation Plan that encompasses this project site. The County is a member of the Pine Hill Preserve Cooperative Management Agreement, and there is a Pine Hill Preserve Management Plan that describes management of the existing Pine Hill Preserve (BLM 2008). The project site would not be a viable conservation candidate for addition to the Pine Hill Preserve given the lack of contiguity with existing preserve units (i.e., Cameron Park Preserve unit), the disturbed portions on-site, and developed sites nearby. The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. There would be **no impact**.

5. CULTURAL RESOURCES. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?			**X**	
b. Cause a substantial adverse change in the significance of archaeological resource pursuant to Section 15064.5?			**X**	
c. Disturb any human remains, including those interred outside of dedicated cemeteries?			**X**	

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

The National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level. There are no NRHP listed resources on the project site or in the vicinity.

State Laws, Regulations, and Policies

California Register of Historical Resources

Public Resources Code Section 5024.1 establishes the California Register of Historical Resources (CRHR). The register lists all California properties considered to be significant historical resources. The CRHR

includes all properties listed as or determined to be eligible for listing in the NRHP. There are no CRHR listed resources on the project site or in the project vicinity.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24-hours, the Native American Heritage Commission (NAHC).

Section 5097.98 of the California Public Resources Code stipulates that whenever the commission receives notification of a discovery of Native American human remains from a county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. The decedents may, with the permission of the owner of the land, or his or her authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for addressing, with appropriate dignity, the human remains and any associated grave goods. The descendants shall complete their inspection and make their recommendation within 24-hours of their notification by the NAHC.

CEQA and CEQA Guidelines

Section 21083.2 of CEQA requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in CEQA as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information,
- Has a special or particular quality, such as being the oldest of its type or the best available example of its type, or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Measures to avoid, conserve, preserve, or mitigate significant effects on these resources are also provided under CEQA Section 21083.2.

Section 15064.5 of the CEQA Guidelines notes that “a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” Substantial adverse changes include physical changes to the historic resource or to its immediate surroundings, such that the significance of the historic resource would be materially impaired. Lead agencies are expected to identify potentially feasible measures to mitigate significant adverse changes in the significance of a historic resource before they approve such projects. Historic resources are those that are:

- Listed in, or determined to be eligible for listing in, the CRHR (Public Resources Code Section 5024.1[k]),
- Included in a local register of historic resources (Public Resources Code Section 5020.1) or identified as significant in an historic resource survey meeting the requirements of Public Resources Code Section 5024.1(g), or
- Determined by a lead agency to be historically significant.

There are no known historic resources on the project site or in the immediate vicinity.

Discussion:

a-b. **Historical or Archeological Resources.** A Cultural Study was completed by SWCA Environmental Consultants (SWCA) in September 2024. The study documents the methods and results of a confidential records search of the California Historical Resources Information System (CHRIS), a Sacred Lands Files (SLF) search, archival research, and pedestrian survey used to assess the potential for impacts to archaeological resources. The SLF review yielded a negative result in the SLF database. The cultural study determined that there is low potential for discovery and disturbance of precontact or historical resources. The report assesses both the project site and the 0.07-acre off-site area directly south of the project site. According to the NCIC records search, the proposed project site may contain a portion of a resource. A previous evaluation found the resource was ineligible in the NRHP. SWCA concurred with the previous evaluation of ineligibility of the resource in the NRHP. Therefore, no significant cultural resources were identified, and the project would have no effect on historic properties. Impacts would be **less than significant**.

c. **Human Remains.** A Cultural Study was completed by SWCA Environmental Consultants (SWCA) in September 2024. The study documents the methods and results of a confidential records search of the California Historical Resources Information System (CHRIS), a Sacred Lands Files (SLF) search, archival research, and pedestrian survey used to assess the potential for impacts to archaeological resources. The SLF review yielded a negative result in the SLF database. There are no records or either pre-contact or historic human interment on the project site. There were no Tribal Cultural Resources (TCRs) identified as existing on the project site. In accordance with the laws of AB 52, seven Tribes: Wilton Rancheria, Ione Band of Miwok Indians, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Shingle Springs Band of Miwok Indians, T'si-Akim Maidu, United Auburn Indian Community of the Auburn Rancheria, Washoe Tribe of California and Nevada, had requested to be notified of proposed projects for consultation in the project area. Consultation notices were sent on April 5, 2023. Staff received a response from the United Auburn Indian Community of the Auburn Rancheria (UAIC) on April 10, 2023, and from the Shingle Springs Band of Miwok Indians on May 1, 2023, both of which were received within a 30-day period from the date of staff's consultation initiation. The Shingle Springs Band requested consultation, and UAIC deferred consultation to the Shingle Springs Band. Staff responded with all requested documentation. Shingle Springs Band of Miwok Indians closed consultation on October 1, 2024. In the event of human remains discovery during any construction, standard conditions of approval to address accidental discovery of human remains would apply during any grading activities. Impacts would be **less than significant**.

6. ENERGY. *Would the project:*				
	Potentially Significant Impact	Less than Significant	Less Than Significant Impact	No Impact

		with Mitigation		
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			**X**	
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			**X**	

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased CAFE standards for motor vehicles, the EISA facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances
- Requiring approximately 25% greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200% greater efficiency for light bulbs, or similar energy savings, by 2020
- While superseded by the U.S. Environmental Protection Agency (EPA) and NHTSA actions described previously, establishing miles per gallon targets for cars and light trucks and directing the NHTSA to establish a fuel economy program for medium-and heavy-duty trucks and create a separate fuel economy standard for trucks

State Laws, Regulations, and Policies

Warren-Alquist Act

The California legislature passed the Warren-Alquist Act in 1974. The Warren-Alquist Act created the California Energy Commission (CEC). The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high-demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

Senate Bills 1078, 107, X1-2, 350, 100, and 1020

Senate Bill (SB) 1078 (2002) established the California Renewable Portfolio Standards (RPS) Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. As a related measure, SB 1078 required CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.

SB 107 (2006) accelerated the RPS Program established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) required all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 set a three-stage compliance period: by December 31, 2013, 20% of electricity had to come from renewables; by December 31, 2016, 25% of electricity had to come from renewables; and by December 31, 2020, 33% was required to come from renewables.

SB 350 (2015) expanded the RPS Program by requiring retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024; 52% by December 31, 2027; and 60% by December 31, 2030, should be obtained from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity does not increase carbon emissions elsewhere in the western grid. Additionally, 100% zero-carbon electricity cannot be achieved through resource shuffling.

SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers to come from eligible renewable energy resources and zero-carbon resources: 90% by December 31, 2035; 95% by December 31, 2040; and 100% by December 31, 2045.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the RPS requirements described above. The project's reliance on non-renewable energy sources would be reduced accordingly.

Assembly Bill 32, Senate Bill 32, and Assembly Bill 1279

In 2006, the state legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In 2022, the legislature enacted AB 1279, the California Climate Crisis Act, with the goal of the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and for statewide anthropogenic GHG emissions be reduced to at least 85% below 1990 levels by 2045. In accordance with AB 32 and SB 32, and more recently, AB 1279, CARB prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focused on increasing energy efficiencies, using renewable resources, and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources.

California Building Standards

The California Building Standards Code was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure that new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every 3 years by the Building Standards Commission and the California Energy Commission (CEC) and revised if necessary (California Public Resources Code Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, to "reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code Section 25402[d]) and cost effectiveness (California Public Resources Code Section 25402[b][2–3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment. The current Title 24 standards are the 2022 Title 24 building energy efficiency standards, which became effective January 1, 2023.

In addition to CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24), which is commonly referred to as California's Green Building Standards (CALGreen), establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality.

Local and Regional Plans

El Dorado County General Plan

The following goal, objective, and policy from the Public Services and Utilities Element of the General Plan (El Dorado County 2019) would apply to the project:

- Goal 5.6 Gas, Electric, and Other Utility Services. Sufficient utility service availability consistent with the needs of a growing community.

- Objective 5.6.2 Encourage Energy Efficient Development. Encourage development of energy-efficient buildings, subdivisions, development, and landscape designs.
  - Policy 5.6.2.1. Require energy conserving landscaping plans for all projects requiring design review or other discretionary approval.

Discussion:

a-b. **Energy Resources Consumption / Consistency with State or Local Plan:**

Part 6 of Title 24 of the California Code of Regulations establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. Title 24 also includes Part 11, the California Green Building Standards Code (CALGreen). CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial and state-owned buildings. The components of the project that include new structures would meet all applicable Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and would have less-than-significant impacts related to conflicts with applicable plans. The energy use for the proposed project would be required to comply with the minimum state building standards as well as other applicable standards. Impacts would be **less than significant**.

7. GEOLOGY AND SOILS. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				**X**
ii) Strong seismic ground shaking?			**X**	

iii) Seismic-related ground failure, including liquefaction?			**X**	
iv) Landslides?			**X**	
b. Result in substantial soil erosion or the loss of topsoil?			**X**	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?				**X**
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial direct or indirect risks to life or property?				**X**
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				**X**
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				**X**

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) and creation of the National Earthquake Hazards Reduction Program (NEHRP) established a long-term earthquake risk-reduction program to better understand, predict, and mitigate risks associated with seismic events. The following four federal agencies are responsible for coordinating activities under NEHRP: USGS, National Science Foundation (NSF), Federal Emergency Management Agency (FEMA), and National Institute of Standards and Technology (NIST). Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives (NEHRP 2009) are to:

1. Develop effective measures to reduce earthquake hazards;
2. Promote the adoption of earthquake hazard reduction activities by federal, state, and local governments; national building standards and model building code organizations; engineers;

architects; building owners; and others who play a role in planning and constructing buildings, bridges, structures, and critical infrastructure or "lifelines";
3. Improve the basic understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering; natural sciences; and social, economic, and decision sciences; and
4. Develop and maintain the USGS seismic monitoring system (Advanced National Seismic System); the NSF-funded project aimed at improving materials, designs, and construction techniques (George E. Brown Jr. Network for Earthquake Engineering Simulation); and the global earthquake monitoring network (Global Seismic Network).

Implementation of NEHRP objectives is accomplished primarily through original research, publications, and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

State Laws, Regulations, and Policies

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Act (Public Resources Code [PRC] Sections 2621 through 2630) was passed in 1972 to mitigate the hazard of surface faulting to structures designed for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. A structure for human occupancy is defined as any structure used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a structure for human occupancy can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, the local agency must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (PRC Sections 2690 through 2699.6 et seq.), passed by the California State Legislature in 1990, addresses earthquake hazards from non-surface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, strong ground shaking, or other earthquake and geologic hazards. The Project site area has not been mapped as part of this legislation which focuses on higher density populated areas.

California Building Standards Code

The state regulations protecting structures from geo-seismic hazards are contained in the California Building Standards Code (24 California Code of Regulations Part 2) (the California Building Code), which is updated every 3 years. These regulations apply to public and private buildings in the state. Until January 1, 2008, the California Building Code was based on the then-current Uniform Building Code and contained additions, amendments, and repeals specific to building conditions and structural requirements of the State of California. The 2022 California Building Code, effective January 1, 2023, is based on the current (2021)

International Building Code and enhances the sections dealing with existing structures. Seismic-resistant construction design is required to meet more stringent technical standards than those set by previous versions of the California Building Code. Construction activities are also subject to Chapter 33 of the California Building Code.

California Division of Occupational Safety and Health

Construction activities are subject to occupational safety standards for excavation and trenching, as specified in California Division of Occupational Safety and Health (also known as Cal/OSHA) regulations (Title 8 of the California Code of Regulations). These regulations specify the measures to be used for excavation and trench work where workers could be exposed to unstable soil conditions. The proposed project would be required to employ these safety measures during excavation and trenching.

State Earthquake Protection Law

The State Earthquake Protection Law (Health and Safety Code Section 19100 et seq.) requires that structures be designed and constructed to resist stresses produced by lateral forces caused by wind and earthquakes, as provided in the California Building Code. Chapter 16 of the California Building Code sets forth specific minimum seismic safety and structural design requirements, requires a site-specific geotechnical study to address seismic issues, and identifies seismic factors that must be considered in structural design. Because the project site is not located within an Alquist-Priolo Earthquake Fault Zone, as noted above, no special provisions would be required for the proposed project related to fault rupture.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines require that all private and public activities not specifically exempted be evaluated against the potential for environmental damage, including effects to paleontological resources. Paleontological resources, which are limited, nonrenewable resources of scientific, cultural, and educational value, are recognized as part of the environment under these state guidelines. This analysis satisfies project requirements in accordance with CEQA (13 PRC Section 21000 et seq.) and PRC Section 5097.5 (Stats 1965, c. 1136, p. 2792). This analysis also complies with guidelines and significance criteria specified by the Society of Vertebrate Paleontology (SVP) (SVP 2010).

Paleontological resources are explicitly afforded protection by CEQA, specifically in Section VII(f) of CEQA Guidelines Appendix G, the "Environmental Checklist Form," which addresses the potential for adverse impacts to "unique paleontological resource[s] or site[s] or … unique geological feature[s]." This provision covers fossils of signal importance—remains of species or genera new to science, for example, or fossils exhibiting features not previously recognized for a given animal group—as well as localities that yield fossils significant in their abundance, diversity, preservation, and so forth. Further, CEQA provides that generally, a resource shall be considered "historically significant" if it has yielded or may be likely to yield information important in prehistory (PRC Section 15064.5[a][3][D]). Paleontological resources would fall within this category. Chapter 1.7, Sections 5097.5 and 30244 of the PRC defines unauthorized removal of fossil resources as a misdemeanor and requires mitigation of disturbed sites.

Construction General Permit (SWRCB Order No. 2009-0009-DWQ, as Amended)

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted and administers the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs 1 acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires development and implementation of a stormwater pollution prevention plan (SWPPP), which would specify water quality Best Management Practices (BMPs) designed to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB.

To receive coverage under the Construction General Permit, the project proponent must submit a Notice of Intent and permit registration documents to the SWRCB and applicable RWQCB. Permit registration documents include completing a construction site risk assessment to determine appropriate coverage level; detailed site maps showing disturbance area, drainage area, and BMP types/locations; the SWPPP; and, where applicable, post-construction water balance calculations and active treatment systems design documentation.

Local Plans and Regulations

Grading, Erosion, and Sediment Control Ordinance

The County Grading, Erosion, and Sediment Control Ordinance (Grading Ordinance; Chapter 15.14 of the County Code) establishes provisions for public safety and environmental protection associated with grading activities on private property. The Grading Ordinance requires the intended land use be consistent with the El Dorado County General Plan, the adopted Stormwater Management Plan, California Fire Safe Standards, and applicable El Dorado County ordinances including the Zoning Ordinance and the California Building Code. The Grading Ordinance prohibits grading activities that would cause flooding where it would not otherwise occur or would aggravate existing flooding conditions. The Grading Ordinance also requires all drainage facilities, aside from those in subdivisions that are regulated by the County's Subdivision Ordinance, be approved by the County Transportation Division. Pursuant to the ordinance, the design of the drainage facilities in the county must comply with the County of El Dorado Drainage Manual.

El Dorado County General Plan

The El Dorado County General Plan provides Countywide policies for regulating land use, development, and conservation in the County. Policies relevant to hydrology and water quality in the El Dorado County General Plan include:

Public Health, Safety, and Noise Element

Goal 6.3: Geologic and Seismic Hazards - Minimize the threat to life and property from seismic and geologic hazards.

Objective 6.3.2: County-Wide Seismic Hazards - Continue to evaluate seismic related hazards such as liquefaction, landslides, and avalanche, particularly in the Tahoe Basin.

Policy 6.3.2.1: The County shall maintain updated geologic, seismic and avalanche hazard maps, and other hazard inventory information in cooperation with the State Office of Emergency Services, California Department of Conservation-Division of Mines and Geology, U.S. Forest Service, Caltrans, Tahoe Regional Planning Agency, and other agencies as this information is made available. This information shall be incorporated into the El Dorado County Operational Area Multi-Hazard Functional Emergency Operations Plans.

Policy 6.3.2.5: Applications for development of habitable structures shall be reviewed for potential hazards associated with steep or unstable slopes, areas susceptible to high erosion, and avalanche risk. Geotechnical studies shall be required when development may be subject to geological hazards. If hazards are identified, applicants shall be required to mitigate or avoid identified hazards as a condition of approval. If no mitigation is feasible, the project will not be approved.

Conservation Element

Goal 7.1: Soil Conservation - Conserve and protect the County's soil resources.

Objective 7.1.1: Erosion/Sedimentation - Minimize soil erosion and sedimentation.

Policy 7.1.2.1: Development or disturbance of slopes over 30% shall be restricted. Standards for implementation of this policy, including but not limited to exceptions for access, reasonable use of the parcel, and agricultural uses shall be incorporated into the Zoning Ordinance.

Policy 7.1.2.2: Discretionary and ministerial projects that require earthwork and grading, including cut and fill for roads, shall be required to minimize erosion and sedimentation, conform to natural contours, maintain natural drainage patterns, minimize impervious surfaces, and maximize the retention of natural vegetation. Specific standards for minimizing erosion and sedimentation shall be incorporated into the Zoning Ordinance.

Policy 7.1.2.3: Enforce Grading Ordinance provisions for erosion control on all development projects and adopt provisions for ongoing, applicant-funded monitoring of project grading.

Goal 7.2: Mineral Resources - Conserve of the County's significant mineral resources.

Objective 7.2.1: Identification of the County's important mineral resources.

Policy 7.2.1.1: In accordance with California Code of Regulations, Sections 3675- 3676, the County shall maintain all Mineral Land Classification reports produced by the State Department of Conservation, California Geological Survey, which pertain to El Dorado County. El Dorado County hereby recognizes, accepts, and adopts by reference those State Classification Reports as they currently exist and as may be amended, or supplemented, in the future.

Policy 7.2.1.2: Areas designated as Mineral Resource (-MR) overlay on the General Plan Land Use Map shall be identified by the Mineral Resource (-MR) combining zone district on the zoning maps when the likely extraction of the resource through surface mining methods will be compatible with adjacent land uses as determined by Policy 7.2.2.2.

Policy 7.2.1.3: The County shall utilize the most recent State Department of Conservation assessment of the location and value of non-metallic mineral materials. The County shall zone them and the surroundings to allow for mineral resource management.

Discussion:

a. Seismic Hazards:

i) According to the California Department of Conservation Division of Mines and Geology, there are no Alquist-Priolo fault zones within the west slope of El Dorado County. There would be **no impact**.

ii) As described in Section i) above, the project site is not within an active fault zone; however, earthquakes in the region have potential to cause seismic ground shaking of low severity at the project site. Potential future construction and building design would be subject to the County's Building Code (Title 110- Buildings and Construction), which incorporates the California Building Code and International Building Code standards. Potential future development at the Project site would involve limited excavation that would not alter seismic and fault conditions in the region and would not create new seismic events or exacerbate existing seismic hazards. Therefore, the project would not cause substantial adverse effects from strong seismic ground shaking. There would be **less than significant** impact.

iii, iv) El Dorado County is considered an area with low potential for seismic activity. There are no landslide, liquefaction, or fault zones (DOC, 2007). There would be **less than significant** impact.

b. **Soil Erosion:** According to the NRCS Soil Survey, soils within the project footprint consist of one soil type—Rescue very stony sandy loam. The Rescue soils occur on gently sloping to very steep uplands and are well-drained with medium to very rapid runoff and moderately slow to slow permeability (NRCS 2024). Any development activities would need to comply with the El Dorado County Grading, Erosion and Sediment Control Ordinance, including the implementation of pre- and post-construction BMPs. Implemented BMPs are required to be consistent with the County's California Stormwater Pollution Prevention Plan (SWPPP) issued by the State Water Resources Control Board to eliminate run-off and erosion and sediment controls. Any grading activities exceeding 250-cubic-yards of graded material or grading completed for the purpose of supporting a structure must meet the provisions contained in the County of El Dorado Grading, Erosion, and Sediment Control Ordinance. Any future construction would require similar review for compliance with the County SWPPP. Impacts would be less than significant. Potential degradation of water quality and soil erosion impacts: If construction will disturb one-acre or more of soil, the project proponent must obtain a General Permit for discharges of storm water associated with activity from SWRCB. As part of this permit, a SWPPP must be prepared and implemented. The SWPPP must include erosion control measures and construction waste containment measures to ensure that waters of the State are protected during and after project construction. Regardless of this project, any development would be subject to these standards and requirements. Therefore, this project would have **less than significant** impact.

c. **Geologic Hazards:** Based on California Geological Survey regulatory maps, the proposed project site is not within any landslide and liquefaction zones (CGS 2024). All grading activities would comply with the El Dorado County Grading, Erosion Control and Sediment Ordinance, which requires a soil bearing report for all commercial projects. There would be **no impact**.

d. **Expansive Soils:** Expansive soils are those that greatly increase in volume when they absorb water and shrink when they dry out. When buildings are placed on expansive soils, foundations may rise each wet season and fall each dry season. This movement may result in cracking foundations, distortion of structures, and warping of doors and windows. The western portions of the county have a low expansiveness rating (USGS 1989). There would be **no impact**.

e. **Septic Capability:** The project does not propose the use of septic tanks or alternative waste water disposal systems. There would be **no impact**.

f. **Unique Paleontological / Geologic Resource**: The project is within the Pine Hill Intrusive Complex, which is a gabbrodiorite volcanic intrusion of Mesozoic origin, which was formed approximately 175 million years ago (CA Division of Mines and Geology 1981; Wilson 2009). It is not known to have potential for unique paleontological or geologic resources (Society of Vertebrate Paleontologists 2010). There would be **no impact**.

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

Background/Science

Cumulative greenhouse gases (GHG) emissions are believed to contribute to an increased greenhouse effect and global climate change, which may result in sea level rise, changes in precipitation, habitat, temperature, wildfires, air pollution levels, and changes in the frequency and intensity of weather-related events. While criteria pollutants and toxic air contaminants are pollutants of regional and local concern (see Section III. Air Quality above); GHG are global pollutants. The primary land-use related GHG are carbon dioxide (CO_2), methane (CH_4) and nitrous oxides (N_2O). The individual pollutant's ability to retain infrared radiation represents its "global warming potential" and is expressed in terms of CO_2 equivalents; therefore, CO_2 is the benchmark having a global warming potential of one. Methane has a global warming potential of 21 and thus has a 21 times greater global warming effect per metric ton of CH_4 than CO_2. Nitrous Oxide has a global warming potential of 310. Emissions are expressed in annual metric tons of CO_2 equivalent units of measure (i.e., $MTCO_2e/yr$). The three other main GHG are Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. While these compounds have significantly higher global warming potentials

(ranging in the thousands), all three typically are not a concern in land-use development projects and are usually only used in specific industrial processes.

GHG Sources

The primary man-made source of CO_2 is the burning of fossil fuels; the two largest sources being coal burning to produce electricity and petroleum burning in combustion engines. The primary sources of man-made CH_4 are natural gas systems losses (during production, processing, storage, transmission, and distribution), enteric fermentation (digestion from livestock) and landfill off-gassing. The primary source of man-made N_2O is agricultural soil management (fertilizers), with fossil fuel combustion a very distant second. In El Dorado County, the primary source of GHG is fossil fuel combustion mainly in the transportation sector (estimated at 70% of countywide GHG emissions). A distant second are residential sources (approximately 20%), and commercial/industrial sources are third (approximately seven percent). The remaining sources are waste/landfill (approximately three percent) and agricultural (less than one percent).

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

President Joe Biden signed several federal Executive Orders (EO) related to GHG emissions and climate resiliency. EO 13990, signed in January 2021, set a national goal of achieving a 50 to 52% reduction from 2005 levels in economy-wide net GHG pollution by 2030. EO 14057, signed in December 2021, requires federal agencies to develop strategic processes for achieving, among other things, carbon-free electricity by 2030 and 100% zero-emission vehicle acquisitions by 2035. President Joe Biden also signed two bills—the Infrastructure Investment and Jobs Act (2021) and Inflation Reduction Act (2022)—that provide funding for infrastructure improvements that will reduce GHG emissions and bolster resilience to climate change. Despite these actions, there is currently no federal law or legislatively mandated national GHG reduction target.

State Laws, Regulations, and Policies

The California Global Warming Solutions Act of 2006 (also known as AB 32) commits the State to achieving the following:

- By 2010, reduce to 2000 GHG emission levels, and
- By 2020, reduce to 1990 levels.

To achieve these goals, which are consistent with the California Climate Action Team (CAT) GHG targets for 2010 and 2020, AB 32 mandates that the CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. In order to achieve the reductions, AB 32 requires CARB to adopt rules and regulations in an open, public process that achieves the maximum technologically feasible and cost-effective GHG reductions.

SB 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing

tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

Air Quality Thresholds

The EDCAQMD has not formally adopted a numerical threshold of significance for GHG emissions within the region. However, El Dorado County may apply Sacramento Metropolitan Air Quality Management District's (SMAQMD) adopted thresholds in order to determine impacts of the project.

This GHG analysis has been prepared to evaluate compliance with SMAQMD's GHG thresholds of significance (SMAQMD 2021). For construction related GHG emissions, SMAQMD has adopted a threshold of significance of 1,100 MT CO2e/yr. For evaluating operational GHG emissions, SMAQMD has prepared a two-tiered framework of analysis for new projects. All development projects are required to implement Tier 1 measures (BMP 1 and 2). In addition, if operations would exceed emissions of 1,100 MT CO2e/yr after implementation of the Tier 1 measures, then the project is required to implement Tier 2 measures (BMP 3). The Tier 1 and Tier 2 measures are presented below.

SMAQMD has further included requirements to implement BMPs, as presented below, to reduce operational GHG emissions associated with new development. The SMAQMD BMPs are consistent with the statewide CARB GHG reduction targets by focusing on reducing GHG emissions related to natural gas and vehicle trips, which are widespread sources of GHG emissions. Therefore, while other approaches may be used in other areas of the state to reduce GHG emissions, for the reasons stated above, use of the SMAQMD GHG thresholds for the proposed project is appropriate. The SMAQMD BMPs are also consistent with guidance from other agencies, including the Governor's Office of Land Use and Climate Innovation (formerly the Office of Planning and Research [OPR]).

Tier 1

The SMAQMD adopted the following Tier 1 BMPs in which projects would be required to comply with, including the proposed project. The proposed Tier 1 BMPs are as follows:

- BMP 1: No natural gas: Projects shall be designed and constructed without natural gas infrastructure.
- BMP 2: Electric vehicle (EV) ready: Projects shall meet the current California Green Building Code (CalGreen) Tier 2 standards for EV charging parking spaces, except all EV Capable spaces shall instead be EV Ready.

If a project would not comply with both BMPs, the project would be required to include features that would achieve an equivalent level of GHG emissions reductions. For instance, a project that includes natural gas infrastructure may include prewiring to allow for the future retrofit of all natural gas appliances with all-electric appliances. Furthermore, projects that are below OPR's de minimis vehicle miles traveled (VMT) criteria, and/or projects that emit less than 1,100 MT CO2e/yr prior to implementation of BMP 1 and BMP 2, would be considered sufficiently small to screen out of further requirements and would be assumed to result in a less-than-significant impact related to GHG emissions and climate change. Projects that are not small enough to screen out of further review are subject to review under Tier 2 of SMAQMD's updated Thresholds.

Tier 2

The second tier of SMAQMD's updated thresholds includes the following BMP:

- BMP 3: Residential projects shall achieve a 15% reduction in VMT per resident, and office projects should achieve a 15% reduction in VMT per worker compared to existing average VMT per capita for the county, or for the city if a more local Senate Bill (SB) 743 target has been established. Retail projects should achieve no net increase in total VMT, as required to show consistency with SB 743. These reductions can be achieved by many strategies, such as:
    - Locate in an area that already has low VMT due to location, transit service, etc.;
    - Adopt California Air Pollution Control Officers Association (CAPCOA) measures;
    - Adopt measures noted in Sacramento's Climate Action Plan (CAP) checklist;
    - Join a Transportation Management Association;
    - Incorporate traffic calming measures;
    - Incorporate pedestrian facilities and connections to public transportation; and/or
    - Promote electric bicycle or other micro-mobility options.

If a project cannot incorporate the BMPs listed above, other reductions or purchasing and retiring of GHG/carbon offsets can be used as an alternative method of compliance. Additionally, while the all electric requirement in SMAQMD's BMP 1 has not been challenged and is consistent with guidance from other agencies, the Ninth Circuit recently held that the Energy Policy and Conservation Act expressly preempted an ordinance banning natural gas piping within new buildings for appliances covered by the Act unless narrow exceptions applied. While that Ninth Circuit decision does not address mitigation measures or GHG emissions thresholds, a similar challenge could be brought forth in the future and a future court decision could find that all-electric mitigation requirements or GHG emissions thresholds are similarly preempted for covered appliances. The feasibility of BMP 1 also relies on the adequate availability of electricity at the time of development.

Discussion

a. **GHG Emissions:** According to the Air Quality and Greenhouse Gas Technical Report completed by SWCA Environmental Consultants (June 2023), the estimated total GHG emissions during project construction would be approximately 192.52 MTCO2e, which is below SMAQMD's construction significance threshold of 1,100 MTCO2e/year. The estimated annual operational GHG emissions would be 1,993.7 MTCO2e, which would exceed the 1,100 MTCO2e/year operations significance threshold. Therefore, the proposed project would have a potentially significant impact.

Because the 1,100 MTCO2e/year operational threshold is exceeded, the project would be subject to the BMPs that are described above, which include the prohibition of natural gas use on-site (BMP #1) and the construction of EV Ready parking spaces at the current CalGreen Tier 2 standards for EV Capable spaces (BMP #2). Regarding BMP #3, the traffic study conducted by Wood Rogers (Wood Rogers 2025) shows that there is no net increase in total VMT. In fact, the net change in Vehicle Miles Traveled (VMT) is reduction in total VMT (-104.2). Therefore, the proposed project would meet BMP #3.

Significance Before Mitigation: Impacts would be **potentially significant**.

MM GHG-1 Greenhouse Gas Emissions Mitigation

The following shall be incorporated on any grading, improvement, or building permit plans, subject to review and approval by the El Dorado County Planning Division:

- BMP #1: The proposed project shall be designed and constructed without natural gas infrastructure; and
- BMP #2: The project shall be constructed to include EV Ready parking spaces at the ratio with which the current CalGreen Tier 2 standards require EV Capable spaces that are in effect at the time of the initial building permit submittal.

If the prohibition of natural gas infrastructure is not enforceable or commercially feasible at the time of issuance of building permit(s), the project applicant shall require the commercial uses on-site to allow for the future retrofit of all natural gas appliances with all-electric appliances and purchase of off-site mitigation credits or forecasted mitigation units ("FMUs") (collectively, "GHG credits") for project-related GHG emissions from the component(s) using natural gas instead of electric. The emissions from the use of natural gas shall be calculated by a qualified professional using EDCAQMD, CARB, or the EPA-approved emissions models and quantification methods available and submitted to the County for review and approval, which shall include third-party review by a qualified consultant of the County's selection and be subject to applicant reimbursement of consultant costs.

Any and all GHG credits to off-set the use of natural gas must be created through a CARB-approved registry. These registries are currently the American Carbon Registry (ACR), Climate Action Reserve (CAR), and Verra, although CARB may accredit additional registries in the future. These registries use robust accounting protocols for all GHG credits created for their exchange, including the six currently approved CARB protocols. This mitigation measure specifically requires GHG credits created for the project originate from a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 CCR 95972. The selected protocol must demonstrate that the GHG emissions reductions are real, permanent, quantifiable, verifiable, enforceable, and additional. Definitions of these terms from 17 CCR 95802(a) are provided below.

1. Real: GHG reductions or enhancements result from a demonstrable action or set of actions and are quantified using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG reservoirs within the [GHG credit] project boundary and account for uncertainty and the potential for activity-shifting and market-shifting leakage.
2. Additional: GHG reductions or removals that exceed any GHG reduction, or removals otherwise required by law, regulation, or legally binding mandate, and that exceed any GHG reductions or removals that would otherwise occur in a conservative Business as Usual scenario.
3. Permanent: GHG reductions and removal enhancements are not reversible or, when GHG reductions and GHG-removal enhancements may be reversible, mechanisms are in place to replace any reversed GHG-emission reductions and GHG-removal enhancements to ensure that all credited reductions endure for at least 100 years.
4. Quantifiable: The ability to accurately measure and calculate GHG reductions or GHG-removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emission sources, GHG sinks, or GHG reservoirs included within the [GHG credit] project boundary, while accounting for uncertainty. Activity-shifting, and market-shifting leakage.
5. Verifiable: A [GHG credit] project report assertion is well-documented and transparent such that it lends itself to an objective review by an accredited verification body.
6. Enforceable: The authority for CARB to hold a particular party liable and take appropriate action if any of the provisions of this article are violated. Note that this definition of enforceability is specific to the Cap and-Trade regulation, where CARB holds enforcement

authority, but this measure shall employ GHG credits from the voluntary market, where CARB has no enforcement authority. Applying the definition to this mitigation measure means that GHG reductions must be owned by a single entity and backed by a legal instrument or contract that defines exclusive ownership.

Geographic Prioritization of GHG Credits

GHG credits from reduction projects in El Dorado County (County) shall be prioritized before projects in larger geographies (i.e., northern California, California, United States, and international). The project applicant shall inform brokers of the required geographic prioritization for the procurement of GHG credits. GHG credits from reduction projects identified in the County that are of equal or lesser cost compared to the settlement price of the latest Cap-and-Trade auction must be included in the transaction. GHG credits from reduction projects outside of the County may be purchased if adequate credits cannot be found in the County or if they exceed the maximum price identified above. The economic and geographic analysis undertaken to inform the selection of GHG credits must be provided by the project applicant to the County as part of the required documentation discussed below under Plan Implementation and Reporting.

Types of GHG Credits

GHG credits may be in the form of GHG offsets for prior reductions of GHG emissions verified through protocols or FMUs for future committed GHG emissions meeting protocols. Because emissions reductions from GHG offsets have already occurred, their benefits are immediate and can be used to compensate for an equivalent quantity of project-generated emissions at any time. GHG credits from FMUs must be funded and implemented within 5 years of project GHG emissions to qualify as a GHG credit under this measure (i.e., there can only be a maximum of 5 years lag between project emissions and their real-world reductions through funding a FMU in advance and implementing the FMU on the ground). Any use of FMUs that result in a time lag between project emissions and their reduction by GHG credits from FMUs must be compensated through a prorated surcharge of additional FMUs proportional to the effect of the delay. Because emissions of CO2 in the atmosphere reach their peak radiative forcing within 10 years, a surcharge of 10% for every year of lag between project emissions and their reduction through a FMU shall be added to the GHG credit requirement (i.e., 1.10 FMUs would be required to mitigate 1 metric ton of project GHG emissions generated in the year prior to funding and implementation of the FMU).

Verification and Independent Review of GHG Credits

All GHG credits shall be verified by an independent verifier accredited by the ANSI National Accreditation Board (ANAB) or CARB, or an expert with equivalent qualifications to the extent necessary to assist with the verification. Following the standards and requirements established by the accreditation board (i.e., ANAB or CARB), the verifier shall certify the following.

- GHG credits conform to a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 CCR 95972. Verification of the latter requires certification that the credits meet or exceed the standards set in 17 CCR 95972.
- GHG credits are real, permanent, quantifiable, verifiable, enforceable, and additional, as defined in this measure.
- GHG credits are purchased according to the geographic prioritization standard defined in this measure under Geographic Prioritization of GHG Credits.

Verification of GHG offsets must occur as part of the certification process for compliance with the accounting protocol. Because FMUs are GHG credits that result from future projects, additional verification must occur beyond initial certification is required. Verification for FMUs must include initial certification and independent verification every 5 years over the duration of the FMU generating the GHG credits. The verification shall examine both the GHG credit realization on the ground and its progress toward delivering future GHG credits. The project applicant shall retain an independent verifier meeting the qualifications described above to certify reductions achieved by FMUs are achieved following completion of the future reduction project.

Monitoring Requirement: El Dorado County Planning Division shall verify the inclusion of BMP #1 and BMP #2 prior to the issuance of the building permit. If greenhouse gas credits are purchased, the Planning Division will verify prior to issuance of building permit.

Monitoring Responsibility: El Dorado County Planning Division.

Significance After Mitigation: After implementation of **MM GHG-1**, the GHG emissions from the project would be sufficiently reduced to be below the SMAQMD threshold for a significant GHG emissions impact. The GHG emissions impacts will be mitigated to **less than significant**.

b. **Plan Consistency:** According to the Air Quality and Greenhouse Gas Technical Report completed by SWCA Environmental Consultants (June 2023), the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, which include but are not limited to CARB's Climate Change Scoping Plan, El Dorado County General Plan, the State's ability to achieve the SB 32 2030 GHG reduction target, and the Executive Order S-3-05 2050 GH reduction goal. The impact is **less than significant**.

9. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			**X**	
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			**X**	

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				**X**
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				**X**
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			**X**	
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			**X**	

Environmental and Regulatory Setting:

Hazardous materials and hazardous wastes are subject to extensive federal, state, and local regulations to protect public health and the environment. These regulations provide definitions of hazardous materials; establish reporting requirements; set guidelines for handling, storage, transport, and disposal of hazardous wastes; and require health and safety provisions for workers and the public. The major federal, state, and regional agencies enforcing these regulations are EPA and the Occupational Safety and Health Administration (OSHA); California Department of Toxic Substances Control (DTSC); California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA); California Governor's Office of Emergency Services (Cal OES); and EDCAPCD.

Federal Laws, Regulations, and Policies

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also called the Superfund Act; 42 USC Section 9601 *et seq.*) is intended to protect the public and the environment from the effects of past hazardous waste disposal activities and new hazardous material spills. Under CERCLA, USEPA has the authority to seek the parties responsible for hazardous materials releases and to ensure their cooperation in site remediation. CERCLA also provides federal funding (through the "Superfund") for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499) amends some provisions of CERCLA and provides for a Community Right-to-Know program.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (RCRA; 42 USC Section 6901 *et seq.*), as amended by the Hazardous and Solid Waste Amendments of 1984, is the primary federal law for the regulation of solid waste and hazardous waste in the United States. These laws provide for the "cradle-to-grave" regulation of hazardous wastes, including generation, transportation, treatment, storage, and disposal. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed of.

EPA has primary responsibility for implementing RCRA, but individual states are encouraged to seek authorization to implement some or all RCRA provisions. California received authority to implement the RCRA program in August 1992. DTSC is responsible for implementing the RCRA program in addition to California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Energy Policy Act of 2005

Title XV, Subtitle B of the Energy Policy Act of 2005 (the Underground Storage Tank Compliance Act of 2005) contains amendments to Subtitle I of the Solid Waste Disposal Act, the original legislation that created the Underground Storage Tank (UST) Program. As defined by law, a UST is "any one or combination of tanks, including pipes connected thereto, that is used for the storage of hazardous substances and that is substantially or totally beneath the surface of the ground." In cooperation with EPA, SWRCB oversees the UST Program. The intent is to protect public health and safety and the environment from releases of petroleum and other hazardous substances from tanks. The four primary program elements include leak prevention (implemented by Certified Unified Program Agencies [CUPAs], described in more detail below), cleanup of leaking tanks, enforcement of UST requirements, and tank integrity testing.

Spill Prevention, Control, and Countermeasure Rule

USEPA's Spill Prevention, Control, and Countermeasure (SPCC) Rule (40 CFR, Part 112) apply to facilities with a single above-ground storage tank (AST) with a storage capacity greater than 660-gallons, or multiple tanks with a combined capacity greater than 1,320-gallons. The rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans.

Occupational Safety and Health Administration

OSHA is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

Code of Federal Regulations (14 CFR) Part 77

14 CFR Part 77.9 is designed to promote air safety and the efficient use of navigable airspace. Implementation of the code is administered by the Federal Aviation Administration (FAA). If an organization plans to sponsor any construction or alterations that might affect navigable airspace, a Notice of Proposed Construction or Alteration (FAA Form 7460-1) must be filed. The code provides specific guidance regarding FAA notification requirements.

State Laws, Regulations, and Policies

Safe Drinking Water and Toxic Enforcement Act of 1986 – Proposition 65

The Safe Drinking Water and Toxic Enforcement Act of 1986, more commonly known as Proposition 65, protects the state's drinking water sources from contamination with chemicals known to cause cancer, birth defects, or other reproductive harm. Proposition 65 also requires businesses to inform the public of exposure to such chemicals in the products they purchase, in their homes or workplaces, or that are released into the environment. In accordance with Proposition 65, the California Governor's Office publishes, at least annually, a list of such chemicals. OEHHA, an agency under the California Environmental Protection Agency (CalEPA), is the lead agency for implementation of the Proposition 65 program. Proposition 65 is enforced through the California Attorney General's Office; however, district and city attorneys and any individual acting in the public interest may also file a lawsuit against a business alleged to be in violation of Proposition 65 regulations.

The Unified Program

The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. CalEPA and other state agencies set the standards for their programs, while local governments (CUPAs) implement the standards. For each county, the CUPA regulates/oversees the following:

- Hazardous materials business plans;
- California accidental release prevention plans or federal risk management plans;
- The operation of USTs and ASTs;
- Universal waste and hazardous waste generators and handlers;
- On-site hazardous waste treatment;
- Inspections, permitting, and enforcement;
- Proposition 65 reporting; and
- Emergency response.

Hazardous Materials Business Plans

Hazardous materials business plans are required for businesses that handle hazardous materials in quantities greater than or equal to 55-gallons of a liquid, 500-pounds of a solid, or 200-cubic-feet (cf) of compressed gas, or extremely hazardous substances above the threshold planning quantity (40 CFR, Part 355, Appendix A) (Cal OES, 2015). Business plans are required to include an inventory of the hazardous materials used/stored by the business, a site map, an emergency plan, and a training program for employees (Cal OES, 2015). In addition, business plan information is provided electronically to a statewide information management system, verified by the applicable CUPA, and transmitted to agencies responsible for the protection of public health and safety (i.e., local fire department, hazardous material response team, and local environmental regulatory groups) (Cal OES, 2015).

California Occupational Safety and Health Administration

Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in California. Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace (CCR Title 8) include requirements for safety training, availability of safety equipment, accident and illness prevention

programs, warnings about exposure to hazardous substances, and preparation of emergency action and fire prevention plans.

Hazard communication program regulations that are enforced by Cal/OSHA require workplaces to maintain procedures for identifying and labeling hazardous substances, inform workers about the hazards associated with hazardous substances and their handling, and prepare health and safety plans to protect workers at hazardous waste sites. Employers must also make material safety data sheets available to employees and document employee information and training programs. In addition, Cal/OSHA has established maximum permissible RF radiation exposure limits for workers (Title 8 CCR Section 5085[b]), and requires warning signs where RF radiation might exceed the specified limits (Title 8 CCR Section 5085 [c]).

California Accidental Release Prevention

The purpose of the California Accidental Release Prevention (CalARP) program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. In accordance with this program, businesses that handle more than a threshold quantity of regulated substance are required to develop a risk management plan (RMP). This RMP must provide a detailed analysis of potential risk factors and associated mitigation measures that can be implemented to reduce accident potential. CUPAs implement the CalARP program through review of RMPs, facility inspections, and public access to information that is not confidential or a trade secret.

California Department of Forestry and Fire Protection Wildland Fire Management

The Office of the State Fire Marshal and the CALFIRE administer state policies regarding wildland fire safety. Construction contractors must comply with the following requirements in the Public Resources Code during construction activities at any sites with forest-, brush-, or grass-covered land:

- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (Public Resources Code Section 4442).
- Appropriate fire-suppression equipment must be maintained from April 1 to December 1, the highest-danger period for fires (Public Resources Code Section 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor must maintain the appropriate fire suppression equipment (Public Resources Code Section 4427).
- On days when a burning permit is required, portable tools powered by gasoline fueled internal combustion engines must not be used within 25-feet of any flammable materials (Public Resources Code Section 4431).

California Highway Patrol

CHP, along with Caltrans, enforce and monitor hazardous materials and waste transportation laws and regulations in California. These agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads. All motor carriers and drivers involved in transportation of hazardous materials must apply for and obtain a hazardous materials transportation license from CHP.

Local Laws, Regulations, and Policies

On May 21, 2024, El Dorado County adopted CAL FIRE's 2023 State Responsibility Area Fire Hazard Severity Zone. The classification system provides three classes of fire hazards: Moderate, High, and Very High. The County's Fire Hazard Ordinance (Chapter 8.08) requires defensible space as described by the State Public Resources Code, including the incorporation and maintenance of a 30-foot fire break or vegetation fuel clearance around structures in fire hazard zones. The County's requirements on emergency access, signing and numbering, and emergency water are more stringent than those required by state law (Patton 2002). The Fire Hazard Ordinance also establishes limits on campfires, fireworks, smoking, and incinerators for all discretionary and ministerial developments.

Discussion:

a-c. **Hazardous Materials:** The proposed project would involve the routine transportation, use, or disposal of hazardous materials such as construction materials, paints, landscaping materials, and automotive soaps, waxes, and polishes. A condition of the project is that within 30 days of becoming operational, the proposed project will be required to submit the required information into the California Environmental Reporting System, and the submittal will need to be accepted by the County Environmental Management Department, which is the Certified Unified Program Agency (CUPA) for El Dorado County, prior to the issuance of Certified Unified Program Agency / Underground Storage Tank operating permits. There are no schools within 0.25 miles of the project site. The nearest school is Cameron Park Montessori at 4140 Mother Lode Drive which is approximately 0.3 miles from the nearest portion of the project site. The next nearest school is Happy Kids Pre-School and Daycare, on the northside of US 50 at 3900 Ponderosa Road and is approximately 0.35 miles away. Providence Christian School is also on the north side of Highway 50 and is approximately 0.4 miles away. Ponderosa High School is approximately 0.7 miles away. Impacts would be **less than significant**.

d. **Hazardous Sites:** The project site is not included on a list of or near any hazardous materials sites pursuant to Government Code section 65962.5 (DTSC, 2024). There would be **no impact**.

e. **Aircraft Hazards, Private Airstrips:** As shown on the El Dorado County Zoning Map, the project is not located within an Airport Safety District combining zone or near a public airport or private airstrip. The nearest airport is Cameron Airpark approximately 2.75 miles to the northwest. There are no other aviation facilities in the area. There would be **no impact**.

f. **Emergency Plan:** The project was reviewed by the County Transportation Department and El Dorado County Fire Protection District. El Dorado County Fire Protection District has provided conditions for this project, which includes requirements for fire apparatus access roads and driveways and turning radii. The proposed project would not impair implementation of any emergency response plan or emergency evacuation plan. Impacts would be **less than significant**.

g. **Wildfire Hazards:** The project site is in an area of moderate fire hazard for wildland fire pursuant to the 2023 State Responsibility Area Fire Hazard Severity Zones Map, which was adopted by El Dorado County on May 21, 2024. The project site is in an urbanized area with similar facilities in the immediate vicinity. There are no special or unusual wildfire risk conditions associated with the project or the project site. The project site is within El Dorado County Fire Protection District for structural fire protection and emergency medical services. With implementation of standard county fire safe requirements and any additional requirements per El Dorado County Fire Protection District's review, impacts would be **less than significant**.

10. HYDROLOGY AND WATER QUALITY. Would the project:				
	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			**X**	
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				**X**
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i. result in a substantial erosion or siltation on- or off-site; ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv. impede or redirect flood flows?			**X**	
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				**X**
e. Conflict with or obstruct implementation of a water quality				**X**

control plan or sustainable groundwater management plan?				

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

Clean Water Act

The Clean Water Act (CWA) is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The key sections pertaining to water quality regulation for the Proposed Project are CWA Section 303 and Section 402.

Section 303(d) — Listing of Impaired Water Bodies

Under CWA Section 303(d), states are required to identify "impaired water bodies" (those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for the development of control plans to improve water quality. USEPA then approves the State's recommended list of impaired waters or adds and/or removes waterbodies.

Section 402—NPDES Permits for Stormwater Discharge

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the NPDES, which is officially administered by USEPA. In California, USEPA has delegated its authority to the State Water Resources Control Board (SWRCB), which, in turn, delegates implementation responsibility to the nine RWQCBs, as discussed below in reference to the Porter-Cologne Water Quality Control Act.

The NPDES program provides for both general (those that cover a number of similar or related activities) and individual (activity- or project-specific) permits. General Permit for Construction Activities: Most construction projects that disturb one or more acre of land are required to obtain coverage under SWRCB's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ). The general permit requires that the applicant file a public notice of intent to discharge stormwater and prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). SWPPP must include a site map and a description of the proposed construction activities, demonstrate compliance with relevant local ordinances and regulations, and present a list of Best Management Practices (BMPs) that will be implemented to prevent soil erosion and protect against discharge of sediment and other construction-related pollutants to surface waters. Permittees are further required to monitor construction activities and report compliance to ensure that BMPs are correctly implemented and are effective in controlling the discharge of construction-related pollutants.

Municipal Stormwater Permitting Program

SWRCB regulates stormwater discharges from municipal separate storm sewer systems (MS4s) through its Municipal Storm Water Permitting Program (SWRCB, 2013). Permits are issued under two phases depending on the size of the urbanized area/municipality. Phase I MS4 permits are issued for medium (population between 100,000 and 250,000 people) and large (population of 250,000 or more people)

municipalities, and are often issued to a group of co-permittees within a metropolitan area. Phase I permits have been issued since 1990. Beginning in 2003, SWRCB began issuing Phase II MS4 permits for smaller municipalities (population less than 100,000).

The West Slope Phase II Municipal Separate Storm Sewer Systems (MS4) NPDES Permit is administered by the Central Valley Regional Water Quality Control Board (RWQCB) (Region Five). The current West Slope MS4 NPDES Permit focuses on the enhancement of surface water quality within high priority urbanized areas.

On May 19, 2015 the El Dorado County Board of Supervisors formally adopted revisions to the Storm Water Quality Ordinance (Ordinance 4992). Previously applicable only to the Lake Tahoe Basin, the ordinance establishes legal authority for the entire unincorporated portion of the County. The purpose of the ordinance is to 1) protect health, safety, and general welfare, 2) enhance and protect the quality of Waters of the State by reducing pollutants in storm water discharges to the maximum extent practicable and controlling non-storm water discharges to the storm drain system, and 3) cause the use of Best Management Practices to reduce the adverse effects of polluted runoff discharges on Waters of the State.

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities complying with FEMA regulations that limit development in floodplains. The NFIP regulations permit development within special flood hazard zones provided that residential structures are raised above the base flood elevation of a 100-year flood event. Non-residential structures are required either to provide flood proofing construction techniques for that portion of structures below the 100-year flood elevation or to elevate above the 100-year flood elevation. The regulations also apply to substantial improvements of existing structures.

State Laws, Regulations, and Policies

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act (known as the Porter–Cologne Act), passed in 1969, dovetails with the CWA (see discussion of the CWA above). It established the SWRCB and divided the state into nine regions, each overseen by an RWQCB. SWRCB is the primary State agency responsible for protecting the quality of the state's surface water and groundwater supplies; however, much of the SWRCB's daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 401, 402, and 303[d]. In general, SWRCB manages water rights and regulates statewide water quality, whereas RWQCBs focus on water quality within their respective regions.

The Porter–Cologne Act requires RWQCBs to develop water quality control plans (also known as basin plans) that designate beneficial uses of California's major surface-water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a waterbody (i.e., the reasons that the waterbody is considered valuable). Water quality objectives reflect the standards necessary to protect and support those beneficial uses. Basin plan standards are primarily implemented by regulating waste discharges so that water quality objectives are met. Under the Porter–Cologne Act, basin plans must be updated every three-years.

Discussion:

a. **Water Quality Standards:** Erosion control shall be required as part of the building and grading permits related to the proposed project. Stormwater runoff from the project development shall contain water quality protection features in accordance with a potential NPDES stormwater permit, as deemed applicable. The project would not violate water quality or waste discharge standards.

As referenced in the Hazards and Hazardous Materials Section (IX) above, a condition of the project is that within 30 days of becoming operational, the proposed project will be required to submit the required information into the California Environmental Reporting System, and the submittal will need to be accepted by the County Environmental Management Department, which is the Certified Unified Program Agency (CUPA) for El Dorado County, prior to the issuance of Certified Unified Program Agency / Underground Storage Tank operating permits. State and local laws that regulate the transport, use, and disposal of hazardous materials will help to prevent leaks from underground fuel storage tanks and other hazardous materials that could affect groundwater quality. There would be **a less than significant impact**.

b. **Groundwater Supplies:** The geology of the Western Slope portion of El Dorado County is principally hard, crystalline, igneous, or metamorphic rock overlain with a thin mantle of sediment or soil. Groundwater in this region is found in fractures, joints, cracks, and fault zones within the bedrock mass. These discrete fracture areas are typically vertical in orientation rather than horizontal as in sedimentary or alluvial aquifers. Recharge is predominantly through rainfall infiltrating into the fractures. Movement of this groundwater is very limited due to the lack of porosity in the bedrock. Wells are typically drilled to depths ranging from 80 to 300-feet in depth. The proposed project will not be drilling a well but will utilize El Dorado Irrigation District water service.

There is no evidence that the project would substantially reduce or alter the quantity of groundwater in the vicinity, or materially interfere with groundwater recharge in the area of the proposed project. The project would not adversely affect potential groundwater supplies. There would be **no impact**.

c. **Drainage Patterns:** A grading permit shall be required to address grading, erosion, and sediment control for any future construction. Construction activities shall adhere to the El Dorado County Grading, Erosion Control and Sediment Ordinance. This includes the use of BMPs to minimize degradation of water quality during construction. Therefore, this project would have a **less than significant** impact.

d. **Flood-related Hazards:** The project site is not located within any mapped 100-year flood areas and would not result in the construction of any structures that would impede or redirect flood flows (FEMA, 2008). The risk of exposure to seiche, tsunami, or mudflows would be remote. There would be **no impact**.

e. **Water Quality Control Plan**: Project implementation would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Permittees are required to comply with the appropriate water quality objectives for the region. Commonly practiced BMPs would be implemented to control construction site runoff and to reduce the discharge of pollutants to storm drain systems from stormwater and other nonpoint-source runoff. As part of compliance with permit requirements during ground disturbing or construction activities, implementation of water quality control measures and BMPs would ensure that water quality standards would be achieved, including the water quality objectives that protect designated beneficial uses of surface water and groundwater, as defined in the Central Valley Water Board Basin Plan. The NPDES Construction General Permit also requires stormwater discharges not to

contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards, including designated beneficial uses. The project area is not within a recognized groundwater subbasin. There would be **no impact**.

11. LAND USE PLANNING. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Physically divide an established community?				**X**
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			**X**	

Environmental and Regulatory Setting:

California State law requires that each City and County adopt a general plan "for the physical development of the City and any land outside its boundaries which bears relation to its planning." Typically, a general plan is designed to address the issues facing the City or County for the next 15-20 years. The general plan expresses the community's development goals and incorporates public policies relative to the distribution of future public and private land uses. The El Dorado County General Plan was adopted in 2004. The 2021-2029 Housing Element was adopted in 2021.

Discussion:

a. **Established Community:** The project is located within the Shingle Springs Community Region and is primarily surrounded by similarly zoned CC properties. The project would not conflict with the existing land use pattern in the area or physically divide an established community. Therefore, there would be **no impact**.

b. **Land Use Consistency, Habitat Conservation Plan:** The parcel has a General Plan Land Use Designation of Commercial (C) and zoning designation of CC. The C land use designation provides for a full range of commercial retail, office, and service uses to serve the residents, businesses, and visitors of El Dorado County. The proposal to develop and operate gas station/convenience store is a “by-right” use, and an automatic drive-through car wash is compatible with the General Plan land use designation and the zone district, with approval of a CUP. The project site is not within the boundaries of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other conservation plan. The removal of oak trees will require mitigation in accordance with County standards. As such, the proposed project would not conflict with any adopted land use plan, policy, or regulation adopted for the purpose of avoiding or mitigation an environmental effect. Impacts would be **less than significant**.

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

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies apply to mineral resources and the Proposed Project.

State Laws, Regulations, and Policies

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA) requires that the State Mining and Geology Board identify, map, and classify aggregate resources throughout California that contain regionally significant mineral resources. Designations of land areas are assigned by CDC and California Geological Survey following analysis of geologic reports and maps, field investigations, and using information about the locations of active sand and gravel mining operations. Local jurisdictions are required to enact planning procedures to guide mineral conservation and extraction at particular sites and to incorporate mineral resource management policies into their general plans.

The California Mineral Land Classification System represents the relationship between knowledge of mineral deposits and their economic characteristics (grade and size). The nomenclature used with the California Mineral Land Classification System is important in communicating mineral potential information in activities such as mineral land classification, and usage of these terms are incorporated into the criteria developed for assigning mineral resource zones. Lands classified MRZ-2 are areas that contain identified mineral resources. Areas classified as MRZ-2a or MRZ-2b (referred to hereafter as MRZ-2) are considered important mineral resource areas.

Local Laws, Regulations, and Policies

El Dorado County in general is considered a mining region capable of producing a wide variety of mineral resources. Metallic mineral deposits, including gold, are considered the most significant extractive mineral resources. Exhibit 5.9-6 shows the MRZ-2 areas within the county based on designated Mineral Resource (-MR) overlay areas. The -MR overlay areas are based on mineral resource mapping published in the

mineral land classification reports referenced above. The majority of the county's important mineral resource deposits are concentrated in the western third of the county.

According to General Plan Policy 2.2.2.7, before authorizing any land uses within the -MR overlay zone that will threaten the potential to extract minerals in the affected area, the County shall prepare a statement specifying its reasons for considering approval of the proposed land use and shall provide for public and agency notice of such a statement consistent with the requirements of Public Resources Code section 2762. Furthermore, before finally approving any such proposed land use, the County shall balance the mineral values of the threatened mineral resource area against the economic, social, or other values associated with the proposed alternative land uses. Where the affected minerals are of regional significance, the County shall consider the importance of these minerals to their market region as a whole and not just their importance to the County.

Where the affected minerals are of Statewide significance, the County shall consider the importance of these minerals to the State and Nation as a whole. The County may approve the alternative land use if it determines that the benefits of such uses outweigh the potential or certain loss of the affected mineral resources in the affected regional, Statewide, or national market.

Discussion:

a-b. **Mineral Resources.** The project site has not been delineated in the El Dorado County General Plan as a locally important mineral resource recovery site (2003, Exhibits 5.9-6 and 5.9-7). Review of the California Department of Conservation Mineral Land Classification web map (CDC 2025) showed that the project site is not within a mineral resource zone district. There would be **no impact**.

13. NOISE. *Would the project result in:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
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?		**X**		
b. Generation of excessive groundborne vibration or groundborne noise levels?			**X**	
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				**X**

people residing or working in the project area to excessive noise level?				

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

No federal or state laws, regulations, or policies for construction-related noise and vibration directly apply to the Proposed Project. However, the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual states that for evaluating daytime construction noise impacts in outdoor areas, a noise threshold of 90 dBA L_{eq} and 100 dBA L_{eq} should be used for residential and commercial/industrial areas, respectively (FTA 2018).

For construction vibration impacts, the FTA guidelines provide construction vibration damage criteria for different types of buildings (FTA 2018).

Local Laws, Regulations, and Policies

El Dorado County General Plan Policies

Table HS-4 establishes the hourly average and maximum noise standards for daytime, evening, and nighttime for El Dorado County.

TABLE HS-4
NOISE LEVEL PERFORMANCE PROTECTION STANDARDS
FOR NOISE SENSITIVE LAND USES
AFFECTED BY NON-TRANSPORTATION* SOURCES

Noise Level Descriptor	Daytime 7 a.m. - 7 p.m.		Evening 7 p.m. - 10 p.m.		Night 10 p.m. - 7 a.m.	
	Community/ Rural Centers	Rural Regions	Community/ Rural Centers	Rural Regions	Community/ Rural Centers	Rural Regions
Hourly L_{eq}, dB	55	50	50	45	45	40
Maximum level, dB	70	60	60	55	55	50

Policy 6.5.1.12: When determining the significance of impacts and appropriate mitigation for new development projects, the following criteria shall be taken into consideration.

A. Where existing or projected future traffic noise levels are less than 60 dBA Ldn at the outdoor activity areas of residential uses, an increase of more than 5 dBA Ldn caused by a new transportation noise source will be considered significant;
B. Where existing or projected future traffic noise levels range between 60 and 65 dBA Ldn at the outdoor activity areas of residential uses, an increase of more than 3 dBA Ldn caused by a new transportation noise source will be considered significant; and

C. Where existing or projected future traffic noise levels are greater than 65 dBA Ldn at the outdoor activity areas of residential uses, an increase of more than 1.5 dBA Ldn caused by a new transportation noise will be considered significant.

Policy 6.5.1.13: When determining the significance of impacts and appropriate mitigation to reduce those impacts for new development projects, including ministerial development, the following criteria shall be taken into consideration:

A. In areas in which ambient noise levels are in accordance with the standards in Table HS - 4, increases in ambient noise levels caused by new non-transportation noise sources that exceed 5 dBA shall be considered significant; and
B. In areas in which ambient noise levels are not in accordance with the standards in Table HS- 4, increases in ambient noise levels caused by new non transportation noise sources that exceed 3 dBA shall be considered significant.

Discussion:

a. **Noise Levels:**

Traffic: Based on the acoustical study conducted by Bollard Acoustical Consultants, Inc. on January, 2023, project-generated traffic noise level increase would not result in significant noise impacts at existing sensitive receptors located along the project area roadway network (Table 11, page 18) in accordance with the significance thresholds pursuant to General Plan Policy 6.5.1.12, as listed above. The increases in existing traffic noise levels due to the Project would be less than significant. As shown in Tables 12 (page 20), the project is first analyzed to see whether there would be a cumulative roadway noise impact (existing vs. cumulative-plus-project scenario). After the cumulative roadway noise impact is identified, the project is analyzed to see whether the proposed project would make a cumulatively considerable contribution to the cumulative impact (cumulative no project vs. cumulative plus project scenario). According to the analysis, there is a cumulative roadway noise impact, but the proposed project will not make a cumulatively considerable contribution to the cumulative impact. The increases in cumulative traffic noise levels are less than significant, as they do not exceed the increase significance thresholds at any of the roadway segments (Table 13, page 21).

Operations: The on-site noise sources associated with the car wash component of the project include the car wash drying assembly and the vacuum system operations. The on-site noise sources associated with the proposed convenience store / gas station component of the project include on-site truck circulation, truck delivery activities, on-site passenger vehicle circulation, parking movements, and mechanical equipment (HVAC).

The car wash, which includes the drying assembly, (Table 14, page 23) does not exceed the hourly average noise level for daytime, evening, or nighttime (respectively 55, 50, and 45 dB L_{eq}) at any of its three (3) residential receiver locations that are to the west, southwest, and southeast of the project site. The highest hourly maximum noise level is at the residential receiver to the southeast at 42 dB $L_{eq.}$ Project-generated increases in ambient hourly average noise levels are calculated to be the highest at the nearest residential receiver to the southwest (1.9 dB during nighttime hours). However, the calculated increase of 1.9 dB L_{eq} is less than the significance threshold of 5 dB, as established in General Plan Policy 6.5.1.13.

The project proposes the installation of a vacuum turbine producer and individual vacuum suction nozzles. The vacuum turbine producer will be contained within a six-foot-tall masonry enclosure. The hourly average noise levels are no higher than 34 dB L_{eq} (residential receiver-west) and do not exceed the allowed noise levels for daytime, evening or night-time at the three (3) residential receivers (Table 15, page 24). These noise sources also do not cause increases in ambient noise levels that exceed 5 dB per General Plan Policy 6.5.1.13. The highest increase in ambient hourly average noise levels is 0.6 dB L_{eq} (occurring during the nighttime), which is still less than the significance threshold of 5 dB. Thus, the project-related noise level increases associated with these on-site noise sources are considered to be less than significant.

On-site circulation would consist of medium-duty vendor trucks/vans as well as heavy fueling trucks for the purpose of refilling the underground storage tanks. The hourly average noise levels would be as high as 33 dB L_{eq}, which would be below the daytime, evening, and nighttime standards. The increases in hourly average ambient noise would be 0.4 dB L_{eq} and would be below the increase significance criterion of 5 dB. However, the hourly average maximum noise level, as high as 58 dB, would exceed the nighttime standard of 55 dB L_{eq} for the residential receiver to the west but would not exceed the daytime or evening standards (70 dB, 60 dB L_{max} (Table 17, page 26). Also, the increase in ambient maximum noise levels during nighttime hours at the nearest residential receiver to the west is 3.8 dB L_{max}, which exceeds the significance threshold of 3 dB L_{max}, and would be considered potentially significant during the night-time hours.

Significance Before Mitigation: Impacts would be **potentially significant**.

Therefore, **MM NOISE-1** would be required.

On-site truck delivery noise consists of trucks stopping, backing into position, and pulling away from the loading/unloading areas. The highest hourly average and maximum noise levels (respectively 31 dB L_{eq} and 54 dB L_{max} at residential receiver to west) would not exceed the noise standards. With the incorporation of **MM NOISE-1** below, only the ambient noise level increases during daytime would need to be accounted for, and both increases in the hourly average and maximum noise levels (respectively 0.1 dB L_{eq}, 0.6 dB L_{max}), which are well below the 5 dB increase significance criterion.

In terms of on-site passenger vehicle circulation, both the hourly average and maximum noise levels (32 dB L_{eq}, 42 dB L_{max} at the residential receiver to the west) meet the noise standards for daytime, evening, and nighttime (Tables 20 and 21, page 29). The highest ambient noise level increase is 0.3 dB L_{eq} (during nighttime) and is well below the significance threshold of 5 dB.

Noise associated with the parking areas do not exceed the daytime, evening, or nighttime standards for both hourly average and hourly maximum noise levels (respectively 32 dB L_{eq} and 54 dB L_{max} at residential receiver to the west). The ambient hourly average noise level of 0.4 dB L_{eq} and ambient hourly maximum noise level of 1.7 dB L_{max} are less than the significance criterion of 5 dB.

Heating, ventilating, and air conditioning for the project site will be accomplished through packaged roof-mounted systems. Because the noise from mechanical equipment generates steady-state noise levels, impacts are assessed in the acoustical analysis relative to the County's hourly average (L_{eq}) noise level criteria. The hourly average noise level would be highest at the residential receiver to the west at 33 dB L_{eq}, which would be below the noise standards for daytime, evening, and nighttime. The ambient noise increase of 0.5 dB L_{eq} would be below the increase significance criterion of 5 dB L_{eq}.

Project Construction: Per General Plan Policy 6.4.1.11, noise sources associated with construction are considered exempt as long as the construction occurs between the hours of 7 am and 7 pm, Monday through Friday, and 8 am and 5 pm on weekends and federally-recognized holidays. The construction noise resulting from any future development may result in short-term noise impacts. These activities would require grading and building permits and would be restricted to construction hours. All construction and grading operations would be required to comply with the noise performance standards contained in the General Plan and other applicable requirements. Impacts would be less than significant.

MM NOISE-1 Restricted Hours for On-Site Truck Circulation

All on-site truck circulation (i.e., truck deliveries) at the project site shall be limited to daytime hours only (7:00 am to 7:00 pm).

Monitoring Requirement: A permanent sign shall be posted on-site in a location visible to customers that states the hours of on-site truck circulation and provides the most current Code Enforcement and Planning phone numbers. Code Enforcement Division shall verify ongoing compliance with this requirement in response to community inquiries.

Monitoring Responsibility: El Dorado County Planning and Building Department, Code Enforcement Division.

Significance After Mitigation: After implementation of **MM NOISE-1**, the nighttime noise standard would not be exceeded, since on-site truck circulation and delivery would not occur during that time. The ambient increases in hourly maximum noise levels would be 1.6 dB L_{max} or lower during the daytime hours, which would be well below the 5 dB increase significance criterion. Therefore, potential noise impacts with mitigation incorporated would be **less than significant**.

b. **Groundborne Shaking:** The site is currently undeveloped. Future construction would generate short-term ground borne vibration levels, but they would not exceed the FTA threshold for damage to engineered structures. Operation of a convenience store, gas station, car wash tunnel, and vehicle vacuum facilities would not generate noticeable vibration levels. Impacts would be **less than significant**.

c. **Aircraft Noise:** The project site is not located within the vicinity of a private airstrip, an airport land use plan, or within two miles of a public airport. There would be **no impact**.

14. POPULATION AND HOUSING. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact

a. Induce substantial unplanned population growth in an area, either directly (i.e., by proposing new homes and businesses) or indirectly (i.e., through extension of roads or other infrastructure)?				**X**
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				**X**

Environmental and Regulatory Setting:

No federal or state laws, regulations, or policies apply to population and housing and the proposed project.

Discussion:

a. **Population Growth:** The subject parcel is currently not zoned or developed for residential uses. The proposed project would provide additional automotive service in the immediate area, but this would not result in a substantial population increase. There would be **no impact**.

b. **Housing Displacement / Replacement Housing:** The parcel of concern is not zoned or developed for residential uses. There would be no housing removed or developed as a result of this gas station and car wash development. There would be **no impact**.

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

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Fire protection?			**X**	
b. Police protection?			**X**	
c. Schools?				**X**
d. Parks?				**X**
e. Other government services?			**X**	

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

California Fire Code

The California Fire Code (Title 24 CCR, Part 9) establishes minimum requirements to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings. Chapter 33 of CCR contains requirements for fire safety during construction and demolition.

Discussion:

a. **Fire Protection:** El Dorado County Fire Prevention District (EDCFPD) provides fire protection to the surrounding vicinity of the site. EDCFPD has seventy-two (72) uniformed staff and three (3) support staff, who operate from five (5) staffed and seven (7) unstaffed firehouses (EDCFPD 2025). Ongoing gas station and car wash operations or any future construction would not significantly increase demand for fire protection. Impacts would be **less than significant**.

b. **Police Protection:** Police services would continue to be provided by the El Dorado County Sheriff's Department (EDSO). Similar to fire protection services, ongoing gas station and car wash operations or any future construction would not significantly increase demand for law enforcement protection. Impacts would be **less than significant**.

c. **Schools:** The project would not result in additional students. There would be **no impact**.

d. **Parks.** This project would not result in additional residents and therefore not substantially increase the use of parks and recreational facilities. There would be **no impact**.

e. **Government Services.** There are no government services that would be significantly impacted as a result of the project. Impacts would be **less than significant**.

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

Environmental and Regulatory Setting:
State Laws, Regulations, and Policies

The California Parklands Act

The California Parklands Act of 1980 (Public Resources Code Section 5096.141-5096.143) recognizes the public interest for the state to acquire, develop, and restore areas for recreation and to aid local governments to do the same. The California Parklands Act also identifies the necessity of local agencies to exercise vigilance to see that the parks, recreation areas, and recreational facilities they now have are not lost to other uses.

Local Laws, Regulations, and Policies

The 2004 El Dorado County General Plan Parks and Recreation Element establishes goals and policies that address needs for the provision and maintenance of parks and recreation facilities in the county, with a focus on providing recreational opportunities and facilities on a regional scale, securing adequate funding sources, and increasing tourism and recreation-based businesses. The Recreation Element describes the need for 1.5-acres of regional parkland, 1.5-acres of community parkland, and two-acres of neighborhood parkland per 1,000 residents. Another 95-acres of park land are needed to meet the General Plan guidelines.

Discussion:

a. **Parks.** The proposed car wash project would not result in additional residential units and would not increase the local population. Therefore, the project would not substantially increase the use of parks and recreational facilities. There would be **no impact**.

b. **Recreational Services.** The project would not include additional recreation services or sites as part of the project. There would be **no impact**.

17. TRANSPORTATION/TRAFFIC. *Would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?			**X**	
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) (Vehicle Miles Traveled)?			**X**	
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			**X**	

d. Result in inadequate emergency access?			X	

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies apply to transportation/traffic and the Proposed Project.

State Laws, Regulations, and Policies

Caltrans manages the state highway system and ramp interchange intersections. This state agency is also responsible for highway, bridge, and rail transportation planning, construction, and maintenance.

Local Laws, Regulations, and Policies

Starting on July 1, 2020, automobile delay and level of service (LOS) may no longer be used as the performance measure to determine the transportation impacts of land development under CEQA. Instead, an alternative metric that supports the goals of SB 743 legislation will be required. The use of vehicle miles traveled (VMT) has been recommended by the Governor's Office of Planning and Research (OPR) and is cited in the CEQA Guidelines as the most appropriate measure of transportation impacts (Section 15064.3(a)).

The intent of SB743 is to bring CEQA transportation analysis into closer alignment with other statewide policies regarding greenhouse gases, complete streets, and smart growth. Using VMT as a performance measure, instead of LOS, is intended to discourage suburban sprawl, reduce greenhouse gas emissions, and encourage the development of smart growth, complete streets, and multimodal transportation networks.

El Dorado County Department of Transportation (DOT) adopted VMT screening thresholds through Resolution 141-2020 on October 6, 2020. The County significance threshold is 15%, as recommended by OPR's Technical Advisory, below baseline for residential projects. There is a presumption of less than significant impact for projects that generate or attract less than 100 trips per day, consistent with OPR's determination of projects that generate or attract fewer than 110 trips per day, and further reduced to 100 to remain consistent with the existing thresholds in General Plan Policy TC-Xe. Access to the project site would be provided by existing driveways for each resulting parcel.

Discussion:

a. **Conflicts with a Transportation Plan, Policy, or Ordinance:** A Traffic Impact Study (TIS) (Attachment I) was prepared by Wood Rodgers, analyzing potential trip generation during AM and PM peak hours.

The El Dorado County Capital Improvement Program (CIP) contains a list of roadway projects planned for the next 20 years. CIP Project 36104008 US 50/Ponderosa Road Interchange Phase 1B – Durock Road Realignment is proposed adjacent to the project parcel. The proposed project has been designed in coordination with County DOT and is consistent with the County's CIP project. Therefore, the project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be **less than significant**.

b. **Vehicle Miles Traveled (VMT):** According to the Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018), local agencies may presume that local-serving retail development creates a less-than-significant transportation impact due to fewer trips and reduction in VMT. As the proposed project square footage is less than 50,000 square feet, the project may be considered "local-serving retail" and would not be considered a VMT-increasing project.

However, Resolution 141-2020, which adopted El Dorado County's thresholds of significance and screening criteria for land use projects, does not contain screening criteria for local-serving retail projects. Therefore, the Project prepared an analysis (Traffic Impact Study prepared by Wood Rodgers, September 2025, Attachment I) of the Project's effect on area VMT by evaluating gas station trips before and after development of the Project. The analysis showed a net decrease in VMT following completion of the Project. As a result, the impacts would be **less than significant**.

c. **Design Hazards**: The design and location of the project would not create any significant hazards. The existing project site is undeveloped. Any future driveway improvements for access to the project would require a grading permit. The El Dorado County DOT reviewed the project and provided no comments or concerns; DOT provided conditions that shall be incorporated as part of the project. The impact for design hazards would be **less than significant**.

d. **Emergency Access:** The existing project site is undeveloped. El Dorado County Fire Protection District and DOT have confirmed the project would not result in negative impacts or conflicts with emergency access and circulation requirements, as conditioned. Impacts would be **less than significant**.

18. TRIBAL CULTURAL RESOURCES.				
	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			**X**	
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			**X**	

Environmental and Regulatory Setting:

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies apply to Tribal Cultural Resources (TCRs) and the Proposed Project.

State Laws, Regulations, and Policies

Assembly Bill (AB) 52
AB 52, which was approved in September 2014 and effective on July 1, 2015, requires that CEQA lead agencies consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a proposed project, if so requested by the tribe. The bill, chaptered in CEQA Section 21084.2, also specifies that a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment.

Defined in Section 21074(a) of the Public Resources Code, TCRs are:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    a. Included or determined to be eligible for inclusion in the California Register of Historical Resources; or
    b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

TCRs are further defined under Section 21074 as follows:

a. A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
b. A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a TCR if it conforms with the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe pursuant to newly chaptered Section 21080.3.2, or according to Section 21084.3. Section 21084.3 identifies mitigation measures that include avoidance and preservation of TCRs and treating TRCs with culturally appropriate dignity, considering the tribal cultural values and meaning of the resource.

Discussion:

a-b. **Tribal Cultural Resources.** A Cultural Study was completed by SWCA Environmental Consultants (SWCA) in September 2024. The study documents the methods and results of a confidential records search of the California Historical Resources Information System (CHRIS), a Sacred Lands Files (SLF) search, archival research, and pedestrian survey used to assess the potential for impacts to archaeological resources. The SLF review yielded a negative result in the SLF database. There were no Tribal Cultural Resources (TCRs) identified as existing on the project site. In accordance with the laws of AB 52, seven Tribes: Wilton Rancheria, Ione Band of Miwok Indians, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Shingle Springs Band of Miwok Indians, T'si-Akim Maidu, United Auburn Indian Community of the Auburn Rancheria, Washoe Tribe of California and Nevada, had requested to be notified of proposed projects for consultation in the project area. Consultation notices were sent on April 5, 2023. Staff received a response from the United Auburn Indian Community of the Auburn Rancheria (UAIC) on April 10, 2023, and from the Shingle Springs Band of Miwok Indians on May 1, 2023, both of which were received within a 30-day period from the date of staff's consultation initiation. The Shingle Springs Band requested consultation, and UAIC deferred consultation to the Shingle Springs Band. Staff responded with all requested documentation. Shingle Springs Band of Miwok Indians closed consultation on October 1, 2024. In the event of archaeological or human remains discovery during any construction, standard conditions of approval to address accidental discovery of tribal cultural resources would apply during any grading activities. Impacts would be **less than significant**.

19. UTILITIES AND SERVICE SYSTEMS. *Would the project:*

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			**X**	
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			**X**	
c. Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			**X**	
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			**X**	
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			**X**	

Environmental and Regulatory Setting:

State Laws, Regulations, and Policies

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (Public Resources Code, Division 30) requires all California cities and counties to implement programs to reduce, recycle, and compost wastes by at least 50-percent by 2000 (Public Resources Code Section 41780). The state, acting through the California

Integrated Waste Management Board (CIWMB), determines compliance with this mandate. Per-capita disposal rates are used to determine whether a jurisdiction's efforts are meeting the intent of the act.

California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act of 1991 (Public Resources Code Sections 42900-42911) requires that all development projects applying for building permits include adequate, accessible areas for collecting and loading recyclable materials.

California Integrated Energy Policy

Senate Bill 1389, passed in 2002, requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report for the governor and legislature every two-years (CEC 2015a). The report analyzes data and provides policy recommendations on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewable energy, and public interest energy research (CEC 2015a). The 2014 Draft Integrated Energy Policy Report Update includes policy recommendations, such as increasing investments in electric vehicle charging infrastructure at workplaces, multi-unit dwellings, and public sites (CEC 2015b).

Title 24–Building Energy Efficiency Standards

Title 24 Building Energy Efficiency Standards of the California Building Code are intended to ensure that building construction, system design, and installation achieve energy efficiency and preserve outdoor and indoor environmental quality (CEC 2012). The standards are updated on an approximately three-year cycle. The 2013 standards went into effect on July 1, 2014.

Urban Water Management Planning Act

California Water Code Sections 10610 *et seq.* requires that all public water systems providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000-acre-feet per year (AFY), prepare an urban water management plan (UWMP).

Discussion:

a. **Construction or Relocation of Utilities**: The project would tie into EID's water and sanitation services and use existing power and telecommunications facilities. There would be a **less than significant** impact.

b. **Sufficient Water Supply:** The proposed project has received a Facilities Improvement Letter (FIL) from the El Dorado Irrigation District confirming adequate water supply for the proposed use. Impacts would be **less than significant**.

c. **Adequate Wastewater Capacity:** The project's FIL confirms adequate wastewater capacity to serve the site. Impacts would be **less than significant** impact.

d-e. **Solid Waste Disposal and Requirements:** El Dorado Disposal distributes municipal solid waste to the Material Recovery Facilities (MRFs) that serve customers in the County and then to Potrero Hills Landfill in Solano County, which has sufficient capacity to serve this project. The project impacts would be **less than significant**.

20. WILDFIRE. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*				
	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?			**X**	
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			**X**	
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			**X**	
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			**X**	

Environmental and Regulatory Context

International Laws, Regulations, and Policies

The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code use a hazard classification system to determine what measures are required to protect against structural fires. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, IFC employs a permit system based on hazard classification. The IFC is updated every three years.

Federal Laws, Regulations, and Policies

The project site is located within a State Responsibility Area for the purposes of wildland fire protection and prevention. As such, there are no federal regulations pertaining to wildfire that apply to the project.

State Laws, Regulations, and Policies
California Department of Forestry and Fire Protection

CAL FIRE protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. CAL FIRE's firefighters, fire engines, and aircraft respond to an average of nearly 6,000 wildland fires that burn over 260,000 acres each year (CAL FIRE 2019). CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. CAL FIRE is also responsible for enforcing State of California fire safety codes included in the California Code of Regulations and California Public Resources Codes (discussed further below).

The Office of the State Fire Marshal supports CAL FIRE's mission by focusing on fire prevention. It provides support through a wide variety of fire safety responsibilities including by regulating buildings in which people live, congregate, or are confined; by controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death, and destruction by fire; by providing statewide direction for fire prevention in wildland areas; by regulating hazardous liquid pipelines; by reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

The Board of Forestry and Fire Protection (Board) is a government-appointed body within the CAL FIRE. It is responsible for developing the general forest policy of the state, determining the guidance policies of the CAL FIRE, and representing the state's interest in federal forestland in California. Together, the Board and the CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the state's unique forest and wildland resources.

The Board is charged with protecting all wildland forest resources in California that are not under federal jurisdiction. These resources include major commercial and non-commercial stands of timber, areas reserved for parks and recreation, woodlands, brush-range watersheds, and all private and state lands that contribute to California's forest resource wealth.

CAL FIRE 2018 Strategic Fire Plan

Public Resources Code Sections 4114 and 4130 authorize the State Board of Forestry to establish a fire plan (The 2018 Strategic Fire Plan for California) that establishes the levels of statewide fire protection services. These levels of service recognize other fire protection resources at the federal and local level that collectively provide a regional and statewide emergency response capability. In addition, California's integrated mutual aid fire protection system provides fire protection services through automatic and mutual aid agreements for fire incidents across all ownerships. The California Fire Plan is the state's road map for reducing the risk of wildfire through planning and prevention to reduce firefighting costs and property losses, increase firefighter safety, and to contribute to ecosystem health.

The Board has adopted these Strategic Fire Plans for California since the 1930s and periodically updates them to reflect current and anticipated needs of California's wildland. The Strategic Fire Plan is the state's road map for reducing the risk of wildfire through planning and prevention to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health. The Strategic Fire Plan is

adopted to better respond to the changes of the environmental, social, and economic landscape of California's wildlands and to provide CAL FIRE with appropriate guidance for adequate statewide fire protection of state responsibility areas. The latest Strategic Fire Plan is dated August 22, 2018. However, CAL FIRE is in the process of preparing a new 2024 Strategic Plan that is to be released in July of 2024.

CAL FIRE implements and enforces the Board's policies and regulations. The 2018 Strategic Fire Plan reflects CAL FIRE's focus on (1) fire prevention and suppression activities to protect lives, property, and ecosystem services, and (2) natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation.

State Fire Regulations

Fire regulations for California are established in Sections 13000 et seq. of the California Health and Safety Code and include regulations for structural standards (similar to those identified in the California Building Code), fire protection and public notification systems, fire protection devices such as extinguishers and smoke alarms, standards for high-rise structures and childcare facilities, and fire suppression training. The State Fire Marshal is responsible for enforcement of these established regulations and building standards for all state-owned buildings, state-occupied buildings, and state institutions within California.

Fire Hazard Severity Zones

CAL FIRE mapped Fire Hazard Severity Zones in El Dorado County based on fuel loading, slope, fire weather, and other relevant factors as directed by Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189. Fire Hazard Severity Zones are ranked from moderate to very high and are categorized for fire protection within a federal responsibility area, state responsibility area, or local responsibility area under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively. The California Code of Regulations (CCR), Title 14, Section 1280 entitles the maps of the geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."

Emergency Response California Emergency Services Act

The California Emergency Services Act was adopted to establish the state's roles and responsibilities during human-caused or natural emergencies that result in conditions of disaster and/or extreme peril to life, property, or resources of the state. This act is intended to protect health and safety by preserving the lives and property of the people of the state.

Local Laws, Regulations, and Policies

CAL FIRE Amador – El Dorado Unit Strategic Fire Plan

CAL FIRE requires counties to develop fire protection management plans that address potential threats of wildland fires. The CAL FIRE Amador - El Dorado Unit (AEU), which encompasses Amador, El Dorado, Alpine and portions of Sacramento and San Joaquin Counties, adopted the 2022 Strategic Fire Plan for the Amador and El Dorado County unit in May 2022. The plan is an assessment and planning tool that identifies and prioritizes pre-fire and post-fire management strategies and tactics meant to reduce the loss of values at risk within the Unit.

El Dorado County Local Hazard Mitigation Plan

Pursuant to the requirements of the Disaster Mitigation Act of 2000, El Dorado County prepared a Local Hazard Mitigation Plan (LHMP) ensuring the County's eligibility for the Federal Emergency Management Agency's (FEMA) Pre-Disaster Mitigation and Hazard Mitigation Grant programs. The purpose of the El Dorado County LHMP is to reduce or eliminate long-term risk to people and property from hazards. The LHMP acts as a guide for the County's response to emergency situations such as wildfire, earthquakes, floods, levee failures, and severe weather. The Plan also provides guidance and coordination for mitigation activities and decisions for local land use policy in the future.

The County followed a planning process prescribed by FEMA, which began with the formation of a hazard mitigation planning committee (HMPC) comprised of key County representatives, and other regional stakeholders. The HMPC conducted a risk assessment that identified and profiled hazards that pose a risk to the County, assessed the County's vulnerability to these hazards, and examined the capabilities in place to mitigate them. Based on the risk assessment, the HMPC identified goals and objectives for reducing the County's vulnerability to hazards. They include:

- Goal 1: Minimize risk and vulnerability of El Dorado County to the impacts of natural hazards and protect lives and reduce damages and losses to property, economy, public health and safety, and the environment.
- Goal 2: Provide protection for critical facilities, infrastructure, utilities and services from hazard impacts.
- Goal 3: Improve public awareness, education, and preparedness for all hazards.
- Goal 4: Increase communities' capabilities to mitigate losses and to be prepared for, respond to, and recover from a disaster event.
- Goal 5: Maintain FEMA Eligibility/Position the communities for grant funding. Continued compliance with the National Flood Insurance Program (NFIP)/enhancement of floodplain management program through participation in the NFIP.

Western El Dorado Community Wildfire Protection Plan

Community Wildfire Protection Plans (CWPPs) are authorized and defined in Title 1 of the Healthy Forests Restoration Act (HRFA) of 2003. The Western El Dorado Community Wildfire Protection Plan (CWPP) identifies the risks and hazards associated with wildland fires in the WUI areas of Western El Dorado County. The plan also identifies recommendations aimed at preventing and reducing both infrastructure and ecosystem damage associated with wildland fires. The plan documents recommended goals and actions intended to reduce the risk to people, property and the environment. Fuel reduction projects identified in an approved CWPP receive priority for federal funds. The plan was last updated in February 2022.

El Dorado County General Plan

The El Dorado County General Plan provides for a long-range direction and policy for the use of land within El Dorado County. Policies applicable to wildfire within the General Plan are addressed in the Conservation and Open Space Element, Public Services and Utilities Element, and the Public Health, Safety, and Noise Element of the General Plan.

El Dorado County Code

Chapter 8.08 (Fire Prevention) of the El Dorado County Code specifies limits on campfires, fireworks, smoking, and incinerators for all discretionary and ministerial developments. Chapter 8.09 (Vegetation Management and Defensible Space) of Title 8 of the County Code requires the removal or abatement of all

hazardous vegetation and combustible material that constitutes a fire hazard which may endanger or damage neighboring property, and describes the means of enforcement.

Discussion:

a-d. **Wildfire Risks:** The project site is in an area of moderate fire hazard for wildland fire pursuant to the 2023 State Responsibility Area Fire Hazard Severity Zone, which was adopted by El Dorado County on May 21, 2024. The project site is within El Dorado County Fire Protection District for structural fire protection and emergency medical services. The project has been reviewed by both County DOT and El Dorado County Fire Protection District, and their response was that the project is not anticipated to have any significant impact on or substantially impair any adopted emergency response plan or emergency evacuation plan. The project would be required to abide by all conditions of approval provided by El Dorado County DOT and El Dorado County Fire Protection District and meet all local and state standards. The project site is in an urbanized area with no special or unusual wildfire risk. Impacts would be **less than significant**.

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

Discussion

a. No substantial evidence contained in the project record has been found that would indicate that this project would have the potential to significantly degrade the quality of the environment. With adherence to County permit requirements and mitigation measures (i.e., **MM BIO-1** and **MM BIO-2**) as applied, this project would not have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number, or restrict the range of a rare or endangered plant or animal, or eliminate important examples of California history or pre-history. Any impacts from the project would be less than significant due to the design of the project and required standards that would be implemented through the grading and building permit processes and/or with the building permit processes and/or any required project specific improvements on the property. With the incorporation of the above-noted mitigation measures, cumulative impacts would be **less than significant**.

b. Cumulative impacts are defined in Section 15355 of the California Environmental Quality Act (CEQA) Guidelines as *two or more individual effects, which when considered together, would be considerable or which would compound or increase other environmental impacts.*

The project does not have impacts that are individually limited but cumulatively considerable. The proposed project would not involve development or changes in land use that would result in an increase in population growth. Use of public services and infrastructure would be subject to payment of fees determined by the different service providers. The project would not have cumulative traffic impacts. Due to the types of activities proposed, which have been disclosed in the Project Description and analyzed in Items I through XX, there would be no significant impacts anticipated related to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology/soils, greenhouse gas emissions, hazards/hazardous materials, hydrology/water quality, land use/planning, mineral resources, population/housing, public services, recreation, transportation, tribal cultural resources, utilities/service systems, or wildfire that would combine with similar effects such that the project's contribution would be cumulatively considerable. For these issue areas, either no impacts or less-than-significant impacts would be anticipated.

In respect to noise, the proposed project will not make a cumulatively considerable contribution to the cumulative impact as described in Section 13 (Noise). The cumulative (combined) noise levels from analyzed project on-site noise sources at existing nearby residential uses would exceed the hourly maximum noise standards for the residential receiver to the west during nighttime. The project-generated increases in ambient maximum noise levels, calculated to be 3.8 dB L_{max} during nighttime hours, would also exceed the required 3 dB increase significance criterion. To meet the General Plan nighttime hourly maximum (L_{max}) noise level standard and ambient noise level requirements, **MM NOISE-1** will be required. With the incorporation of this mitigation measure, the cumulative noise impacts will be **less than significant**.

c. Based on the discussion contained in this document, the proposed project would not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. The project would be subject to specific mitigation measures and conditions of approval as well as the requirements of the building and grading permits. Impacts would be **less than significant**.

SUPPORTING INFORMATION SOURCE LIST

Bollard Acoustical Consultants, Inc. (BAC). (2024). *Environmental Noise Assessment ARCO AM/PM Shingle Springs.*

CAPCOA Guide (August 2010): http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-QuantificationReport-9-14-Final.pdf

California Air Resources Board (CARB). (2022). "Area Designation Maps/State and National." Last updated November 2022. Accessed February 2023 at: http://www.arb.ca.gov/desig/adm/adm.htm.

California Air Resources Board (CARB). (2008). *Climate Change Scoping Plan.* Available at: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf

California Air Resources Board (CARB). (2022b). Gas Station Risk Assessment Screening Tools. Available at: https://ww2.arb.ca.gov/resources/documents/gasoline-service-station-industrywide-risk-assessment-guidance

California Attorney General's Office. (2010). Addressing Climate Change at the Project Level. Available at: http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf

California Code of Regulations. *Guidelines for Implementation of the California Environmental Quality Act.* Title 14, Section 15000, et seq. 14 CCR 15000

California Department of Conservation (CDC). (2024). *Farmland Mapping and Monitoring Program*. Available at: https://www.conservation.ca.gov/dlrp/fmmp/.

California Department of Conservation (CDC). (2024). *Important Farmland Categories*. Available online at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx.

California Department of Conservation (CDC). (2025). Mineral Land Classification Webmap. Accessed August 28, 2025 online from: https://maps.conservation.ca.gov/cgs/minerals/?page=Mineral-Land-Classification

California Department of Conservation (CDC). (2024). *Williamson Act Program*. Available online at: https://www.conservation.ca.gov/dlrp/lca.

California Department of Fish and Wildlife (CDFW). (2024). Biogeographic Information Observation System: CDFW BIOS Viewer. Available online at: https://apps.wildlife.ca.gov/bios6/.

California Department of Toxic Substances Control (DTSC). (2015). *DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)*. Available online at: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm.

California Department of Transportation (DOT). (2024). *California State Scenic Highway System Map*. Accessed August 26, 2024 from https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa

California Division of Mines and Geology. (1981). *Geologic map of the Sacramento quadrangle, California, 1:250,000.* Available online at: https://ngmdb.usgs.gov/Prodesc/proddesc_520.htm.

California Energy Commission. (2006). *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, Staff Final Report*. Publication CEC-600-2006-013-SF.

California Geological Survey. (2014). CGS Information Warehouse: Regulatory Maps. Accessed September 5, 2024 from https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/

California Office of Emergency Services. (2015). Business Plan/EPCRA 312. Available online at: www.caloes.ca.gov/for-businesses-organizations/plan-prepare/hazardousmaterials/hazmat-business-plan.

California Tree and Landscape Consulting, Inc. (CTLC). (2025). *Oak Resources Technical Report.*

Department of Toxic Substances Control. (2024). *DTSC's Hazardous Waste and Substances Site List – Site Cleanup (Cortese List).* Accessed on September 5, 2024 at https://dtsc.ca.gov/dtscs-cortese-list/

El Dorado County. (2018). Asbestos Review Areas. Accessed on August 26, 2024 at https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/government/air-quality/construction-dust-rules/asbestos-review-map-8-22-18.pdf

El Dorado County. (2015). *El Dorado County General Plan: A Plan for Managed Growth and Open Roads; A Plan for Quality Neighborhoods and Traffic Relief*. Placerville, CA: El Dorado County Planning Services.

El Dorado County. (2003). *El Dorado County General Plan Draft Environmental Impact Report*. State Clearinghouse No. 2001082030. Placerville, CA: El Dorado County Planning Services.

El Dorado County Air Quality Management District (EDCAQMD). (2000). *Rules and Regulations of the El Dorado County Air Quality Management District*. Accessed April 15, 2015 at: http://www.arb.ca.gov/DRDB/ED/CURHTML/R101.HTM.

El Dorado County Air Quality Management District (EDCAQMD). (2002). *Guide to Air Quality Assessment: Determining the Significance of Air Quality Impacts Under the California Environmental Quality Act*. Available online at: http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx.

El Dorado County Air Quality Management District et al. (EDCAQMD, Sacramento Metropolitan Air Quality Management District, Feather River Air Quality Management District, Placer County Air Pollution Control District, and Yolo-Solano Air Quality Management District). (2013). PM2.5 Implementation/Maintenance Plan and Redesignation Request for Sacramento PM2.5 Nonattainment Area. October 2013. Available online at: https://www.airquality.org/ProgramCoordination/Documents/PM2.5%20Imp%20and%20Redesignation%202013.pdf

El Dorado County Air Quality Management District et al. (EDCAQMD, Sacramento Metropolitan Air Quality Management District, Feather River Air Quality Management District, Placer County Air Pollution Control District, and Yolo-Solano Air Quality Management District). (2017). Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan. July 2017. Available online at: http://www.ysaqmd.org/wp-content/uploads/Planning/Sac-Regional-2008-NAAQS-Attainment-and-RFP-Plan.pdf

El Dorado County Fire Protection District (EDCFPD). (2025). *About Us.* Available online at: https://www.eldoradocountyfire.com/about-us

El Dorado County Geographic Information System (GIS) Data. Placerville, CA: Esri ArcGIS. Available: El Dorado County controlled access data GISDATA\SV-LIBRARIES.

El Dorado County Transportation Commission. (2012). *El Dorado County Airport Land Use Compatibility Plan*. Available online at: http://www.edctc.org/2/Airports.html.

Governor's Office of Planning and Research (OPR). (2008, June 19). *Technical advisory: CEQA and climate change: Addressing climate change through California Environmental Quality Act Review*. Available at: Sacramento, CA. http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf.

National Earthquake Hazards Reduction Program (NEHRP). (2009). Background and History. Available online at: www.nehrp.gov/about/history.htm.

Sacramento Metropolitan Air Quality Management District (SMAQMD). (2021). *Guide to Air Quality Assessment, Chapter 6: Greenhouse Gas Emissions.*

Society of Vertebrate Paleontology (SVP). (2010). *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.* Available online at: https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines-1.pdf

SWCA Environmental Consultants (SWCA). (2023). *Air Quality & Greenhouse Gas Technical Report Arco Shingle Springs Project.*

SWCA Environmental Consultants (SWCA). (2022). *Biological Resources Evaluation Report for the ARCO Shingle Springs Project, El Dorado County, California.*

SWCA Environmental Consultants (SWCA). (2025). *Supplemental Biological Survey Results for the Off-site Impact Area of the ARCO Shingle Springs Project, El Dorado County, California.*

SWCA Environmental Consultants (SWCA). (2023). *Cultural Resources Technical Report for ARCO Shingle Springs Project, Shingle Springs, El Dorado County, California.*

State Water Resources Control Board (SWRCB). (2013). Storm Water Program, Municipal Program. Available online at: www.waterboards.ca.gov/water_issues/programs/stormwater/municipal.shtml

United States Department of Agriculture (USDA) Natural Resources Conservation Service. (2023). *Rescue Series.* Accessed September 5, 2024 from https://soilseries.sc.egov.usda.gov/OSD_Docs/R/RESCUE.html

U.S. Environmental Protection Agency. (2014). Summary of the Energy Policy Act. Available online at: www2.epa.gov/laws-regulations/summary-energy-policy-act

U.S. Environmental Protection Agency. (2015). The Green Book Nonattainment Areas for Criteria Pollutants. Available online at: www.epa.gov/airquality/greenbook.

U.S. Geological Survey (USGS). (1989). *Swelling clays map of the conterminous United States.* Accessed September 5, 2024 at https://ngmdb.usgs.gov/Prodesc/proddesc_10014.htm

U.S. Green Building Council (USGBC). (2014). LEED v4 for Building Design and Construction Addenda. Updated October 1, 2014. Available online at: www.usgbc.org/resources/leed-v4-building-design-and-construction-redline-current-version.

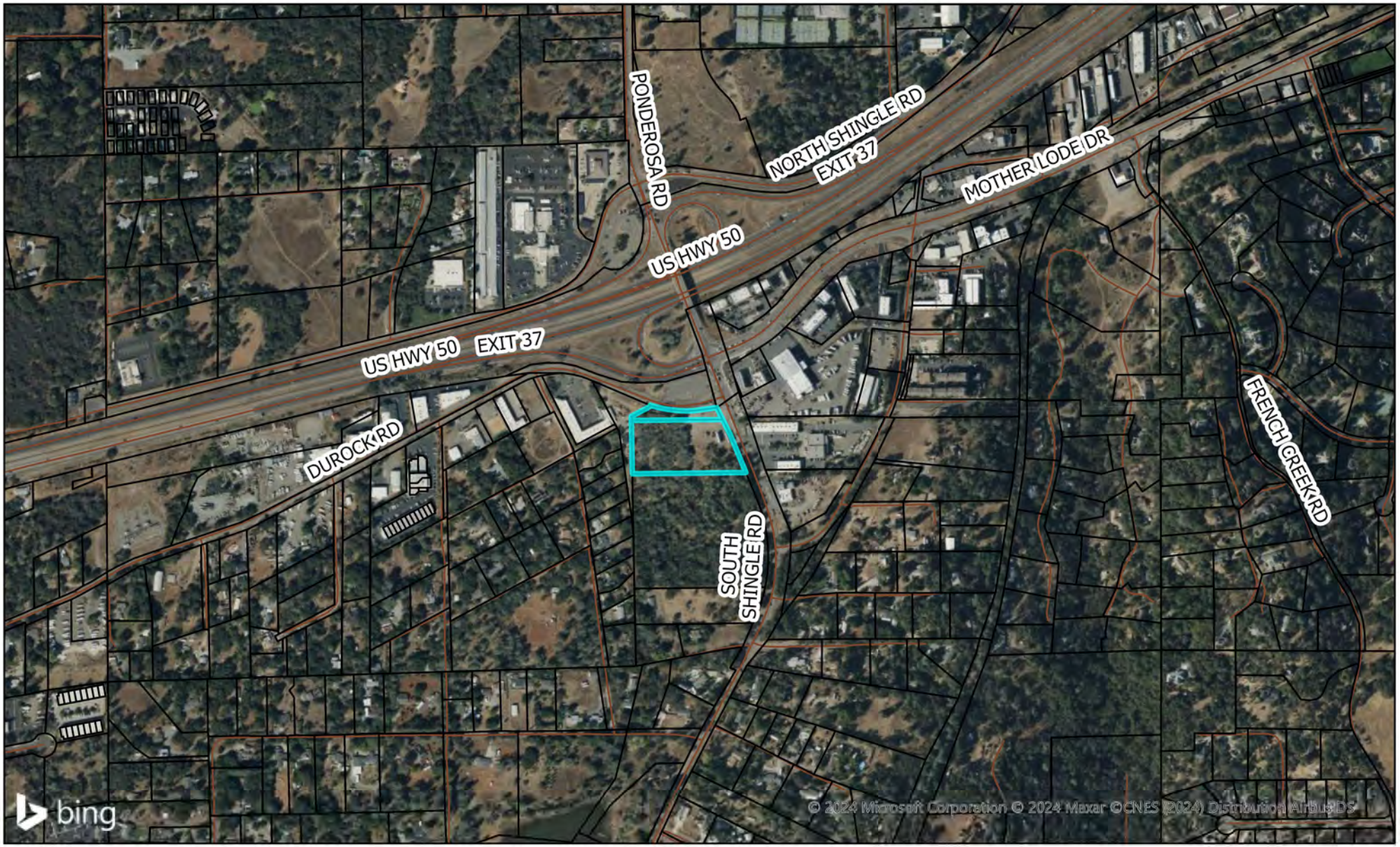
U.S. Green Building Council (USGBC). (2015). LEED Overview. Available online at: www.usgbc.org/leed.

Wilson, J. (2009). *Vegetation and Flora of a Biodiversity Hotspot: Pine Hill, El Dorado County, California, USA*. Madroño, Vol. 56, No. 4, pp. 246-278.

Wood Rogers. (2025). *ARCO Shingle Springs El Dorado County, CA Traffic Impact Study Draft Report.*

Attachment A

CUP23-0007 Durock AM/PM Project Vicinity Map



APNs 109-080-012-000, 109-080-013-000

N

0 300 600 1,200 Feet

Legend

Parcel Lines — Roads

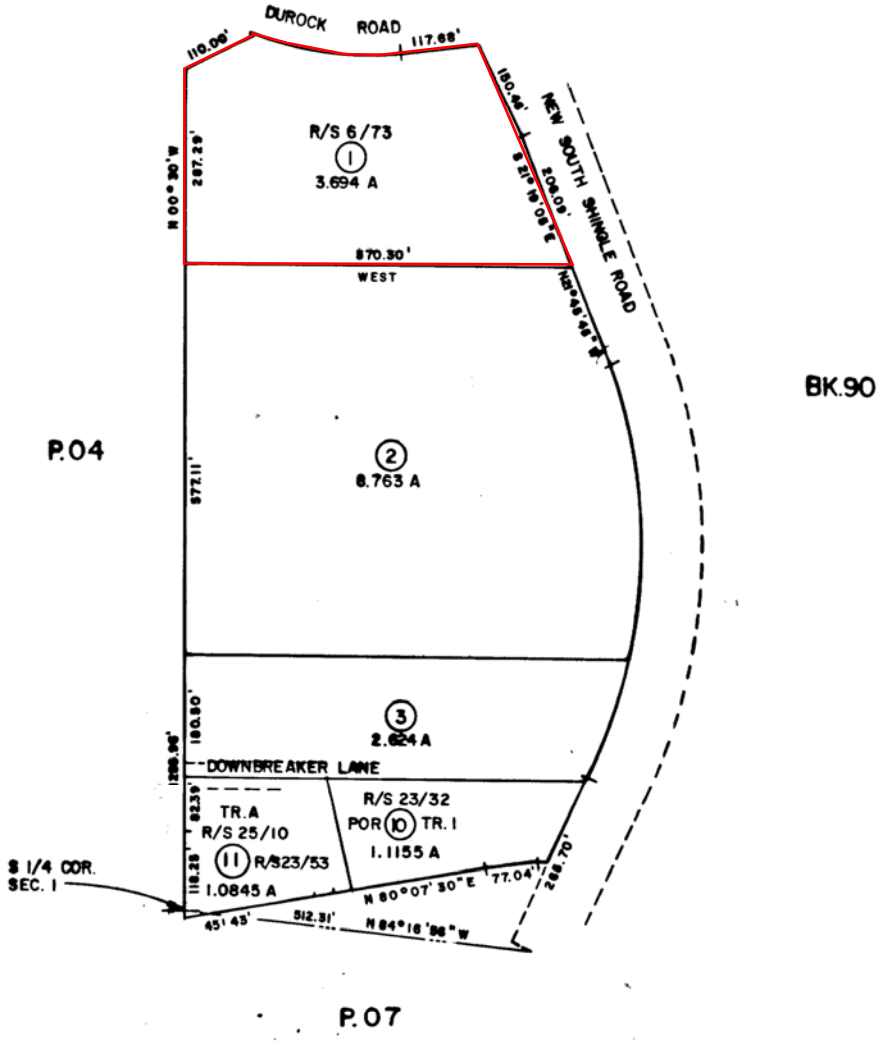
Disclaimer: Parcel boundaries in this map are illustrative only and not considered the legal boundary.

Map created by Anna Quan on July 16, 2024

POR. SE. 1/4 SEC. 1., T.9N., R.9E., M.D.M.

Attachment B

Tax Area Code 109



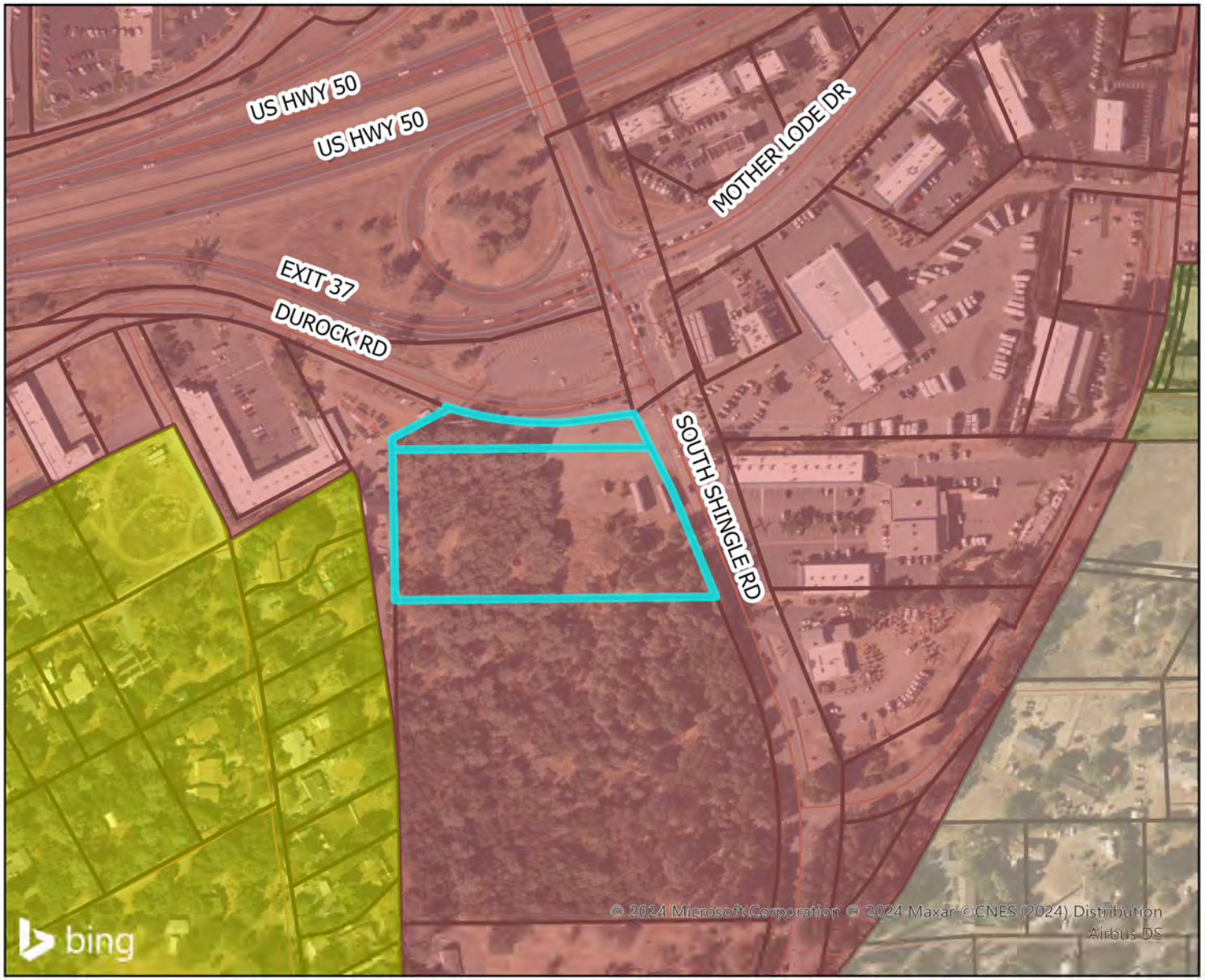
THIS MAP IS NOT A SURVEY, It is prepared by the El Dorado Co. Assessor's office for assessment purposes only.

NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles

Assessor's Map Bk. 109 – P
County of El Dorado, Californ
05-02-2002

Attachment C

CUP23-0007 Durock AM/PM Land Use Map



Legend

Land Use Designations

- Commercial
- High Density Residential
- Medium Density Residential
- Multi-Family Residential
- Roads
- Parcel Lines

APNs 109-080-012-000, 109-080-013-000

N

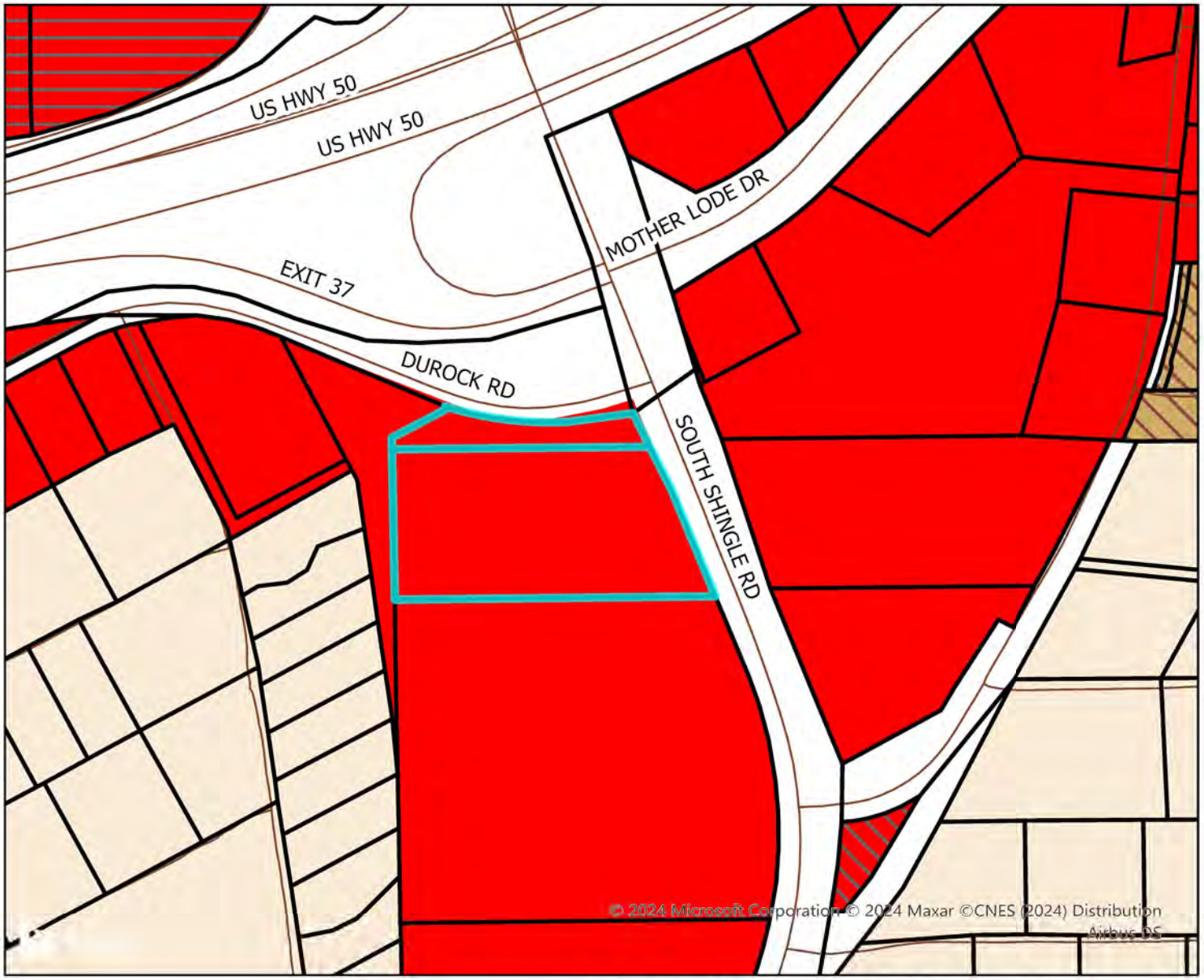
0 125 250 500 Feet

Disclaimer: Parcel boundaries in this map are illustrative only and not considered the legal boundary.

Map created by Anna Quan on July 16, 2024

Attachment D

CUP23-0007 Durock AM/PM Zoning Map



Legend

Zoning Designations

- CC = Commercial Community
- CL = Commercial Limited
- CR = Commercial Regional
- RM = Residential Multi-Unit
- R1A = Residential 1 Acre
- TC = Transportation Corridor
- Roads
- Parcel Lines

APNs 109-080-012-000, 109-080-013-000

N

0 125 250 500 Feet

Disclaimer: Parcel boundaries in this map are illustrative only and not considered the legal boundary.

Map created by Anna Quan on July 16, 2024

Attachment E

Biological Resources Evaluation Report for the ARCO Shingle Springs Project, El Dorado County, California

JULY 2022

PREPARED FOR

Marc Strauch, Strauch Companies

PREPARED BY

SWCA Environmental Consultants

Attachment E

BIOLOGICAL RESOURCES EVALUATION FOR THE ARCO SHINGLE SPRINGS PROJECT, EL DORADO COUNTY, CALIFORNIA

Prepared for

Strauch Companies
193 Blue Ravine Rd, Suite 135
Folsom, CA 95630
Attn: Marc Strauch

Prepared by

SWCA Environmental Consultants
6355 Riverside Boulevard, Suite C
Sacramento, CA 95831
(916) 427 0703
www.swca.com

SWCA Project No. 0072467

July 2022

Attachment E

CONTENTS

List of Abbreviated Terms **1**

1 Introduction **1**

2 Project Description **1**

2.1 Location 1

2.2 Project Overview 1

3 Environmental Setting **4**

3.1 Climate 4

3.2 Topography 4

3.3 Soils 4

4 Regulatory Setting **6**

4.1 Federal 6

4.1.1 Clean Water Act 6

4.1.2 Federal Endangered Species Act 7

4.1.3 Migratory Bird Treaty Act 7

4.2 State 8

4.2.1 California Endangered Species Act 8

4.2.2 California Environmental Quality Act 8

4.2.3 Native Plant Protection Act 9

4.2.4 California Fish and Game Code Sections 1600-1607 9

4.2.5 California Fish and Game Code Sections 3503 and 3513 9

4.2.6 California Fish and Game Code Sections 3511, 4700, 5050, and 5515 9

4.2.7 California Fish and Game Code Sections 4150-4155 10

4.2.8 Porter-Cologne Water Quality Act 10

4.3 Local 10

4.3.1 El Dorado County General Plan Conservation Policies 10

4.3.2 El Dorado County Oak Woodland Management Plan 11

4.3.3 El Dorado County Rare Plant Mitigation Area 11

5 Methods **11**

5.1 Background Research 12

5.2 Biological Survey 12

5.3 Special-Status Species and Natural Communities Evaluated Table 12

5.4 Definitions 13

5.4.1 Special-Status Plant Species 13

5.4.2 Special-Status Wildlife Species 13

5.4.3 Sensitive Natural Communities 13

5.4.4 Species Potential to Occur 13

6 Results **14**

6.1 Special-Status Species 14

6.1.1 Plants 14

6.1.2 Wildlife 16

6.2 Roosting Bats 16

6.3 Nesting Migratory Birds/Raptors 17

6.4 Critical Habitat 17

6.5 Natural Communities and Other Land Covers 17
6.5.1 Natural Communities 17
6.5.2 Sensitive Natural Communities 17
6.5.3 Other Land Covers 18
6.5.4 Protected trees 20
6.6 Essential Fish Habitat 20
6.7 Wetlands/Waters 20
6.8 Migratory Corridors 20
7 Discussion 20
8 Avoidance and Minimization Measures 21
8.1 Species-Specific Measures 21
9 Literature Cited 23

Appendices

Appendix A. USFWS Species List, CNDDB Summary Report, and CNPS Inventory Query
Appendix B. Plant and Wildlife Species Observed
Appendix C. Special-Status Species Evaluated Table
Appendix D. Photographs

Figures

Figure 1. Project Location Map 2
Figure 2. Aerial Photograph 3
Figure 3. Soils Map 5
Figure 4. Biological Resources Map 19

LIST OF ABBREVIATED TERMS

AMM	Avoidance and Minimization Measure(s)
BSA	Biological Survey Area
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
FESA	Federal Endangered Species Act
GPS	Global Positioning System
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

INTRODUCTION

This Biological Resources Technical Report (BRTR) has been prepared by SWCA Environmental Consultants (SWCA) at the request of Marc Strauch. The purpose of this report is to identify sensitive biological resources that may be impacted by the ARCO Shingle Springs Project (project). This BRTR describes the regulatory setting for the project, the methods and results of background research and a reconnaissance-level field survey, and a discussion of the possible permitting implications of the project. SWCA anticipates that this document will be used in support of California Environmental Quality Act (CEQA) compliance and future environmental permitting.

2 PROJECT DESCRIPTION

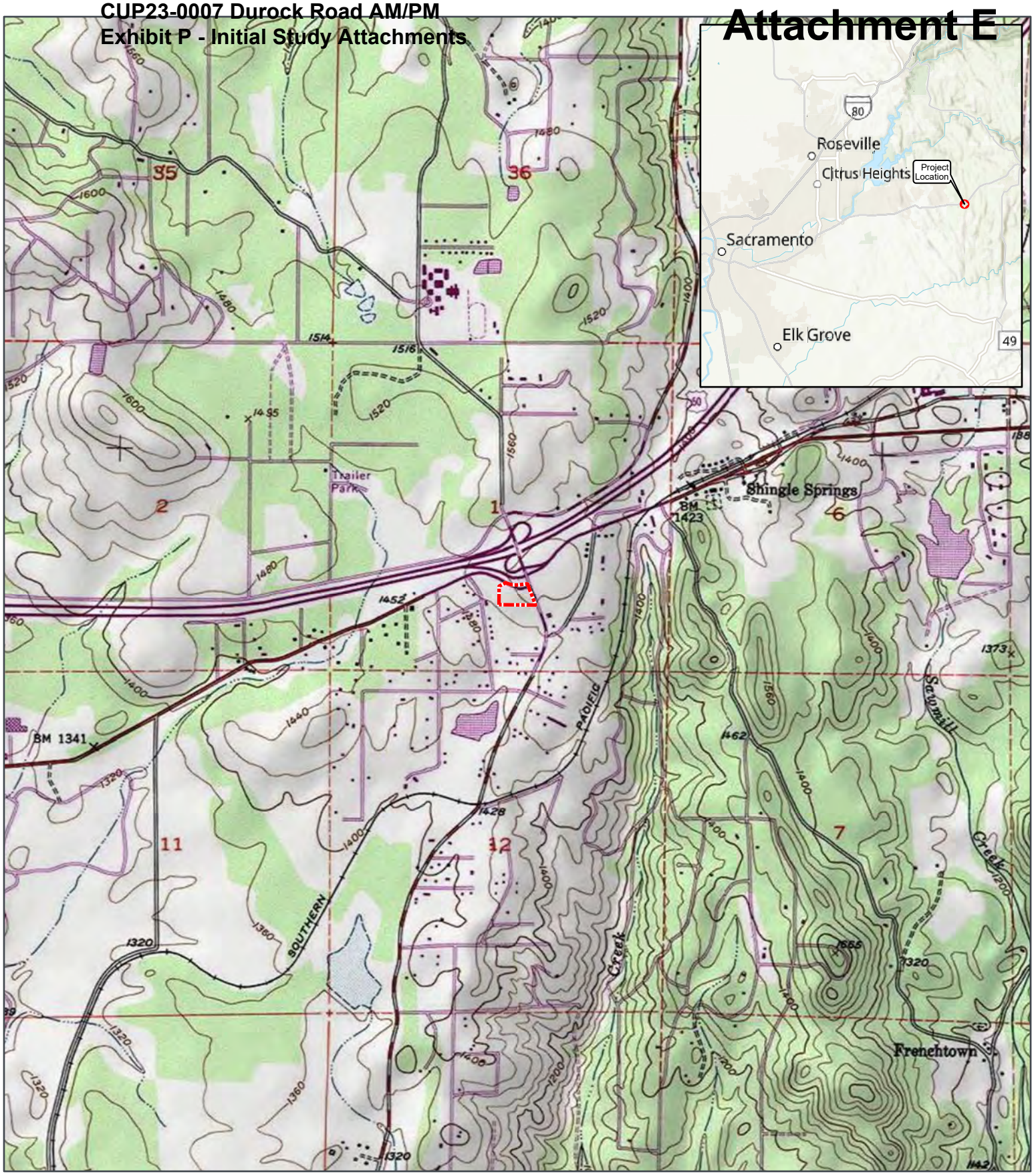
2. Location

The project is located at 4100 Durock Road in Shingle Springs, El Dorado County, California within the Shingle Springs U.S. Geologic Survey 7.5-minute topographic quadrangle (Figures 1). The project is in township T09N, range R9E, sections 1 and 12, and includes assessor parcel number 109-080-001. The geographic coordinates for the centroid of the project are 38.6604 N, 120.9375 W. The project is located southwest of the intersection of Durock Road and South Shingle Road. The project is bordered to the north by Durock Road and a “park and ride” commuter parking lot, to the east by South Shingle Road and scattered commercial buildings, to the south by mixed coniferous forest, and to the west by mixed residential and commercial buildings (Figure 2).

2.2 Pro ect Overview

The project includes the development of a 3,329-square-foot Arco AM/PM gas station with an approximately 4,606 square-foot canopy covering a total of six fueling stations, two underground fuel storage tanks, and an automatic 100-foot-long car wash on a currently undeveloped approximately 3.7-acre parcel. The development will occur on the eastern half of the parcel and the western half will remain undeveloped.

Attachment E



ARCO SHINGLE SPRINGS

Project Location

El Dorado County, CA
USGS 7.5' Quadrangle:
Shingle Springs, CA (1973)
T09N, R9E, Sections 1 and 12
NAD 1983 California Teale
Albers FtUS
38.6604°N 120.9375°W

0 1,000 2,000 Feet
0 250 500 Meters

N

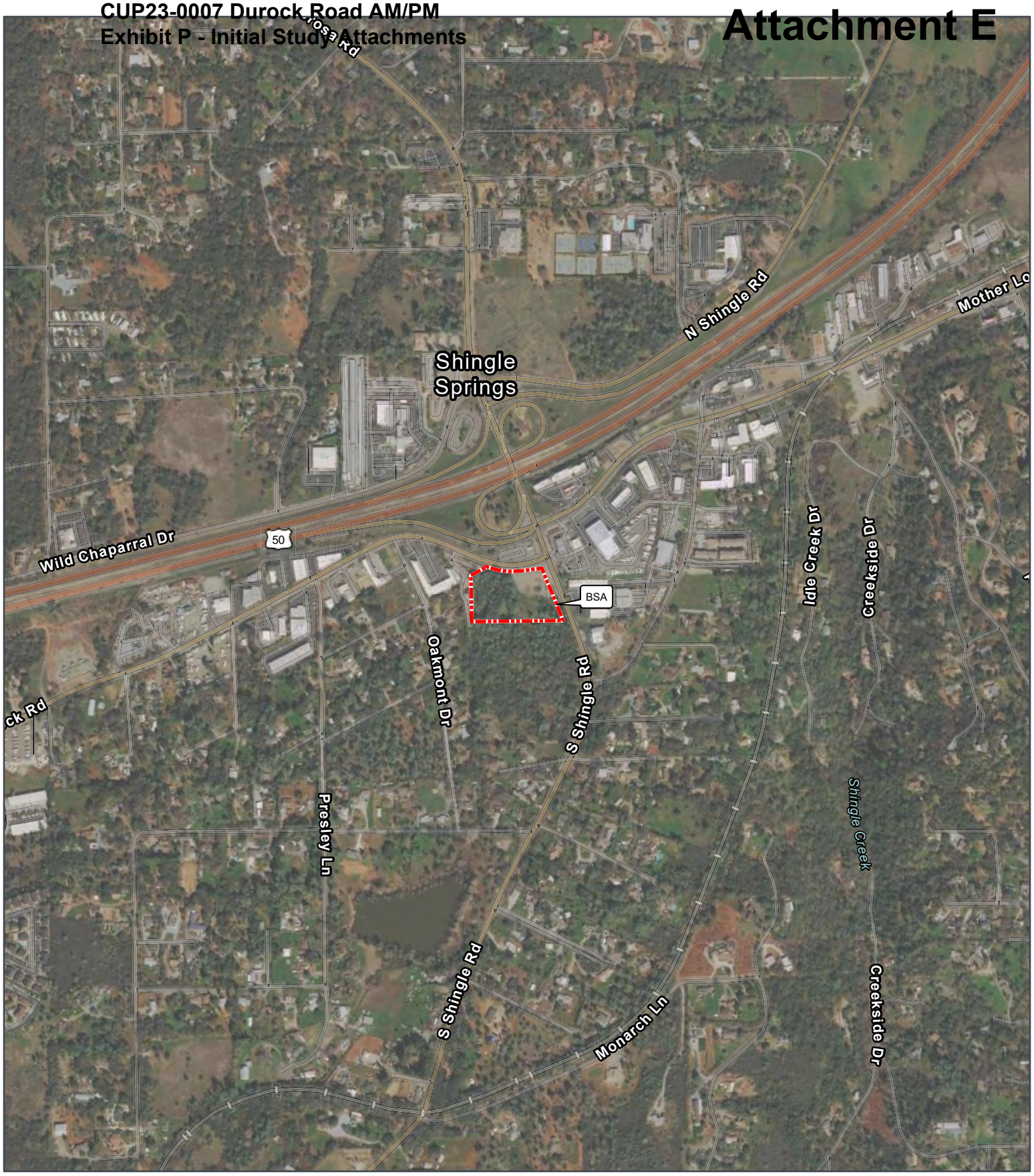
1:24,000

Base Map: USA_Topo_Maps
ESRI ArcGIS Pro Basemap layer,
accessed May 2022
Updated: 5/20/2022
Project No. 72467
Aprx: 25-1835_E_Shingle
Layout:
72467ARCOShingleSpr_Fig1LocMap

SWCA ENVIRONMENTAL CONSULTANTS

Figure 1.
Project Location Map

Attachment E



ARCO SHINGLE SPRINGS

Figure 2.
Aerial Photograph

Biological Study Area (BSA)

El Dorado County, CA
NAD 1983 StatePlane California II FIPS 0402 Feet
38.6604°N 120.9375°W

0 400 800 Feet
0 125 250 Meters

N

1:9,600

Base Map: World Imagery
ESRI ArcGIS Pro Basemap layer, accessed May 2022
Updated: 5/20/2022
Project No. 72467
Aprx: 72467_BSA_ShingleSprs_Layouts
72467ARCOShingleSpr_Fig2AerialPhoto

SWCA ENVIRONMENTAL CONSULTANTS

3 ENVIRONMENTAL SETTING

3. Climate

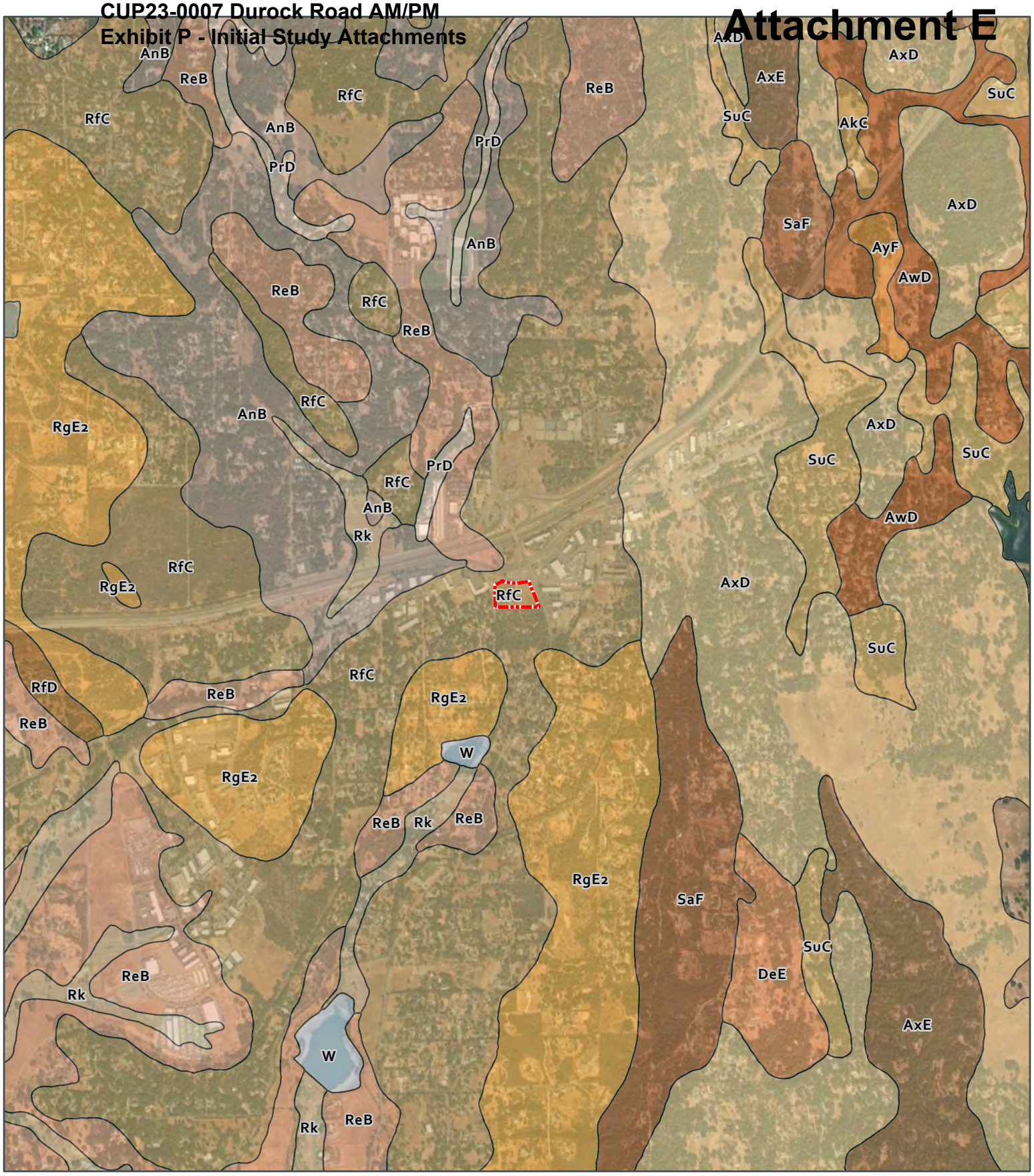
The project is located in the Sierra Nevada foothills. Temperatures in the region may vary widely between seasons and are dependent on elevation. Average annual temperatures range from 46 to 77 degrees Fahrenheit (°F). The area receives about 17 inches of precipitation annually during the rainy season (October through May; NOAA 2022).

3.2 Topography

The elevation of the project ranges from approximately 1,480 feet to 1,530 feet. The project is located on the western slope within the Sierra Nevada Province. This province encompasses the large mountainous region located east of the Central Valley. The topography within this region consists of a high, rugged multiple scarp east face and a gentle western slope. Deep river canyons are cut into the western slope (CGS 2002).

3.3 Soils

According to the NRCS Web Soil Survey (NRCS 2022), soils in the within the project footprint consist of one soil type—Rescue very stony sandy loam (Figure 3). The Rescue soils are thermic Mollic Haploxeralfs derived from residuum of gabbrodiorite rocks, occur on gently sloping to very steep uplands and are well-drained with medium to very rapid runoff and moderately slow to slow permeability.



ARCO SHINGLE SPRINGS

Figure 3.
Soils Map

Biological Study Area (BSA)

Soil Mapping Unit (In BSA)

RfC - Rescue very stony sandy loam, 3 to 15 percent slopes

El Dorado County, CA
NAD 1983 StatePlane California II FIPS 0402 Feet
38.6604°N 120.9375°W

Soils Survey Geographic (SSURGO) database for El Dorado Area, CA, USDA, NRCS
URL: http://SoilsDataMart.nrcs.usda.gov/
Aerial Photograph: 27 Feb. 2021 WV02 Metro Maxar Imagery
Base Map: World Imagery ESRI ArcGIS Pro Basemap layer, accessed May 2022
Updated: 5/20/2022
Aprx: 72467_ARCO_ShingleSprings Layout:

0 1,000 2,000 Feet
0 250 500 Meters

N

1:20,000

SWCA ENVIRONMENTAL CONSULTANTS

REGULATORY SETTING

. Federal

. . *Clean Water Act*

The Clean Water Act (CWA) is the primary federal law regulating water quality. The implementation of the CWA is the responsibility of the U.S. Environmental Protection Agency (EPA). However, the EPA depends on other agencies, such as the individual states and the U.S. Army Corps of Engineers (USACE), to assist in implementing the CWA. The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 404 and 401 of the CWA apply to activities that would impact waters of the U.S. The USACE enforces Section 404 of the CWA and the California State Water Resources Control Board enforces Section 401, as well as state water laws.

. . . SECTION 0

Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the U.S. without formal consent from the USACE. On August 31, 2021, the Navigable Waters Protection Rule, which defined waters of the U.S., was vacated and remanded. In accordance with the U.S. Environmental Protection Agency's (USEPA's) and USACE's current guidance, waters of the U.S should be interpreted as consistent with the pre-2015 regulatory regime until further notice (EPA 2021). A summary of that definition of waters of the U.S. is as follows:

- All waters currently or previously susceptible to use interstate foreign commerce;
- All interstate waters including interstate wetlands;
- Waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the U.S under this definition;
- Tributaries of waters identified in the bullet points above;
- The territorial sea; and
- Wetlands adjacent to waters identified in the preceding bullet points.

Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(b)).

Projects that minimally affect waters of the U.S. may meet the conditions of one of the existing Nationwide Permits, provided that certain conditions are satisfied. Substantial impacts to waters of the U.S. may require an Individual Permit, which, among other requirements, involves an alternatives analysis to demonstrate why impacts cannot be avoided. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions.

. . .2 SECTION 0

Any applicant for a federal permit to impact waters of the U.S. under Section 404 of the CWA, including Nationwide Permits where pre-construction notification is required, must also provide to the USACE a

certification or waiver from the State of California. The "401 Certification" is provided by the State Water Resources Control Board through the local Regional Water Quality Control Board (RWQCB).

The RWQCB issues and enforces permits for discharge of treated water, landfills, storm-water runoff, filling of any surface waters or wetlands, dredging, agricultural activities and wastewater recycling. The RWQCB recommends the "401 Certification" application be made at the same time that any applications are provided to other agencies, such as the USACE, USFWS, or NOAA Fisheries. The application is not final until completion of environmental review under CEQA. The application to the RWQCB must include:

- a description of the habitat that is being impacted,
- how much habitat is being impacted temporarily and permanently,
- a description of how the impact is proposed to be minimized, and
- mitigation measures with goals, schedules, and performance standards. Mitigation must include a replacement of functions and values, and replacement of wetland. The RWQCB looks for mitigation that is on site and in-kind, with functions and values as good as or better than the water-based habitat that is being removed.

. .2 *Federal Endangered Species Act*

The Federal Endangered Species Act (FESA) of 1973, as amended, provides the regulatory framework for the protection of plant and animal species (and their associated critical habitats), which are formally listed, proposed for listing, or candidates for listing as endangered or threatened under FESA. FESA has the following four major components: (1) provisions for listing species, (2) requirements for consultation with the United States (U.S.) Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), (3) prohibitions against "taking" (i.e., harassing, harming, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct) of listed species, and (4) provisions for permits that allow incidental "take". Recovery plans and the designation of critical habitat for listed species are defined in FESA.

Under Section 7 of FESA, any federal agency that is authorizing, funding, or carrying out an action that may jeopardize the continued existence of threatened or endangered species listed under the FESA or result in the destruction or adverse modification of critical habitat for these species must consult with the federal agency that oversees the protection of that species, typically the USFWS and/or NOAA Fisheries, depending on the species that may be affected. Non-federal agencies and private entities can seek authorization for take of species listed under Section 10 of FESA, which requires the preparation of a Habitat Conservation Plan.

. .3 *Migratory Bird Treaty Act*

The U.S. Migratory Bird Treaty Act (MBTA; 16 USC §§ 703 et seq., Title 50 Code of Federal Regulations [CFR] Part 10) states it is "unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill; attempt to take, capture or kill; possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or in part, of any such bird or any part, nest or egg thereof…"

The long-standing interpretation was that take that is incidental to otherwise lawful activities was prohibited in addition to intentional take. In 2017 the Department of the Interior Solicitor's Office released Opinion M-37050 which opined that the legal scope of the MBTA applies only to intentional take of migratory birds and that the take of birds resulting from an activity is not prohibited when the underlying purpose of that activity is not to take birds. In February 2020, the USFWS published a proposed rule to codify M-37050. In January 2021, after preparing an Environmental Impact Statement and receiving public comments on the proposed rule, the USFWS published the final rule formalizing this interpretation of the MBTA. As a result, the MBTA was limited to purposeful actions, such as directly and knowingly removing a nest to construct a project, hunting, and poaching, and not to actions resulting in incidental take. However, in May 2021, the USFWS proposed to revoke that rule and return to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent. In July 2021, the USFWS announced that two economic analysis documents associated with the proposed revocation of the rule were open for public review and comment. The comment period closed on August 19, 2021.

.2 State

.2. *California Endangered Species Act*

The California Endangered Species Act (CESA; Fish and Game Code 2050 et seq.) generally parallels the FESA. It establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Section 2080 of the California Fish and Game Code prohibits the take, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or by the regulations. "Take" is defined in Section 86 of the California Fish and Game Code as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." This definition differs from the definition of "take" under FESA. CESA is administered by the California Department of Fish and Wildlife (CDFW). CESA allows for take incidental to otherwise lawful projects but mandates that State lead agencies consult with the CDFW to ensure that a project would not jeopardize the continued existence of threatened or endangered species.

.2.2 *California Environmental Quality Act*

The California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000 et. seq.) requires public agencies to review activities which may affect the quality of the environment so that consideration is given to preventing damage to the environment. When a lead agency issues a permit for development that could affect the environment, it must disclose the potential environmental effects of the project. This is done with an "Initial Study and Negative Declaration" (or Mitigated Negative Declaration) or with an "Environmental Impact Report". Certain classes of projects are exempt from detailed analysis under CEQA.

The CEQA Guidelines Section 15380 define endangered, threatened, and rare species for purposes of CEQA and clarifies that CEQA review extends to other species that are not formally listed under the state or federal Endangered Species Acts but that meet specified criteria. The state maintains a list of sensitive, or "special-status", biological resources, including those listed by the state or federal government or the California Native Plant Society (CNPS) as endangered, threatened, rare or of special concern due to declining populations. During CEQA analysis for a proposed project, the California Natural Diversity Data Base (CNDDB) is usually consulted. CNDDB relies on information provided by the California Department of Fish and Wildlife (CDFW), USFWS, and CNPS, among others. Under CEQA, the lists kept by these and any other widely recognized organizations are considered when determining the impact of a project.

.2.3 *Native Plant Protection Act*

The Native Plant Protection Act (NPPA) was created in 1977 with the intent to preserve, protect, and enhance rare and endangered plants in California (California Fish and Game Code sections 1900 to 1913). The NPPA is administered by the CDFW, which has the authority to designate native plants as endangered or rare and to protect them from "take." The CDFW maintains a list of plant species that have been officially classified as endangered, threatened or rare. These special-status plants have special protection under California law and projects that directly impact them may not qualify for a categorical exemption under CEQA guidelines. With regulation promulgated in 2015, the CDFW may permit impacts to plants designated as rare under the NPPA using the same procedures for threatened, endangered, and candidate plant species protected under the CESA.

.2. *California Fish and Game Code Sections 1600-1607*

Sections 1600-1607 of the California Fish and Game Code require that a Notification of Lake or Streambed Alteration Agreement (LSAA) application be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions in the application and, if necessary, prepares a LSAA that includes measures to protect affected fish and wildlife resources, including mitigation for impacts to bats and bat habitat.

.2. *California Fish and Game Code Sections 3503 and 3513*

Nesting birds, including raptors, are protected under California Fish and Game Code Section 3503, which reads, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." In addition, under California Fish and Game Code Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto". Passerines and non-passerine land birds are further protected under California Fish and Game Code 3513. As such, CDFW typically recommends surveys for nesting birds that could potentially be directly (e.g., actual removal of trees/vegetation) or indirectly (e.g., noise disturbance) impacted by project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by CDFW.

.2. *California Fish and Game Code Sections 3511, 4700, 5050, and 5515*

The classification of California fully protected (FP) species was the CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for birds, mammals, amphibians and reptiles, and fish. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The Fish and Game Code sections (§3511 for birds, §4700 for mammals, §5050 for amphibian and reptiles, and §5515 for fish) deal with FP species and state that these species "…may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species" (Fish and Game Commission 1998). "Take" of these species may be authorized for necessary scientific research. This language makes the FP designation the strongest and most restrictive regarding the "take" of these species. In 2003, the code sections dealing with FP species were amended to allow the CDFW to authorize take resulting from recovery activities for state-listed species.

.2.7 *California Fish and Game Code Sections 4150-4155*

Sections 4150-4155 of the California Fish and Game Code protects non-game mammals, including bats. Section 4150 states "A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A non-game mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission". The non-game mammals that may be taken or possessed are primarily those that cause crop or property damage. Bats are classified as a non-game mammal and are protected under California Fish and Game Code.

.2. *Porter-Cologne Water Quality Act*

The intent of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is to protect water quality and the beneficial uses of water, and it applies to both surface and ground water. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans, which identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under Porter-Cologne, referred to as "waters of the State," include isolated waters that are not regulated by the USACE. Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact waters of the State are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, any person discharging, or proposing to discharge, waste (e.g., dirt) to waters of the State must file a Report of Waste Discharge and receive either waste discharge requirements (WDRs) or a waiver to WDRs before beginning the discharge.

.3 Local

.3. *El Dorado County General Plan Conservation Policies*

In addition to federal and state regulations, the 2004 El Dorado County General Plan defines certain goals, objectives, and policies that aim to protect natural resources:

- Objective 7.4.1 of the General Plan states that the County will protect state and federally recognized rare, threatened, or endangered species and their habitats consistent with federal and state laws.
- Policy 7.3.3.4 - Requires developments to have 50-foot setbacks from intermittent features and 100-foot setbacks from perennial waters.
- Policy 7.4.1.1 - The County shall continue to provide for the permanent protection of the eight sensitive plant species known as the Pine Hill endemics and their habitat through the establishment of ecological preserves consistent with County Code Chapter 17.71 and the USFWS's Gabbro Soil Plants for the Central Sierra Nevada Foothills Recovery Plan (USFWS 2002).
- Policy 7.4.1.5 - Species, habitat, and natural community preservation/conservation strategies shall be prepared to protect special status plant and animal species and natural communities and habitats when discretionary development is proposed on lands with such resources unless it is determined that the resources exist, and either are or can be protected, on public lands or private Natural Resource lands.
- Policy 7.4.1.6 - All development projects involving discretionary review shall be

designed to avoid disturbance or fragmentation of important habitats to the extent reasonably feasible. Where avoidance is not possible, the development shall be required to fully mitigate the effects of important habitat loss and fragmentation. Mitigation shall be defined in the Integrated Natural Resources Management Plan.

- Policy 7.4.4.4: Identifies impact and mitigation standards for oak canopy on parcels larger than 1 acre with at least 1% canopy cover or smaller than 1 acre with at least 10% canopy cover. The County implements this policy through application of the County Oak Woodland Management Plan.
- Policy 7.5.1.4 - Proposed rare, threatened, or endangered species preserves, as approved by the County Board of Supervisors, shall be designated Ecological Preserve (-EP) overlay on the General Plan land use map.
- Policy 7.4.5.2 - States that it is the County's policy to preserve native oak trees whenever possible and to that end calls for the preparation and implementation of an Oak Tree Preservation Ordinance. The Ordinance would include a permit process for ministerial, discretionary, and commercial oak tree removal. The Ordinance would identify mitigation for oak tree removal and penalties for noncompliance.

.3.2 *El Dorado County Oak Woodland Management Plan*

Oak woodlands are subject to California Public Resources Code (PRC) §21083.4 and El Dorado County General Plan 7.4.4.4. The County assesses impacts and mitigation for removal of oak woodlands for development projects via application of the El Dorado County Oak Resources Management Plan. Development, as established by the policy, is any structure requiring a building permit or grading activity requiring a grading permit. The plan, adopted in September 2017, regulates oak woodlands and individual oak trees outside of oak woodlands.

.3.3 *El Dorado County Rare Plant Mitigation Area*

The areas that comprise this fee program are:

- Mitigation Area 0 – Lands within an ecological preserve (Approximately 3,450 acres).
- Mitigation Area 1 – Lands outside of Mitigation Area 0, but within the area described as the "rare soils study area" (approximately 36,000 acres) ⎪
- Mitigation Area 2 – Lands outside of Mitigation Areas 0 and 1, but within the service area of the El Dorado Irrigation District, excluding parcels served by wells.

Development projects located in rare plant mitigation areas are required to pay the County rare plant mitigation fee. The County would require the fee regardless of whether any rare plants occur in the BSA or not. Pine Hill is a notable ecological reserve and contains the following eight plants: Stebbins' morning-glory, Pine Hill ceanothus, Red Hills soaproot, Pine Hill flannelbush, El Dorado bedstraw, Bisbee Peak rush-rose, Layne's butterweed, and El Dorado County mule ears.

METHODS

The biological study area (BSA) consists of the 3.72-acre project site.

. Background Research

SWCA performed a literature and database review to identify potential sensitive biological resources that have the potential to occur in the BSA. The database review consisted of a California Natural Diversity Database (CNDDB) record search for special-status species in the project USGS 7.5-minute quadrangle (Shingle Springs) and the surrounding 8 quads (CDFW 2022b), a CNPS Rare Plant Program Inventory of Rare and Endangered Plants of California record search of the nine USGS 7.5-minute quadrangles surrounding the project site (CNPS 2022), and the USFWS Information for Planning and Consultation (IPaC) (USFWS 2022a).

Other sources reviewed included the following:

- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey
- USFWS National Wetland Inventory (NWI) (USFWS 2022b)
- The California Natural Communities List (CDFW 2022b)

.2 Biological Survey

SWCA biologists Monica Coll and Alec Villanueva conducted a biological survey of the BSA on April 12, 2022 to evaluate the potential for sensitive biological resources to occur in the BSA. The survey occurred during the published blooming periods of special-status plants with potential to occur in the BSA. The biologists walked meandering transects throughout the BSA. A sub-meter accurate global positioning system (GPS) unit (Geode GNS2 Multi-GNSS 1Hz Receiver) was available to document any biological resources, as needed. The GPS data was collected and refined in ArcGIS Online. The data was then imported into ArcGIS Pro where feature boundaries were completed. Feature boundaries were then overlaid onto a topographic base with 1-foot contours to create Figure 4. Acreages and feature dimensions were calculated using ArcGIS geoprocessing functions.

Wildlife and plant species observed during the survey were recorded (Appendix B). Vegetation was classified and mapped to the alliance or association level using a *Manual of California Vegetation Online* (CNPS 2022). Plant species were identified on sight or with the aid of dichotomous keys in the Jepson eFlora (2022). Natural communities were identified and mapped. Vegetation in these communities was classified according to methods and vegetation alliance membership rules in A Manual of California Vegetation, 2nd edition (Sawyer et al. 2009). The CDFW (2022b) California Natural Community List was reviewed to verify vegetation rarity ranks and determine if any sensitive vegetation alliances or associations occur.

Representative photographs depicting existing conditions are in included in Appendix D.

.3 Special-Status Species and Natural Communities Evaluated Table

Special-status species and natural communities were identified during background research, evaluated during the biological survey, and analyzed in a table (Appendix C) according to the definitions below.

. De initions

. . *Special-Status Plant Species*

For the purposes of this document, special-status plant species are defined as the following:

- Plants listed or proposed for listing as threatened or endangered under the FESA
- Plants listed, proposed, or candidate for listing as threatened or endangered under the CESA
- Plants considered by the CNPS to be "rare, threatened, or endangered" in California (California Rare Plant Ranks [CRPR] 1A, 1B, 2A, 2B, and 3)
- Plants listed under the NPPA

. .2 *Special-Status Wildlife Species*

For the purposes of this document, special-status wildlife species are defined as the following:

- Wildlife listed or proposed for listing as threatened or endangered under the FESA
- Wildlife that are candidates for listing as threatened or endangered under the FESA
- Wildlife listed, proposed, or candidate for listing as threatened or endangered under the CESA
- CDFW species of special concern (SSC)
- California fully protected (FP) species

. .3 *Sensitive Natural Communities*

For the purposes of this document, sensitive natural communities are defined as the following:

- Aquatic (wetland, water, and riparian) communities protected under state and/or federal regulatory programs
- Vegetation alliances and associations with rarity ranking of S1, S2, or S3 (considered sensitive by CDFW).

. . *Species Potential to Occur*

The likelihood that a particular special-status species occurs in the BSA was determined based on natural history parameters including, but not limited to, the species' range, habitat, foraging needs, migration routes, and reproductive requirements. The following definitions apply:

- *Present* – The species has been documented within the BSA by a reliable observer during recent surveys and habitat has not significantly degraded since the observation (e.g., no habitat removal associated with a development).
- *Likely to occur* – The species has a reasonable to strong likelihood to be present in the BSA as indicated by factors such as habitat quality, proximity to known records, presence of suitable dispersal corridors, etc. The BSA contains suitable habitat and is located within the elevational and geographic ranges of the species.
- *Unlikely to occur* – The species is not likely to occur in the BSA. Potentially suitable habitat is present. The BSA may be outside of the species' elevational and/or geographic ranges, contain substantially degraded or fragmented habitat, lack recent (i.e., within the last 10 years) occurrence

records within dispersal distance, occur in an area isolated from known populations by barriers to migration/dispersal, and/or contain; predators or invasive species that inhibit survival or occupation.

- *No potential* – The species is not expected to occur in the BSA due to absence of potentially suitable habitat, the location of the BSA substantially outside of the species' elevational and/or geographic ranges, or the species is restricted to or known to be present only within a specific area outside of the BSA.
- *Absent* – The species was not detected during focused or protocol-level surveys for the project.

Biological resources that were either present or likely to occur in the BSA are discussed in the results section.

RESULTS

. Special-Status Species

. . *Plants*

The background research resulted in 21 special-status plants that occur within the 9 quads surrounding the BSA, as described in Appendix A. Based on habitat suitability, proximity of recent occurrences, and species' geographic ranges, 8 of these species are likely to occur in the BSA and are discussed below. The remaining 13 species are unlikely to occur, have no potential to occur, or are absent and will not be discussed further in this document.

. . . STEBBINS' MORNING GLORY (*CALYSTEGIA STEBBINSII*)

Stebbins' morning-glory is endemic to California, listed as endangered under the FESA, and is a California rare plant rank (CRPR) 1B.2 species. It is a perennial rhizomatous herb that prefers serpentine or gabbroic soils in chaparral or cismontane woodlands at select locations in El Dorado and Nevada Counties at elevations ranging from 607 to 3,576 feet. This species blooms from April through July (CNPS 2022; Jepson eFlora 2022).

The closest CNDDB record occurs approximately 400 feet from the BSA within similar habitat. Multiple CNDDB records were identified within 1 mile of the BSA during background research. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the southern, forested, portion of the BSA.

. . .2 CHAPARRAL SEDGE (*CAREX XEROPHILA*)

Chaparral sedge is a CRPR 1B.2 species. It is a perennial herb that prefers serpentine or gabbroic soils in chaparral or cismontane woodlands, and lower montane coniferous forests in El Dorado, Butte, Yuba, and Nevada Counties at elevations ranging from 1,475 to 2,525 feet. This species blooms from March through June (CNPS 2022; Jepson eFlora 2022).

One CNDDB record was identified within 1 mile of the BSA within similar habitat. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the southern, forested, portion of the BSA.

. . .3 PINE HILL CEANOTHUS (*CEANOTHUS RODERICKII*)

Pine Hill ceanothus is listed as endangered under the FESA, California state rare, and state protected species (ranked 1B.1). It is a perennial evergreen shrub that prefers serpentine or gabbroic soils in chaparral or cismontane woodlands in El Dorado County at elevations ranging from 804 to 2,067 feet. This species blooms from April through June (CNPS 2022; Jepson eFlora 2022).

Multiple CNDDB records were identified within 1 mile of the BSA within similar habitat. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the southern, forested, portion of the BSA. Pine Hill ceanothus was successfully identified and in bloom at a reference population nearby in April 2022.

. . . RED HILLS SOAPROOT (*CHLOROGALUM GRANDIFLORUM*)

Red Hills soaproot is a California state protected species (ranked 1B.2). It is a perennial bulbiferous herb that prefers serpentine or gabbroic soils in chaparral, lower montane coniferous, or cismontane woodlands in Amador, Butte, Calaveras, Placer, Tuolumne and El Dorado Counties at elevations ranging from 804 to 4,067 feet. This species blooms from May through June (CNPS 2022; Jepson eFlora 2022).

Multiple CNDDB records were identified within 1 mile of the BSA within similar habitat. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the southern, forested, portion of the BSA.

. . . BISBEE PEAK RUSH-ROSE (*CROCANTHEMUM SUFFRUTESCENS*)

Bisbee peak rush-rose is a California state protected species (ranked 3.2). It is a perennial evergreen shrub that prefers gabbroic or Ione soils in chaparral woodlands in Amador, Calaveras, and El Dorado Counties at elevations ranging from 245 to 2,198 feet. This species blooms from April through August (CNPS 2022).

Multiple CNDDB records were identified within 1 mile of the BSA within similar habitat. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the southern, forested, portion of the BSA.

. . . EL DORADO BEDSTRAW (*GALIUM CALIFORNICUM* SSP. *SIERRAE*)

El Dorado bedstraw is listed as endangered under the FESA, California state rare, and state protected species (ranked 1B.2). It is a perennial herb that prefers gabbroic soils in chaparral, lower montane coniferous, or cismontane woodlands in El Dorado County at elevations ranging from 330 to 1,920 feet. This species blooms from March through July (Jepson eFlora 2022); May through June (CNPS 2022).

Multiple CNDDB records were identified within 1 mile of the BSA within similar habitat. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the southern, forested, portion of the BSA.

. . .7 LAYNE'S RAGWORT (*PACKERA SENECIO LAYNEAE*)

Layne's ragwort is a listed as threatened under the FESA, California state rare, and state protected species (ranked 1B.2). It is a perennial herb that prefers rocky, serpentine, or gabbroic soils in chaparral or cismontane woodlands in Butte, Placer, Tuolumne, Yuba, and El Dorado Counties at elevations ranging from 650 to 3,560 feet. This species blooms from April through August (CNPS 2022; Jepson eFlora 2022).

Closest CNDDB record occurs approximately 750 feet from the BSA. Multiple CNDDB records were identified within 1 mile of the BSA within similar habitat. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the BSA.

. . . EL DORADO COUNTY MULE EARS (*WYETHIA RETICULATA*)

El Dorado County mule ears (*Wyethia reticulata*) is a California state protected species (ranked 1B.2). It is a perennial rhizomatous herb that prefers clay or gabbroic soils in chaparral, lower montane coniferous, or cismontane woodlands in Yuba and El Dorado Counties at elevations ranging from 600 to 2,100 feet. This species blooms from April through August (CNPS 2022; Jepson eFlora 2022).

Multiple CNDDB records were identified within 1 mile of the BSA within similar habitat. The species was not observed during the April 2022 field survey, however, the proximity of the CNDDB records indicates a relatively high probability that this species may occur within the southern, forested, portion of the BSA.

. .2 *Wildlife*

Based on a CNDDB query and review of existing literature, 31 special-status wildlife species were identified within the 9-quads surrounding the BSA, as described in Appendix A. None of these species were observed during the field survey.

Of the 31 special-status wildlife species evaluated, no species are likely to occur within the BSA. These species are either unlikely to occur, have no potential to occur, or are absent from the BSA due to a lack of suitable foraging and/or breeding habitat, aestivation habitat, and/or other biotic considerations, or the BSA is outside of the species' current known range. These species will not be discussed further in this document.

.2 Roosting Bats

The project area is within the ranges of the pale Townsend's big-eared bat, small-footed myotis and pallid bat, all species of special concern to the CDFW (CDFW 2022a), as well as those of several other special status bat species. Habitat requirements, range and distribution of bat species in El Dorado County and elsewhere in the state are generally poorly known. Caves, disused buildings, tree cavities, and other structures can provide day and maternity roosts for a variety of colonial bat species (CWHR 2022). No bat roosts or evidence of bat roosts (urine staining or guano) was observed during the reconnaissance-level bat survey for the project. The BSA is dominated by pine trees, which typically don't support cavities suitable for bat colonies or solitary roosting bats such as red bats, which use tree species with large leaves. The project could provide foraging habitat, but there is no evidence that the BSA supports bat roosts.

.3 Nesting Migratory Birds/Raptors

The BSA contains suitable nesting and foraging habitat for avian species protected under the MBTA and CFGC Sections 3503 and 3513 during the typical nesting season (February 15 to September 15). Suitable nesting and forging habitats would include the shrubs and trees within and adjacent to the BSA. Nesting activity is unlikely outside of the typical nesting season, although some avian species may forage year-round near the site. Avian species protected by the MBTA and CFGC observed in the BSA during the April 2022 field survey are listed in Appendix B. No nesting birds were observed during the field survey, which occurred during the typical nesting season. No inactive bird nests or raptor nests were observed during the field survey.

. Critical Habitat

No critical habitat occurs within the BSA.

. Natural Communities and Other Land Covers

. . *Natural Communities*

. . . FOOTHILL PINE WOODLAND

The foothill pine woodland is a mostly closed canopy community dominated by chamise (*Adenostoma fasciculatum*) and gray pines (*Pinus sabiniana*). Gray pine is an evergreen tree that reaches up to 80 feet in height. Gray pine can be found from 500 to 5,000 feet in elevation. Habitats include foothill woodland, northern oak woodland, chaparral. It can also be found in infertile soils in mixed-conifer and hardwood forests. Foothill pine woodland (*Pinus sabiniana* / *Adenostoma fasciculatum*, 87.130.07) is given no special designation by CDFW (CDFW 2022b).

The BSA contains approximately 2.5 acres of foothill pine woodland. This habitat occurs in both the western and southeastern portions of the BSA. The alliance occurs between 1,480 and 1,530 feet in elevation. These areas were classified by the presence of gray pine. Western poison oak *(Toxicodendron diversilobum)*, whiteleaf manzanita (*Arctostaphylos viscida*) and toyon *(Heteromeles arbutifolia)* are common in the understory. Bristly dogstail grass (*Cynosurus echinatus*), Italian rye-grass (*Festuca perennis*), and soft brome (*Bromus hordeaceus*) are common in the herb layer. Trash and debris were found scattered throughout this habitat in the BSA.

. . .2 CALIFORNIA ANNUAL GRASSLAND

The BSA contains approximately 0.45 acre of California annual grassland. This habitat occurs in the center of the BSA along the south-facing slope. This community is dominated by nonnative annual grasses. Dominant species present include bristly dogstail grass (*Cynosurus echinatus*), Italian rye grass (*Festuca perennis*), soft brome *(Bromus hordeaceus)*, and wild oat *(Avena fatua)*. California annual grassland is given no special designation by CDFW (CDFW 2022b).

. .2 *Sensitive Natural Communities*

The project site is in El Dorado County Rare Plant Mitigation Area 1, which is defined as the rare plant soils study area. Projects located in the mitigation area are required to pay the County rare plant mitigation fee. The County requires the fee regardless of whether any “Pine Hill Plants” occur in the BSA

or not. The eight Pine Hill Plants are Stebbins' morning-glory, Pine Hill ceanothus, Red Hills soaproot, Pine Hill flannelbush, El Dorado bedstraw, Bisbee Peak rush-rose, Layne's butterweed, and El Dorado County mule ears.

Oak woodlands are protected in El Dorado County, however, oak woodland habitat does not occur in the BSA. Individual oak trees with a dbh greater than 6" are protected by the County. Any oak trees with a dbh greater than 24" are considered significant oak trees and any trees with a dbh greater than 36" are considered heritage oak trees. A description of oak trees present in the BSA is included in Section 6.5.4. The project proposes to remove four oak trees with a dbh greater than 6" but less than 24". The project proposes to remove one significant oak tree. The project does not propose to remove any heritage trees.

There are no other sensitive natural communities identified in the BSA.

. .3 *Other Land Covers*

. .3. DISTURBED

The BSA contains approximately 0.77 acre of disturbed area. The disturbed area consists primarily of dirt and gravel. Vegetation, where present, is ruderal and dominated by nonnative forbs including yellow star thistle (*Centaurea solstitialis*), filaree *(Erodium sp.)*, vetch (*Coronilla varia*), and milk thistle (*Silybum marianum*). This land cover occurs in the northeastern corner of the BSA along Durock and South Shingle Road. This area is not likely to support special-status species due to the high level of disturbance and human activity.



ARCO SHINGLE SPRINGS

Figure . Biological Resources Map

- Biological Study Area (BSA)
- California Annual Grassland (CAG)
- Disturbed (DIS)
- Foothill Pine Woodland (FPW)

Biological Community	Acreage
California Annual Grassland (CAG)	0.45
Disturbed (DIS)	0.77
Foothill Pine Woodland (FPW)	2.50
Total Acreage (in BSA)	**3.72**

El Dorado County, CA
NAD 1983 StatePlane California II FIPS 0402 Feet
38.6609°N 120.9376°W

0 50 100 Feet
0 10 20 30 Meters

N

1:1,200

Base Map: World Imagery
ESRI ArcGIS Pro Basemap layer, accessed May 2022
Updated: 5/20/2022
Project No. 72467
Aprx: 72467 ARCO Shingle Springs
Layout: 72467ARCOShingleSpr_Fig4BioresMap

SWCA ENVIRONMENTAL CONSULTANTS

. . *Protected trees*

A total of nine oak trees occurs within or adjacent to the BSA. Six interior live oak trees occur within the BSA and are proposed for removal, two of which occur in the southeastern portion of the BSA and four of which occur in the northwest portion of the BSA. Five of the six trees proposed for removal are protected by the County ordinance. Four of the oak trees have a dbh between 6 and 24". One oak tree has a dbh greater than 24" but smaller than 36".

Two blue oak trees and one heritage-size interior live oak tree occur offsite but have drip lines that extend into the southeastern portion of the BSA. The trees are not proposed for removal. The oak trees that are preserved may be affected by project activities such as clearing, grading, and pruning for clearance requirements. There are no other oak trees within the project footprint. Compensatory mitigation will be required for the individual oak trees that will be removed to comply with the Oak Woodland Management Plan.

. Essential Fish Habitat

There is no designated essential fish habitat within the BSA.

.7 Wetlands/Waters

There are no wetlands or waters within the BSA.

. Migratory Corridors

A wildlife corridor is a linear landscape element that serves as a linkage between historically connected habitats or landscapes that are otherwise separated (McEuen 1993) and is meant to provide avenues along which wildlife can travel, migrate, and meet mates; plants can propagate; genetic interchange can occur; and populations can move in response to environmental changes and natural disasters (Beir and Loe 1992). The BSA is not within the El Dorado County Important Biological Corridor or any other key wildlife migration corridors. Durock Road to the north and South Shingle Road to the east along with Highway 50 and the established commercial developments would pose a significant barrier for migrating wildlife travelling to the north or east. The BSA is bordered to the west primarily by residential buildings. The BSA does not provide a migratory connection to nearby continuous suitable habitat.

7 DISCUSSION

No waters of the U.S. occur within the BSA, therefore the project is not subject to the Clean Water Act. The project does not impact the bed and bank of a channel or lake, therefore a streambed alteration agreement is not necessary. Special-status species with potential to occur within the BSA are special-status plants and MBTA-covered birds. Preconstruction surveys for nesting birds may be required if tree removal occurs during the nesting season, see AMM 1 below. If the project were to propose the removal of oak trees or ground disturbance within driplines of oak trees and the project requires a discretionary permit, El Dorado County would require tree removal permits, see AMM 2 below. As the project is within El Dorado County Rare Plant Mitigation Area 1, the project is required to consult El Dorado County on mitigation fees, see AMM 3 below.

AVOIDANCE AND MINIMIZATION MEASURES

The following avoidance and minimization measures (AMMs) are recommended to reduce or eliminate potentially significant biological impacts resulting from the project. In addition to the measures listed below, the project may be required to adhere to the El Dorado County Oak Resources Management Plan.

. Species-Speci ic Measures

1. Nesting birds:

    a. If construction begins outside the 1 February to 31 August breeding season, there will be no need to conduct a preconstruction survey for active bird nests.
    b. If construction will begin during the bird nesting season (1 February through 31 August), then a preconstruction survey for protected nesting birds shall be conducted by a qualified biologist.
    c. The preconstruction survey shall be conducted within 7 days prior to the start of construction. The survey shall cover the Project site and areas within 500 feet for birds-of-prey, and within 100 feet for other (non-bird-of-prey) nests. Inaccessible areas and private lands shall be surveyed from accessible (public) areas with binoculars.
        i. If no active nest of a bird of prey, MBTA bird, or other CDFW protected bird is found, then no further avoidance and minimization measures are necessary.
        ii. If active nests are found, they shall be avoided and protected as follows: If a bird-of-prey nest is found, a 500-foot-radius Environmentally Sensitive Area (ESA) shall be established around the nest.
        iii. If an active nest of another (non-bird-of-prey) bird is found, a 100-foot-radius ESA shall be established around the nest.
    d. Between 1 February and 31 August, if additional vegetation removal is required after construction has started, a survey will be conducted for active nests in the area to be affected.
    e. If a 15-day lapse in construction work occurs during the nesting season, then another preconstruction survey shall be conducted prior to the resumption of work. If an active nest is found, the above measures will be implemented.

2. Oak Resources:

    a. All native oak trees to remain in place within and adjacent to proposed ground disturbances shall be designated as “Environmentally Sensitive Areas” (ESAs) and shall be temporarily fenced with orange plastic construction (exclusion) fencing throughout all grading and construction activities.

        i. To the extent feasible, the exclusion fencing shall be installed 6 feet outside the dripline of oak trees greater than 6 inches dbh, and shall be staked a minimum of every 6 feet. The fencing is intended to prevent equipment operations in the proximity of protected trees that may compact soil, crush roots, or collide with the tree trunk and/or overhanging branches.

        ii. El Dorado County may require compensatory mitigation for the oak trees proposed for removal.

3. Rare Plants:

    a. The project would mitigate for disturbance of rare plant habitat via payment of the in-lieu fee identified in the County of EI Dorado Zoning Ordinance Title 130, Article 7 Chapter 130.71-Ecological Preserve Fee. The current fee for commercial and industrial development in Mitigation Area 1 is $0.59 per square foot of development (El Dorado County 2022). The mitigation fee shall be submitted to Planning and Building Department prior to issuance of Building and Grading Permits. The applicant shall submit all in-lieu mitigation fee payment to Planning and Building Department prior to issuance of Building and Grading Permits.
    b. A qualified biologist shall conduct a protocol-level survey during the appropriate bloom time (approximately May or June) focused on the following rare plants: Stebbins' morning glory (*Calystegia stebbinsii*), Pine Hill ceanothus (*Ceanothus roderickii*), red hills soaproot (*Chlorogalum grandiflorum*), Bisbee peak rush-rose (*Crocanthemum suffrutescens*), El Dorado bedstraw (*Galium californicum* ssp. *sierrae*), (Layne's ragwort (*Packera layneae*), El Dorado County mule ears (*Wyethia reticulata*), or other rare plants species. The survey shall occur within 14 days prior to clearing or grading operations. If no rare plants are observed, a letter report shall be prepared to document the results of the survey, and no additional measures are recommended. If rare plants are found at the site, then project will fully avoid the plants or prior to impacting the plants, the project shall provide to the County and CDFW a mitigation and monitoring plan. At minimum, the plan shall include locations where the seedbank will be placed in suitable habitat adjacent to or at the project site, success criteria, and monitoring activities. The plan shall set forth a minimum 1:1 re-establishment rate (in terms of the number of individual plants impacted, or occupied habitat as determined by the most recent botanical survey). The plan shall identify receiving sites and success criteria to verify successful transplant and or propagation. The project shall obtain necessary permits from CDFW and/or USFWS for any impacts to state and federal listed plants.

LITERATURE CITED

Beier, P., and S. Loe. 1992. A checklist for evaluating impacts to wildlife movement corridors. Wildlife Society Bulletin, 20(4), 434-440.

Busby, P. J., T. C. Wainwright, and G. J. Bryant. 1996. Status review of West Coast steelhead from Washington, Oregon and California. NOAA Technical Memorandum NMFS-NWFSC-27. National Marine Fisheries Service, Seattle, WA.

California Department of Fish and Wildlife (CDFW). Accessed April 2022 (2022a). Biogeographic Information and Observation System: BIOS viewer version 5.2.14. http://www.dfg.ca.gov/biogeodata/bios/

California Department of Fish and Wildlife (CDFW). Accessed April 2022 (2022b). California Natural Community List. Natural Heritage Division, CNDDB, Sacramento, CA. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline

California Department of Fish and Wildlife (CDFW). Accessed April 2022 (2022c). CNDDB plant and animal information, including the following lists: Special animals; State and federally listed endangered and threatened animals of California; Special vascular plants, bryophytes, and lichens list; and State and federally listed endangered, threatened, and rare plants of California. Biogeographic Data Branch, CNDDB, Sacramento, CA. http://www.dfg.ca.gov/wildlife/nongame/list.html

California Department of Conservation, California Geological Survey (CGS). 2002. California geomorphic provinces. Sacramento, California.

California Native Plant Society (CNPS). Accessed May 2022. Inventory of rare and endangered plants (online edition, v9-01 1.5). California Native Plant Society, Sacramento, CA. http://www.cnps.org/inventory

California Wildlife Habitat Relationships Program (CWHR). Accessed April 2022. California wildlife habitat relationships system, life history account and range map. Updated from Zeiner, D.C. et al. 1988-1990. CWHR Program, California Department of Fish and Game, Sacramento, CA. https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range

El Dorado County. Adopted 19 July 2004. El Dorado County general plan, a plan for managed growth and open roads; plan for quality neighborhoods and traffic relief. El Dorado County Planning Department, Placerville, CA.

El Dorado County. Accessed 2022. Rare Plant Mitigation Fees. El Dorado County Planning Services. https://www.edcgov.us/Government/planning/Pages/rare_plant_mitigation_fees.aspx

Grinnell, J. and A. H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna No. 27. Club, Berkeley, CA and reprinted 1986 by Artemisia Press, Lee Vining, CA.

Hatfield, R., S. Colla, S. Jepsen, L. Richardson, R. Thorp, and S. Foltz Jordan. 2014. Draft IUCN assessments for North American Bombus spp. for the North American IUCN Bumble Bee Specialist Group. The Xerces Society for Invertebrate Conservation, Portland, OR.

Jameson, E. W. Jr. and H. J. Peeters. 2004. Mammals of California. Revised Edition. University of California Press, Berkeley, CA.

Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. Inland Fisheries Division California Department of Fish and Game, Rancho Cordova, CA.

Jepson Flora Project, eds. 2018 (accessed in April 2022). Jepson eFlora. http://ucjeps.berkeley.edu/eflora.

McEuen, A. 1993. The Wildlife Corridor Controversy: A Review. Endangered Species Update, 10 (11 &12)

Moyle, P. B. 2002. Inland fishes of California. University of California Press, Berkeley, CA.

National Marine Fisheries Service (NMFS). 2014. Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. California Central Valley Area Office.

NOAA. NOWData- NOAA Online Weather Database. Accessed April 5, 2022. Sacramento, California. https://www.weather.gov

Natural Resources Conservation Service (NRCS; formerly known as Soil Conservation Service). April 1974. Soil survey of El Dorado Area, California. USDA – Soil Conservation Service.

Natural Resource Conservation Service (NRCS). Accessed April 2022. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/'

Richmond, O.M.W, S.K. Chen, B.B. Risk, J. Tecklin, and S.R. Beissinger. April-June 2010. California black rails depend on irrigation-fed wetlands in the Sierra Nevada foothills. California Agriculture University of California, Vol. 64, No. 2. The Regents of the University of California.

Sawyer, J. O. and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society, Sacramento, CA.

Shuford, W. D. and T. Gardali, eds. 2008. California bird species of special concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA and California Department of Fish and Game, Sacramento, CA.

Stebbins, R. C. 2003. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston, MA.

Thomson, R. C., A. N. Wright, H. B. Shaffer. 2016. California amphibian and reptile species of special concern. Co-published by University of CA and CA Dept of Fish and Wildlife. University of California Press, Oakland, CA.

U.S. Fish and Wildlife Service (USFWS). June 2001. Gulf of Maine Watershed Habitat Analysis: Northern Goshawk Habitat Model. U.S. Fish and Wildlife Service Gulf of Maine Program, Falmouth, ME. http://www.fws.gov/r5gomp/gom/habitatstudy/metadata/northern_goshawk_model.htm

U.S. Fish and Wildlife Service (USFWS). 28 May 2002. Recovery plan for the California red-legged frog (Rana aurora draytonii). Region 1, U.S. Fish and Wildlife Service, Portland, OR.

U.S. Fish and Wildlife Service (USFWS). 15 December 2005. Recovery plan for vernal pool ecosystems of California and Southern Oregon. Region 1, U.S. Fish and Wildlife Service, Portland, OR.

U.S. Fish and Wildlife Service (USFWS). September 2006. Valley elderberry longhorn beetle (Desmocerus californicus dimorphus) 5-year review: Summary and evaluation. U.S. Fish and Wildlife Service, Sacramento, CA.

U.S. Fish and Wildlife Service (USFWS). 17 September 2014. Endangered and threatened wildlife and plants; withdrawal of the proposed rule to remove the valley elderberry longhorn beetle from the federal list of endangered and threatened wildlife; proposed rule. Federal Register 79(180):55873-55917, 50 CFR Part 17.

U.S. Fish and Wildlife Service (USFWS). May 2017 (2017a). Framework for assessing impacts to the Valley elderberry longhorn beetle (Desmocerus californicus dimorphus). U.S. Fish and Wildlife Service, Sacramento, CA.

U.S. Fish and Wildlife Service (USFWS). 2017 (2017b). Recovery plan for the Central California Distinct Population Segment of the California tiger salamander (Ambystoma californiense). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, CA.

U.S. Fish and Wildlife Service (USFWS). 2017 (2017c). Recovery plan for the giant garter snake (Thamnophis gigas). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, CA. https://www.fws.gov/sacramento/documents/20170928_Signed%20Final_GGS_Recovery_Plan.pdf

U.S. Fish and Wildlife Service (USFWS). 15 May 2020. Endangered and threatened wildlife and plants; endangered species status for southern Sierra Nevada

Distinct Population Segment (DPS) of fisher (Pekania pennanti). Final rule. Federal Register 85(95): 29532-29589; 50 CFR Part 17.

U.S. Fish and Wildlife Service (USFWS). 1998. Recovery plan for upland species of the San Joaquin County. Region 1 U.S Fish and Wildlife Service, Portland, OR.

U.S. Fish and Wildlife Service (USFWS). Accessed April 2022 (2022a). Official species list for the ARCO Shingle Springs Project. Information for Planning and Conservation (IPaC). Sacramento Fish and Wildlife Office, Sacramento, CA. http://ecos.fws.gov/ipac/

U.S. Fish and Wildlife Service (USFWS). Accessed April 2022 (2022b). National Wetlands Inventory, Online Wetlands Mapper. http://www.fws.gov/wetlands/Data/Mapper.html

Western Association of Fish and Wildlife Agencies (WAFWA). 2019. Western Monarch Butterfly Conservation Plan, 2019–2069. Version 1.0

Xerces Society for Invertebrate Conservation (Xerces). October 2018. A petition to the state of California Fish and Game Commission to list the Crotch bumble bee (Bombus crotchii), Franklin's bumble bee (Bombus franklini), Suckley cuckoo bumble bee (Bombus suckleyi), and western blumble bee (Bombus occidentalis occidentalis) as Endangered under the California Endangered Species Act. Submitted by Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Center for Food Safety. https://xerces.org/wp-content/uploads/2018/10/CESA-petition-Bombus-Oct2018.pdf

This page intentionally left blank.

APPENDI A

USFWS Species List, CNDDB Summary Report, and CNPS Inventory Query

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Project Code: 2022-0025429
Project Name: ARCO Shingle Springs

March 29, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Project Code: 2022-0025429
Event Code: None
Project Name: ARCO Shingle Springs
Project Type: Commercial Development
Project Description: Gas station construction
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.660364900000005,-120.9375554054071,14z



Counties: El Dorado County, California

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Flowering Plants

NAME	STATUS
El Dorado Bedstraw *Galium californicum ssp. sierrae*	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/5209	
Layne's Butterweed *Senecio layneae*	Threatened
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/4062	
Pine Hill Ceanothus *Ceanothus roderickii*	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/3293	
Pine Hill Flannelbush *Fremontodendron californicum ssp. decumbens*	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/4818	
Stebbins' Morning-glory *Calystegia stebbinsii*	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/3991	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: SWCA Environmental Consultants
Name: Alex Jamal
Address: 6533 Riverside Blvd. Suite C
City: Sacramento
State: CA
Zip: 95831
Email alex.jamal@swca.com
Phone: 5593591244

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Shingle Springs (3812068) OR Pilot Hill (3812171) OR Coloma (3812078) OR Garden Valley (3812077) OR Placerville (3812067) OR Clarksville (3812161) OR Fiddletown (3812057) OR Lathrop (3712173) OR Folsom SE (3812151))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Accipiter gentilis northern goshawk	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	2,600 2,600	433 S:1	0	0	0	0	0	1	1	0	1	0	0
Agelaius tricolor tricolored blackbird	G1G2 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	5 1,664	955 S:19	1	1	1	0	3	13	12	7	16	2	1
Allium jepsonii Jepson's onion	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	1,175 1,200	26 S:2	1	0	0	0	0	1	0	2	2	0	0
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	G2G3 S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	15 15	1265 S:1	0	0	1	0	0	0	1	0	1	0	0
Ammodramus savannarum grasshopper sparrow	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	240 240	27 S:1	1	0	0	0	0	0	0	1	1	0	0
Andrena blennospermatis Blennosperma vernal pool andrenid bee	G2 S2	None None		1,235 1,235	15 S:1	0	0	0	0	0	1	1	0	1	0	0
Antrozous pallidus pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	726 726	420 S:1	0	0	0	0	0	1	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Aquila chrysaetos golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	775 850	324 S:2	0	2	0	0	0	0	0	2	2	0	0
Arctostaphylos nissenana Nissenan manzanita	G1 S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	1,600 2,300	13 S:5	0	0	1	1	1	2	3	2	4	1	0
Ardea alba great egret	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	350 1,513	43 S:2	0	1	0	0	1	0	1	1	1	1	0
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	350 350	156 S:1	0	0	0	0	1	0	1	0	0	1	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	20 750	2011 S:7	0	0	4	0	0	3	3	4	7	0	0
Atractelmis wawona Wawona riffle beetle	G3 S1S2	None None		2,187 2,187	80 S:1	0	0	0	0	0	1	1	0	1	0	0
Balsamorhiza macrolepis big-scale balsamroot	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	600 600	51 S:1	0	0	0	0	1	0	1	0	0	1	0
Banksula californica Alabaster Cave harvestman	GH SH	None None		650 650	1 S:1	0	0	0	0	1	0	1	0	0	1	0
Bombus occidentalis western bumble bee	G2G3 S1	None None	USFS_S-Sensitive	25 1,200	306 S:2	0	0	0	0	0	2	2	0	2	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	180 400	795 S:3	0	0	0	0	0	3	2	1	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Buteo regalis ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	454 454	107 S:1	0	1	0	0	0	0	0	1	1	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	5 400	2541 S:40	6	7	2	1	0	24	19	21	40	0	0
Calystegia stebbinsii Stebbins' morning-glory	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,000 1,500	15 S:8	1	1	4	0	2	0	3	5	6	1	1
Calystegia vanzuukiae Van Zuuk's morning-glory	G2Q S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive	2,300 2,300	13 S:1	0	1	0	0	0	0	0	1	1	0	0
Carex cyrtostachya Sierra arching sedge	G2 S2	None None	Rare Plant Rank - 1B.2	2,240 2,240	28 S:1	0	0	1	0	0	0	0	1	1	0	0
Carex xerophila chaparral sedge	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	915 2,000	15 S:7	3	3	0	0	0	1	1	6	7	0	0
Ceanothus roderickii Pine Hill ceanothus	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	860 2,000	9 S:9	1	2	2	0	0	4	3	6	9	0	0
Central Valley Drainage Hardhead/Squawfish Stream Central Valley Drainage Hardhead/Squawfish Stream	GNR SNR	None None		800 800	11 S:1	0	0	1	0	0	0	1	0	1	0	0
Chlorogalum grandiflorum Red Hills soaproot	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,000 2,408	137 S:14	1	6	4	0	0	3	3	11	14	0	0
Cirsium crassicaule slough thistle	G1 S1	None None	Rare Plant Rank - 1B.1	10 10	18 S:1	0	0	0	0	1	0	1	0	0	1	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	G4G5T4 S4	None None	Rare Plant Rank - 4.2 SB_UCSC-UC Santa Cruz	471 2,400	89 S:16	1	8	3	0	0	4	2	14	16	0	0
Cosumnoperla hypocrena Cosumnes stripetail	G2 S2	None None		917 1,742	15 S:9	0	0	0	0	0	9	6	3	9	0	0
Crocanthemum suffrutescens Bisbee Peak rush-rose	G2?Q S2?	None None	Rare Plant Rank - 3.2	600 1,800	31 S:16	2	5	4	1	0	4	9	7	16	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S3	Threatened None		8 840	271 S:6	0	0	1	1	0	4	4	2	6	0	0
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	440 585	180 S:2	0	1	0	0	0	1	1	1	2	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	120 2,200	1404 S:13	0	8	2	0	0	3	5	8	13	0	0
Erethizon dorsatum North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	649 1,894	523 S:2	0	0	0	0	0	2	1	1	2	0	0
Eryngium pinnatisectum Tuolumne button-celery	G2 S2	None None	Rare Plant Rank - 1B.2		30 S:1	0	0	0	0	0	1	1	0	1	0	0
Eryngium racemosum Delta button-celery	G1 S1	None Endangered	Rare Plant Rank - 1B.1	15 15	26 S:1	0	0	0	0	1	0	1	0	0	1	0
Fremontodendron decumbens Pine Hill flannelbush	G1 S1	Endangered Rare	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	1,400 1,800	12 S:7	1	1	1	0	0	4	4	3	7	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Galium californicum ssp. sierrae El Dorado bedstraw	G5T1 S1	Endangered Rare	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	440 1,945	17 S:17	4	8	0	1	0	4	4	13	17	0	0
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	475 1,250	329 S:4	0	2	1	0	0	1	1	3	4	0	0
Horkelia parryi Parry's horkelia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	1,860 2,900	44 S:5	0	3	0	0	0	2	1	4	5	0	0
Hydrochara rickseckeri Ricksecker's water scavenger beetle	G2? S2?	None None		390 390	13 S:1	0	0	0	0	0	1	1	0	1	0	0
Lanius ludovicianus loggerhead shrike	G4 S4	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	13 13	110 S:1	0	0	0	0	0	1	0	1	1	0	0
Lasionycteris noctivagans silver-haired bat	G3G4 S3S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority	1,000 1,000	139 S:2	1	0	0	0	0	1	1	1	2	0	0
Laterallus jamaicensis coturniculus California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	550 550	303 S:1	0	0	0	0	0	1	0	1	1	0	0
Melospiza melodia song sparrow ("Modesto" population)	G5 S3?	None None	CDFW_SSC-Species of Special Concern	10 20	92 S:2	0	0	0	0	0	2	2	0	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Myotis yumanensis Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	993 993	265 S:1	0	1	0	0	0	0	0	1	1	0	0
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened		31 S:4	0	0	0	2	0	2	0	4	4	0	0
Packera layneae Layne's ragwort	G2 S2	Threatened Rare	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_UCSC-UC Santa Cruz	680 2,365	48 S:36	2	12	6	2	2	12	15	21	34	2	0
Pekania pennanti Fisher	G5 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	2,000 2,000	555 S:1	0	0	0	0	0	1	1	0	1	0	0
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,400 1,880	784 S:4	0	0	2	0	0	2	1	3	4	0	0
Rana boylii foothill yellow-legged frog	G3 S3	None Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	630 1,640	2476 S:10	1	0	0	0	8	1	8	2	2	0	8
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	485 820	1671 S:2	0	0	1	0	0	1	1	1	2	0	0
Riparia riparia bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	2,000 2,000	298 S:1	0	0	0	0	0	1	1	0	1	0	0
Sagittaria sanfordii Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	235 427	126 S:2	1	1	0	0	0	0	0	2	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Spea hammondii western spadefoot	G2G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	373 373	1422 S:1	0	0	0	0	0	1	0	1	1	0	0
Spirinchus thaleichthys longfin smelt	G5 S1	Candidate Threatened		10 10	46 S:1	0	0	0	0	0	1	0	1	1	0	0
Sylvilagus bachmani riparius riparian brush rabbit	G5T1 S1	Endangered Endangered		10 15	20 S:11	0	0	4	4	0	3	0	11	11	0	0
Thamnophis gigas giant gartersnake	G2 S2	Threatened Threatened	IUCN_VU-Vulnerable	180 180	373 S:1	0	0	0	0	0	1	1	0	1	0	0
Trichocoronis wrightii var. wrightii Wright's trichocoronis	G4T3 S1	None None	Rare Plant Rank - 2B.1	20 20	12 S:1	0	0	0	0	0	1	1	0	1	0	0
Tropidocarpum capparideum caper-fruited tropidocarpum	G1 S1	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive		20 S:1	0	0	0	0	1	0	1	0	0	1	0
Viburnum ellipticum oval-leaved viburnum	G4G5 S3?	None None	Rare Plant Rank - 2B.3		39 S:1	0	0	0	0	0	1	1	0	1	0	0
Wyethia reticulata El Dorado County mule ears	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	400 1,800	25 S:25	4	9	4	1	0	7	6	19	25	0	0
Xanthocephalus xanthocephalus yellow-headed blackbird	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	15 15	13 S:1	0	0	0	0	0	1	1	0	1	0	0

Search Results

17 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B**] , Quad is one of [**3812068:3812171:3812078:3812077:3812067:3812057:3812058:3812151:3812161**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	Apr-Aug	None	None	G2	S2	1B.2	 © 2019 Steven Perry
Arctostaphylos nissenana	Nissenan manzanita	Ericaceae	perennial evergreen shrub	Feb-Mar	None	None	G1	S1	1B.2	No Photo Available
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	 ©1998 Dean Wm. Taylor
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jul	FE	CE	G1	S1	1B.1	No Photo Available
Calystegia vanzuukiae	Van Zuuk's morning-glory	Convolvulaceae	perennial rhizomatous herb	May-Aug	None	None	G2Q	S2	1B.3	No Photo Available
Carex cyrtostachya	Sierra arching sedge	Cyperaceae	perennial herb	May-Aug	None	None	G2	S2	1B.2	No Photo Available
Carex xerophila	chaparral sedge	Cyperaceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	No Photo Available
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	perennial evergreen shrub	Apr-Jun	FE	CR	G1	S1	1B.1	No Photo Available
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	May-Jun	None	None	G3	S3	1B.2	No Photo Available
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual/perennial herb	May-Aug	None	None	G2	S2	1B.2	 © 2007 Robert E. Preston, Ph.D.
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	perennial evergreen shrub	Apr-Jul	FE	CR	G1	S1	1B.2	No Photo

Galium californicum ssp. *sierrae*	El Dorado bedstraw	Rubiaceae	perennial herb	May-Jun	FE	CR	G5T1	S1	1B.2	 © 2019 John Doyen
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G2	S2	1B.2	 © 2009 Barry Breckling
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	Apr-Aug	FT	CR	G2	S2	1B.2	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	 ©2013 Debra L. Cook
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	None	None	G4G5	S3?	2B.3	 © 2006 Tom Engstrom
Wyethia reticulata	El Dorado County mule ears	Asteraceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	No Photo Available

Showing 1 to 17 of 17 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 29 March 2022].

CONTACT US

Send questions and comments to rareplants@cnps.org.

ABOUT THIS WEBSITE

About the Inventory
Release Notes
Advanced Search
Glossary

ABOUT CNPS

About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

CONTRIBUTORS

The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Developed by Rincon Consultants, Inc.

Copyright © 2010-2022 California Native Plant Society. All rights reserved.

APPENDI B

Plant and Wildli e Species Observed

Plant Species Observed.

Family	Scientific Name[1]	Common Name	N/I[2]	Cal-IPC[3]
GYMNOSPERMS				
Pinaceae	*Pinus sabiniana*	Foothill pine	N	
DICOTS				
Agavaceae	*Chlorogalum pomeridianum*	Wavy-leafed soap plant	N	
Anacardiaceae	*Toxicodendron diversilobum*	Poison oak	N	
Asteraceae	*Lactuca serriola*	Prickly lettuce	I	
	Taraxacum sp.	Dandelion	--	
	Matricaria discoidea	Pineapple weed	I	
	Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	I	Moderate
	Centaurea solstitialis	Yellow star thistle	I	High
	Silybum marianum	Milk thistle	I	Limited
Brassicaceae	*Raphanus raphanistrum*	Wild radish	I	Limited
Ericaceae	*Arctostaphylos viscida*	Whiteleaf manzanita	N	
Fabaceae	*Lupinus luteus*	Butter lupine	N	
	Trifolium hirtum	Rose clover	I	Limited
	Cercis occidentalis	Western redbud	N	
	Coronilla varia	Crown vetch	I	
Fagaceae	*Quercus wislizeni*	Interior live oak	N	
	Quercus douglasii	Blue oak	N	
Geraniaceae	*Erodium cicutarium*	Redstem filaree	I	
Lamiaceae	*Salvia* sp.	Sage	--	
Liliacaea	*Calochortus albus*	Fairy lantern	N	
Myrsinaceae	*Anagallis arvensis*	Scarlet pimpernel	I	
Plantaginaceae	*Plantago* sp.	Plantain	--	
Ranunculaceae	*Ranunculus* spp.	Buttercup	--	
Rhamnaceae	*Ceanothus tomentosus*	Woollyleaf ceanothus	N	
Rosaceae	*Adenostoma fasciculatum*	Chamise	N	
	Heteromeles arbutifolia	Toyon	N	
Vitaceae	*Vitis* sp.	Grape	--	
MONOCOTS				
Poaceae	*Cynosurus echinatus*	Bristly dogstail grass	I	Moderate
	Bromus diandrus	Ripgut brome	I	Moderate
	Stipa pulchra	Purple needlegrass	N	
	Festuca perennis	Italian rye-grass	I	Moderate
	Sorghum halepense	Johnson grass	I	
	Bromus hordeaceus	Soft brome	I	Limited
	Avena fatua	Wild oat	I	Moderate
	Briza minor	Lesser quaking-grass	I	
	Elymus caput-medusae	Medusa head	I	High

[1] Nomenclature and taxonomy follow *The Jepson manual: Vascular plants of California,* 2nd ed. (Baldwin et al., eds. 2012).

[2] N = Native to California; I = Introduced.

[3] Negative ecological impact ranking by the California Invasive Plant Council (Cal-IPC 2018).

Wildlife Species Observed.

Common Name	Scientific Name
BIRDS	
American goldfinch	*Spinus tristis*
Anna's hummingbird	*Calypte anna*
California scrub jay	*Aphelocoma californica*
Oak titmouse	*Baeolophus inornatus*
House finch	*Carpodacus mexicanus*
MAMMALS	
Gray squirrel	*Sciurus griseus*

APPENDI C

Special Status Species Evaluated Table

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Invertebrates					
Bombus crotchii Crotch bumble bee	--	C	2	Inhabits open grassland and scrub habitats. Primarily nests underground. Generalist foragers that visit a wide variety of flowering plants including plants in the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae. Requires floral resources distributed over the spring, summer, and fall. Isolated patches of habitat are not sufficient to fully support bumble bee populations. Historically common in the Central Valley, now considered extirpated from the northernmost part of the Valley, and nearly absent from near Arbuckle, south (Hatfield et al. 2014; Xerces 2018).	No potential. The BSA and surrounding landscape are heavily disturbed and lack sufficient floral resources.
Branchinecta lynchi Vernal pool fairy shrimp	T, CH	--	1, 2	Occurs in vernal pools or vernal pool-like habitats. Does not occur in riverine contexts or in permanent waters. Found in 28 counties across the Central Valley and coast ranges of CA, and in southern OR. Most commonly found in small (< 0.05 ac), clear to tea-colored vernal pools with mud, grass, or basalt bottoms in unplowed grasslands (USFWS 2005).	No potential. Suitable habitat is absent from the BSA. No wetlands or vernal pools were identified during the survey.
Danaus plexippus plexippus Monarch butterfly	C	--	1	The western population of the monarch butterfly typically breeds and forages west of the Rocky Mtns in the spring and summer and migrates to generational overwintering sites in wooded groves along the CA coast in the late summer and fall. Milkweeds (Asclepias spp.) are obligate larval host plants. Overwintering habitats are tree groves that occur within 1.5 mi of the coast or San Francisco Bay area, where proximity to large water bodies moderates temperature fluctuations. Suitable groves have temperatures above freezing, high humidity, dappled sunlight, access to water and nectar, and protection from high winds and storms. Monarchs will select the native Monterey pine, Monterey cypress, western sycamore, and other native tree species when they are available, but will also utilize nonnative eucalyptus species if other optimal habitat conditions are met (WAFWA 2019).	Unlikely to occur. The BSA is not located within the coastal ranges commonly associated with overwintering habitat. No milkweed species, the obligate host plants, Migrating individuals may rest / forage on any blooming flowers present within the grassland portion of the BSA.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	T, CH	--	1, 2	Requires an elderberry shrub (*Sambucus nigra* sp. *caerulea* or *Sambucus racemosa* var. *racemosa*) as a host plant (USFWS 2014). Females lay their eggs on the bark of elderberry, and larvae hatch and burrow into the stems and feed on the pith (USFWS 2006). Occurs throughout the Central Valley, from approximately Shasta to Madera Counties. Their range includes the valley floor and lower foothills below 500 ft in elevation (USFWS 2017a). The elderberry stems must be greater than 1.0 inches in diameter to support larvae (USFWS 1999).	No potential. No elderberry shrubs (suitable habitat) were identified within the BSA.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Fish					
Hypomesus transpacificus Delta smelt	T, CH	E	1, 2	Euryhaline (tolerant of a wide salinity range) species that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay. They occur in the Delta primarily below Isleton on the Sacramento River side and below Mossdale on the San Joaquin River side. They are found seasonally throughout Suisun Bay and in small numbers in larger sloughs of Suisun marsh. They move into sloughs and channels of the western Delta (e.g., Lindsey Slough) when spawning (mainly March-April). Can be washed into San Pablo Bay during high-outflow periods, but do not establish permanent populations there (Moyle 2002).	No potential. The BSA is located outside of the known geographic range of this species and the BSA lacks aquatic habitat.
Oncorhynchus mykiss California Central Valley steelhead DPS	T, CH	--	1, 2	Anadromous salmonid that spawns in small tributaries on coarse gravel beds in riffle areas (Busby et al. 1996). Once thought extirpated from the San Joaquin Basin (Moyle 2002). Now potentially widespread throughout accessible streams and rivers in the Central Valley, including known populations or observations in Deer and Mill creeks in Tehama County, the Yuba, Stanislaus, Mokelumne, Calaveras, Tuolumne, and Merced rivers, and other streams (NMFS 2014).	No potential. There are no streams or rivers within the BSA. The BSA is not in critical habitat.
Spirinchus thaleichthys Longfin smelt	C	T	2	Spawns from November to June in freshwater over sandy-gravel substrates, rocks, or aquatic plants. After hatching, larvae move up into surface waters and are transported downstream into brackish-water nursery areas. In the San Francisco estuary, longfin smelt are usually found downstream of Rio Vista on the Sacramento River and from the vicinity of Medford Island downstream on the San Joaquin River. They are occasionally found upstream of these locations (Moyle 2002).	No potential. There are no streams or rivers within the BSA. The BSA is not in critical habitat.
Amphibians					
Ambystoma californiense California tiger salamander, Central California DPS	T, CH	T	1, 2	Occurs in grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. The Central California DPS occurs in Alameda, Amador, Calaveras, Contra Costa, Fresno, Kern, Kings, Madera, Mariposa, Merced, Monterey, Sacramento, San Benito, San Mateo, San Joaquin, San Luis Obispo, Santa Clara, Santa Cruz, Stanislaus, Solano, Tulare, Tuolumne, and Yolo Counties. Optimum breeding habitat is ephemeral and dries down for at least 30 days before rains start in August or September, to avoid predators from establishing populations. These ponds include vernal pools, livestock ponds and other modified ephemeral and permanent ponds (USFWS 2017b). Still, they require long-lasting vernal pools to complete larval development lasting 10+ weeks (Jennings and Hayes 1994).	No potential. The BSA is outside the CWHR range, predicted habitat, and connectivity modeling for this species. The BSA lacks aquatic habitat. The BSA is not located in critical habitat.
Rana boylii Foothill yellow-legged frog	--	E	2	Found in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, Ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows. Egg clusters are attached to gravel or rocks in moving water near stream margins. This species is rarely encountered (even on rainy nights) far from permanent water. Its elevation range extends from near sea level to 6,370 ft in the Sierra (CWHR 2020).	No potential. The BSA lacks aquatic habitat. No streams or wetlands present within the BSA.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Rana draytonii California red-legged frog	T, CH	SSC	1,2	Inhabits quiet pools of streams, marshes, and occasionally ponds with dense, shrubby, or emergent vegetation. Requires permanent or nearly permanent pools for larval development (CWHR 2022; USFWS 2002). Known from near sea level to approximately 5,200 ft, though nearly all sightings have occurred below 3,500 ft. Extirpated from the floor of the Central Valley (USFWS 2002).	No potential. The BSA lacks aquatic habitat. No suitable streams or wetlands present within or near the BSA. The nearest CNDDB record is located 7.75 miles southeast of the BSA.
Spea (Scaphiopus) hammondi Western spadefoot	--	SSC	2	Ranges throughout the Central Valley and adjacent foothills. Occurs primarily in grasslands, but occasionally occurs in valley-foothill hardwood woodlands (CWHR 2022). Primarily found in the lowlands frequenting washes, floodplains of rivers, alluvial fans, playas, and alkali flats. Prefers areas of open vegetation and short grasses with sandy or gravelly soil (Stebbins 2003). Spends most of the year in underground burrows up to 36 inches deep, which they generally construct themselves. Breeding and egg laying occur almost exclusively in shallow, temporary pools formed by heavy winter rains (CWHR 2022).	No potential. The BSA is outside of this species' range. No streams or wetlands present within the BSA. No suitable habitat (washes, playas, alluvial fans or floodplains) is present within the BSA
Reptiles					
Emys marmorata Western pond turtle	--	SSC	2	Highly aquatic species found in a broad range of aquatic habitats including rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes, and other inundated wetlands. May use brackish, semi-permanent, or ephemeral features when inundated. Requires basking sites and loose soil in surrounding uplands suitable for nest excavation. Eggs are typically laid in spring and early summer in nests located within 330 ft of water. Eggs hatch in the fall, but hatchlings often remain in the nest through the first winter, emerging the following spring. Adults remain active year-round in warmer climates. In colder climates, adults overwinter in upland burrows safe from high winter flows. Occurs throughout non-desert CA from sea level to 6,700 ft. Isolated populations are known from the Mojave, Susan, Truckee, and Carson rivers, and the Klamath Basin (Thomson et al. 2016).	No potential. The BSA lacks aquatic habitat. No streams or wetlands present within or near the BSA.
Phrynosoma blainvillii Coast horned lizard	--	SSC	2	Occurs in valley-foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grassland habitats, especially sandy areas, washes, flood plains and wind-blown deposits. Needs loose soil for cover and reproduction. Occurs in the Sierra Nevada foothills from Butte County to Kern County. and throughout the central and southern California coast. Found up to 4,000 ft in the northern end of its range and 6,000 ft in the southern end (CWHR 2022).	Unlikely to occur. One CNDDB record (2005) is located 1.1 mile from the BSA boundary. The majority of the BSA is heavily disturbed. Loose soils that would provide cover are not present within the BSA.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Thamnophis gigas Giant garter snake	T	T	1, 2	Endemic to the wetlands of the Sacramento and San Joaquin valleys, inhabiting the tule marshes and seasonal wetlands created by overbank flooding of the rivers and streams. Requires 1) freshwater aquatic habitat with protective emergent vegetative cover that allows foraging; 2) upland habitat near the aquatic habitat that can be used for thermoregulation and summer shelter in burrows; and 3) upland refugia that serve as winter hibernacula (USFWS 2017c).	No potential. The BSA is outside of species' known range. The BSA lacks aquatic habitat. No streams or wetlands present within the BSA.
Birds					
Accipiter gentilis Northern goshawk	SC	SSC	1, 2	Breeds in the North Coast Ranges, Sierra Nevada, Klamath, Cascade, and Warner Mountains. Also breeds in the Piños, San Jacinto, San Bernardino, and White mountains. Remains yearlong in breeding areas as an uncommon resident. Prefers middle and higher elevations in mature, dense conifer forests. Habitat requirements include meadows and riparian habitat. Casual in winter along north coast, throughout foothills, and in northern deserts, where it may be found in pinyon-juniper and low-elevation riparian habitats. Usually nests near water on north slopes in the densest parts of vegetation stands, staying close to openings (CWHR 2022). In the westside Ponderosa pine zone, northern goshawks are known to nest down to approximately 2,500 feet. Nest stands consistently have larger trees, greater canopy cover, and relatively more open understories than stands lacking nests (Shuford and Gardali 2008). Goshawks generally do not nest near areas of human habitation or paved roads (USFWS 2001). Nesting sites are of concern to CDFW (2022).	No potential. The BSA is located significantly outside of the species' preferred elevational range.
Agelaius tricolor Tricolored blackbird	--	T	2	Forages on ground in cropland, grassland, and on pond edges. Nests near freshwater, prefers emergent marsh of dense cattails or tulles, but also nests in thickets of willow and blackberry. Highly colonial. Nesting area must be large enough to support a minimum colony of about 50 pairs (CWHR 2022). Nesting colonies are of concern to CDFW (2022b).	No potential. The BSA lacks aquatic habitat, and therefore suitable nesting habitat. No streams or wetlands present within the BSA.
Ammodramus savannarum Grasshopper sparrow	--	SSC	2	An uncommon local summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity Counties, south to San Diego County. Occurs in dry, dense grasslands, especially with scattered shrubs for sitting perches. A thick cover of grasses and forbs is essential for concealment. Nests are built of grasses and forbs in slight depressions in ground hidden by a clump of grasses or forbs. Usually nests solitarily from early April to mid-July. May form semi-colonial breeding groups of 3-12 pairs (CWHR 2022).	Unlikely to occur. BSA lacks suitable habitat.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Aquila chrysaetos Golden eagle	--	FP	2	Uncommon permanent resident and migrant throughout CA, except in the central portion of the Central Valley. Ranges from sea level up to 11,500 ft (Grinnell and Miller 1944). Typically inhabits rolling foothills, mountainous areas, sage-juniper flats, and deserts. Uses secluded cliffs with overhanging ledges and large trees for cover. Nest on cliffs of all heights and in large trees in open areas. Rugged, open habitats with canyons and escarpments are used most frequently for nesting. Needs open terrain for hunting (CWHR 2022).	No potential. BSA lacks suitable open foraging habitat and large trees. No eagle nests observed during biological surveys.
Athene cunicularia Burrowing owl	--	SSC	2	Yearlong resident of open, dry grassland and desert habitat, and in grass, forb, and open shrub stages of pinyon-juniper and Ponderosa pine habitats. Uses small mammal burrows, often those of ground squirrels, for roosting and nesting cover (CWHR 2022). Burrowing sites and some wintering sites are of concern to CDFW (2022).	No potential. The BSA is located outside of this species' preferred range. There is no suitable open habitat within the BSA.
Buteo regalis Ferruginous hawk	SC	SSC	1, 2	Forages in large, open tracts of grasslands, sparse scrubland, and deserts. Frequents open grasslands, sagebrush flats, desert scrub, low foothills and surrounding valleys, and fringes of pinyon-juniper habitats. A winter resident of the Modoc Plateau, Central Valley, Coast Ranges, and deserts. This species is not known to breed in CA (CWHR 2022). Wintering sites are of concern to CDFW (2022).	No potential. Only marginal foraging habitat is present within the BSA. Open grassland within the BSA is limited and local development and traffic poses a risk to foraging activities.
Buteo swainsoni Swainson's hawk	--	T	2	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Counties, and Mojave Desert. Nests in stands with few trees in juniper-sage flats, in riparian areas, and in oak savannahs in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, and livestock pastures. Feeds on small birds, rodents, mammals, reptiles, large arthropods, amphibians, and, rarely, fish (CWHR 2022). Nesting sites are of concern to CDFW (2022).	No potential. Only marginal foraging habitat is present within the BSA. Open grassland within the BSA is limited and local development and traffic poses a risk to foraging activities.
Elanus leucurus White-tailed kite	--	FP	2	Occurs in coastal and valley lowlands in agricultural areas, and in herbaceous and open stages of most habitats. Nests in groves of dense, broad-leafed deciduous trees, near open foraging area (CWHR 2022). Nesting sites are of concern to CDFW (2022).	Unlikely to occur. Only marginal foraging habitat is present within the BSA. Open grassland within the BSA is limited and local development and traffic poses a risk to foraging activities.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Haliaeetus leucocephalus Bald eagle	--	FP, E	2	Occurs along coasts, rivers, and large, deep lakes and reservoirs in California. Nests mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties. More widespread as a winter migrant. Requires large bodies of water or free flowing rivers with abundant fish and perching sites. Nests in large old growth and dominant live trees with open branchwork. Favors ponderosa pine (CWHR 2022). Nesting and wintering sites are of concern to CDFW (2022).	No potential. No suitable habitat for nesting or foraging within the BSA. No large waterways or waterbodies are present in the immediate vicinity.
Lanius ludovicianus Loggerhead shrike	SC	SSC	1	A common resident and winter visitor in lowlands and foothills throughout CA. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest densities occur in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, desert riparian, and Joshua tree habitats. Nests on a stable branch in a densely-foliaged shrub or tree 1.3 to 50 ft above ground (CWHR 2022). Nesting sites are of concern to CDFW (2022).	Unlikely to occur. Only marginal foraging habitat is present within the BSA. Open grassland within the BSA is limited and local development and traffic poses a risk to foraging activities.
Laterallus jamaicensis coturniculus California black rail	--	T, FP	2	Inhabits saline, brackish, and freshwater emergent wetlands in the Bay Area, Sacramento-San Joaquin Delta, the Salton Sea, the lower Colorado River, a few locations in coastal southern CA, and the northern Sierra foothills of Butte, Nevada, Placer, and Yuba Counties. Typically found in the immediate vicinity of tidal sloughs near the upper limit of tidal flooding in tidal emergent wetlands dominated by pickleweed and in brackish marshes supporting bulrushes in association with pickleweed. In freshwater areas, generally found in marshes dominated by bulrush, cattail, or saltgrass (CWHR 2022). Water regime is a critical habitat factor; black rails are often found in wetlands with perennial standing or flowing water. Black rails use wetland zones with shallower water than other North American rails, generally less than 1.2 in. Wetlands in the Sacramento Valley managed for waterfowl or rice typically lack sufficient shallow water habitat (Richmond et al. 2010).	No potential. The BSA is outside this species' preferred range. Only marginal foraging habitat is present within the BSA. Open grassland within the BSA is limited and local development and traffic poses a risk to foraging activities.
Melospiza melodia Song sparrow, "Modesto Population"	--	SSC	2	A year-round resident that prefers emergent freshwater marshes dominated by tulles and cattails as well as riparian willow thickets. Modesto song sparrows also nest in riparian forests of valley oak with sufficient understory of blackberry, along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites. Endemic to CA, with established populations in the Sacramento Valley, Sacramento-San Joaquin River Delta, and northern San Joaquin Valley. The Modesto song sparrow thrives where extensive wetlands remain. Most abundant in the Butte Sink area of the Sacramento Valley and in the Sacramento-San Joaquin River Delta. Immediately adjacent to the Butte Sink, song sparrows breed in sparsely vegetated irrigation canals, although they are almost entirely absent from the main stem and tributaries of the Sacramento River north of Sacramento (Shuford and Gardali 2008).	No potential. Suitable habitat for nesting does not occur within the BSA. No riparian or wetland habitats present.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Riparia riparia Bank swallow	--	T	2	Found primarily west of California's deserts in riparian and other lowland habitats during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine textured sandy soils, into which it digs nesting holes. Approximately 75% of the breeding population in CA occurs along banks of the Sacramento and Feather Rivers in the northern Central Valley. Other colonies are known from the central coast from Monterey to San Mateo Counties, and in northeastern CA in Shasta, Siskiyou, Lassen, Plumas, and Modoc Counties. Breeding colonies can have between 10 and 1,500, but typically between 100 and 200, nesting pairs (CWHR 2022). Nesting sites are of concern to CDFW (2022).	No potential. The BSA does not contain riparian lowland habitats or coastal areas. No suitable nesting habitat occurs within the BSA.
Xanthocephalus xanthocephalus Yellow-headed blackbird	--	SSC	2	Breeds commonly, but locally, east of Cascade Range and Sierra Nevada, in the Central Valley, and selectively in Imperial and Colorado River valleys in southern California. Nests, roosts, and does much foraging in fresh emergent wetland. Also feeds along shorelines and in open fields. Nests in deep and densely vegetated fresh emergent wetland, often along borders of lakes or ponds. Uncommon winter resident in the Central Valley as much of the breeding population migrates south to winter. Breeds mid-April to late July. Usually nests in large colonies with nests somewhat closely scattered (CWHR 2022).	No potential. No wetland, riparian, or coastal habitat is present within BSA.
Mammals					
Antrozous pallidus Pallid bat	--	SSC	2	Occurs in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and sometimes in buildings and hollow trees that protect them from high temperatures. Night roosts may be more open, such as porches and open buildings. Sensitive to roosting site disturbance. Occurs throughout CA except in the high Sierra Nevada from Shasta to Kern Counties, and the northwest corner of CA from Del Norte and western Siskiyou Counties. to northern Mendocino County (CWHR 2022).	Unlikely to occur. Only marginal summer foraging habitat is present within the BSA. Limited foraging habitat present within the BSA.
Pekania pennanti Fisher	E	T	1, 2	Uncommon permanent resident of Sierra Nevada, Cascades, Klamath Mountains, and the north Coast Range. Occurs above 3,200 ft in the Sierra Nevada and Cascades (Jameson and Peeters 2004). Prefers coniferous or deciduous riparian habitats with intermediate to large trees and closed canopies. Canopy closure must be greater than 50% to be suitable habitat. Dens in a variety of protected cavities, brush piles, logs, and upturned trees. Hollow logs, trees, and snags are especially important. Active yearlong, mostly nocturnal and crepuscular. Young born February through May (CWHR 2022). The southern Sierra Evolutionarily Significant Unit (ESU; defined as south of the Merced River) is listed threatened by CA, and fishers elsewhere as SSC. Today, fisher distribution in CA is represented by two populations: northwestern California and the southern Sierra Nevada. Fishers apparently no longer inhabit the area between the Pit River in the northern Sierra Nevada/Cascades to the Merced Tuolumne River in the southern Sierra Nevada (USFWS 2020).	No potential. BSA is outside of species' preferred habitat range. The BSA contains no riparian habitat and no suitable secluded den sites. Local disturbance and development would likely deter fishers from establishing den sites or foraging sites in this area.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Sylvilagus bachmani riparius Riparian brush rabbit	E	E	2	Found in brushy understory of Valley riparian forests. Habitat has a mix of roses, blackberries, marsh baccharis, and grape vines, with high volumes of roses and coyote bushes. Prefers fewer willows in the canopy and understory. Tunnels through vegetation (USFWS 1998). The only known extant populations of this subspecies are located in Caswell Memorial State Park, San Joaquin River National Wildlife Refuge, and near the confluence of the San Joaquin River and Old River in Lathrop (Bonham 2020).	No potential. BSA is located outside of species' known population ranges. Baccharis, manzanita, and poison oak dominated the observed understory. No riparian habitat was observed.
Plants		/ CNPS [d]			
Allium jepsonii Jepson's onion	--	--/ 1B.2	2	Bulbiferous herb found in serpentine or volcanic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 984 to 4,331 ft. Known from Butte, El Dorado, Placer, and Tuolumne Counties. Blooms May through July (Jepson eFlora 2022); April through August (CNPS 2022).	Unlikely to occur. BSA soils are heavily disturbed and overtaken by nonnative vegetation. No CNDDB records were identified within 1 mile of the BSA during background research.
Arctostaphylos nissenana Nissenan manzanita	--	--/ 1B.2	2	Perennial evergreen shrub found in rocky closed-coned coniferous forest, chaparral, and woodland from 1,476 to 5,414 ft. Known from El Dorado, Placer, and Tuolumne Counties. Blooms February through March (CNPS 2022; Jepson eFlora 2022).	Unlikely to occur. BSA soils are heavily disturbed and overtaken by nonnative vegetation. No CNDDB records were identified within 1 mile of the BSA during background research.
Balsamorhiza macrolepis Big-scale balsamroot	--	--/ 1B.2	2	Perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine soils, from 295 to 5,102 ft. Known from the Bay Area, Sacramento Valley, and Sierra foothills. Blooms March through June (CNPS 2022); March through July (Jepson eFlora 2020).	Unlikely to occur. BSA soils are heavily disturbed and overtaken by nonnative vegetation. No CNDDB records were identified within 1 mile of the BSA during background research.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Calystegia stebbinsii Stebbins' morning-glory	E	E/ 1B.1	2	Perennial rhizomatous herb found in serpentine or gabbroic soils in openings in chaparral and cismontane woodland from 607 to 3,576 ft. Known from El Dorado and Nevada Counties. Blooms April through July (CNPS 2022; Jepson eFlora 2022).	Likely to occur. Closest CNDDB record approximately 400 feet from the BSA in similar habitat. Multiple CNDDB records were identified within 1 mile of the BSA during background research.
Calystegia vanzuukiae Van Zuuk's morning-glory	--	--/1B.3	2	A perennial rhizomatous herb found in gabbro or serpentine soils in chaparral or cismontane woodland from 1,640 ft. to 3,870 ft. Blooms from May through August (CNPS 2022).	No potential. BSA soils are heavily disturbed and overtaken by nonnative vegetation. No CNDDB records were identified within 1 mile of the BSA during background research. BSA is not located within species' preferred elevation range.
Carex cyrtostachya Sierra arching sedge	--	--/1B.2	2	Perennial herb found in mesic lower montane coniferous forest, meadows and seeps, marshes and swamps, and riparian forest margins from 2,000 to 4,460 ft. Known from Butte, El Dorado, and Yuba Counties. Blooms May through August (CNPS 2022).	No potential. BSA soils are heavily disturbed and overtaken by nonnative vegetation. BSA is not located within species' preferred elevation range and lacks mesic habitat.
Carex xerophila Chaparral sedge	--	--/1B.2	2	Perennial herb found in serpentine or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forests from 1,475 to 2,525 ft. Known from Butte, El Dorado, Nevada, and Yuba Counties. Blooms from March through June (CNPS 2022; Jepson eFlora).	Likely to occur. One CNDDB record occurs within approximately 1 mile of BSA in similar habitat.
Ceanothus roderickii Pine Hill ceanothus	E	R/ 1B.1	2	Perennial evergreen shrub found on serpentine or gabbroic soils in chaparral and cismontane woodland from 804 to 2,067 ft. Known from less than 10 occurrences in El Dorado Counties. Blooms March through June (Jepson eFlora 2020); April through June (CNPS 2020).	Likely to occur. CNDDB records occur within approximately 1 mile of BSA in similar habitat.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Chlorogalum grandiflorum Red Hills soaproot	--	--/1B.2	2	Perennial bulbiferous herb found in serpentine, gabbroic, and other soils in chaparral, cismontane woodland, and lower montane coniferous forest from 804 to 4,067 ft. Known from Amador, Butte, Calaveras, El Dorado, Placer, and Tuolumne Counties. Blooms May through June (CNPS 2022; Jepson eFlora 2022).	Likely to occur. CNDDB records occur within approximately 1 mile of BSA in similar habitat.
Cirsium crassicaule Slough thistle	--	--/1B.1	2	Annual to perennial herb found in chenopod scrub, marshes and swamps, and riparian scrub from 10 to 328 ft. Known populations in Kings, Kern, and San Joaquin Counties. Blooms May through August (CNPS 2022).	No potential. No aquatic habitat present within the BSA.
Crocanthemum suffrutescens Bisbee peak rush-rose	--	--/3.2	2	Perennial evergreen shrub often found in gabbroic or Ione soils in chaparral from 245 to 2,198 ft. Often found in burned or disturbed areas. Known from Amador, Calaveras and El Dorado Counties. Blooms April through August (CNPS 2022).	Likely to occur. CNDDB records occur within approximately 1 mile of BSA in similar habitat.
Eryngium pinnatisectum Tuolumne button-celery	--	--/ 1B.2	2	Annual to perennial herb found in mesic areas of cismontane woodland, lower montane coniferous forests, and vernal pools/swales, and intermittent streams from 230 to 3,000 ft. Known from Amador, Calaveras, Sacramento, and Tuolumne Counties. Blooms May through August (CNPS 2022); June through August (Jepson eFlora 2022).	No potential. No aquatic habitat present within the BSA.
Eryngium racemosum Delta button-celery	--	E/1B.1	2	Annual to perennial herb found in vernally mesic, clay depressions in riparian scrub from 10 to 100 ft. Known from Calaveras, Contra Costa, Merced, San Joaquin, and Stanislaus Counties. Blooms June through September (CNPS 2022).	No potential. No aquatic habitat present within the BSA. The BSA is outside the species' preferred elevation range.
Fremontodendron decumbens Pine Hill flannelbush	E	R/ 1B.2	2	Perennial evergreen shrub found on rocky, gabbroic, and serpentine soil in chaparral and cismontane woodland from 1,394 to 2,494 ft. Known from 10 occurrences in El Dorado, Nevada, and Yuba Counties. Uncertain about distribution or identity in Nevada and Yuba Counties. Blooms April through July (CNPS 2022; Jepson eFlora 2022).	Unlikely to occur. BSA soils are heavily disturbed and overtaken by nonnative vegetation. No CNDDB records were identified within 1 mile of the BSA during background research.
Galium californicum ssp. *sierrae* El Dorado bedstraw	E	R/ 1B.2	2	Perennial herb found in gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 330 to 1,920 ft. Known from El Dorado County. Blooms March through July (Jepson eFlora 2022); May through June (CNPS 2022).	Likely to occur. CNDDB records occur within approximately 1 mile of BSA in similar habitat.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Horkelia parryi Parry's horkelia	--	--/ 1B.2	2	Perennial herb found on Ione formation soils and in other soils in chaparral and cismontane woodland from 260 to 3,510 ft. Known from Amador, Calaveras, El Dorado, and Mariposa Counties. Blooms April through September (CNPS 2022; Jepson eFlora 2022). Jepson eFlora (2022) describes the habitat as open chaparral.	Unlikely to occur. BSA soils are heavily disturbed and overtaken by nonnative vegetation. No CNDDB records were identified within 1 mile of the BSA during background research.
Packera (=*Senecio*) *layneae* Layne's ragwort	T	R/ 1B.2	2	Perennial herb found in rocky serpentine or gabbroic soils in chaparral and cismontane woodland from 650 to 3,560 ft. Known from Butte, El Dorado, Placer, Tuolumne, and Yuba Counties. Blooms April through June (Jepson eFlora 2022); April through August (CNPS 2022).	Likely to occur. Closest CNDDB record approximately 750 feet from the BSA in similar habitat. Multiple CNDDB occurrences identified within 1 mile of the BSA.
Sagittaria sanfordii Sanford's arrowhead	--	--/ 1B.2	2	A perennial emergent rhizomatous herb found in assorted shallow freshwater marshes and swamps from 0 to 2,130 ft. Known from northwestern CA, Cascade foothills, Central Valley, and South Coast. Blooms May through October (Jepson eFlora 2022); May through November (CNPS 2022).	No potential. No aquatic habitat present within the BSA
Trichocoronis wrightii var. *wrightii* Wright's trichocoronis	--	--/ 2B.1	2	Annual herb found in meadows and seeps, marshes and swamps, riparian forest, and vernal pools from 16 to 1427 ft. Blooms May through September (CNPS 2022).	No potential. No aquatic habitat present within the BSA
Viburnum ellipticum Oval-leaved viburnum	--	--/ 2B.3	2	Deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forest from 700 to 4,600 ft. Known from Alameda, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Lake, Mendocino, Mariposa, Napa, Placer, Shasta, Solano, Sonoma, and Tehema Counties. (CNPS 2022). Blooms May through June (CNPS 2022); June through August (Jepson eFlora 2022). Jepson eFlora (2022) describes the habitat as, "chaparral, yellow-pine forest, generally on north-facing slopes."	Unlikely to occur. BSA soils are heavily disturbed and overtaken by nonnative vegetation. No CNDDB records were identified within 1 mile of the BSA during background research.
Wyethia reticulata El Dorado County mule ears	--	--/ 1B.2	2	Perennial rhizomatous herb found on clay or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 600 to 2,100 ft. Known from El Dorado and Yuba Counties. Blooms April through August (CNPS 2022); May through August (Jepson eFlora 2022).	Likely to occur. CNDDB records occur within approximately 1 mile of BSA in similar habitat.

Special-Status Species/ Common Name	Federal Status [a]	State Status [a]	Source	Habitat Requirements	Potential to Occur within the Study Area?
Natural Communities					
Central Valley drainage hardhead/ squawfish stream	--	--/ --	2	Hardhead occur in low- to mid-elevation streams in the main Sacramento-San Joaquin drainage and in the Russian River. Their range extends south to the Kern River in Kern County and north to the Pit River in Modoc County. In the Sacramento drainage, the hardhead is present in most large tributary streams as well as in the Sacramento River. Hardhead are typically found in undisturbed areas of larger low- to mid-elevation streams, although they are also found in the mainstem Sacramento River at low elevations and in its tributaries to about 4,920 ft. Hardhead are normally found in association with Sacramento pikeminnow (squawfish) and Sacramento sucker. They tend to be absent from streams where introduced species, especially centrarchids (sunfish), predominate and from streams that have been severely altered by human activity. Sacramento pikeminnow occur in clear rivers and creeks of central California and occur in small numbers in the Sacramento-San Joaquin Delta. They are most characteristic of low- to mid-elevation streams with deep (>32 inches) pools and slow runs with sand-gravel-boulder substrates, undercut banks, and overhanging vegetation (Moyle 2002).	No aquatic habitat present within the BSA.

[a] **Listing Status** Codes used in table are:
E = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; **CH** = Critical habitat designated; **PCH** = Proposed critical habitat.
[b] **Other Codes** Codes used in table are as follows:
SSC = CDFW Species of Special Concern; **FP** = CDFW Fully Protected;
CNPS California Rare Plant Rank (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution
CNPS Rank Decimal Extensions: **.1** = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3** = Not very endangered in CA (< 20% of occurrences threatened or no current threats known).
[c] **Sources** **1** = From USFWS/NMFS official lists. **2** = From CNDDB/CNPS queries. **3** = Observed or included by SWCA Environmental Consultants staff.
[d] **Potential to Occur Definitions:**

- Present – The species has been documented within the BSA by a reliable observer during recent surveys and habitat has not significantly degraded since the observation (e.g., no habitat removal associated with a development).
- Likely to occur – The species has a reasonable to strong likelihood to be present in the BSA as indicated by factors such as habitat quality, proximity to known records, presence of suitable dispersal corridors, etc. The BSA contains suitable habitat and is located within the elevational and geographic ranges of the species.
- Unlikely to occur – The species is not likely to occur in the BSA. Potentially suitable habitat is present. The BSA may be outside of the species' elevational and/or geographic ranges, contain substantially degraded or fragmented habitat, lack recent (i.e., within the last 10 years) occurrence records within dispersal distance, occur in an area isolated from known populations by barriers to migration/dispersal, and/or contain; predators or invasive species that inhibit survival or occupation.
- No potential – The species is not expected to occur in the BSA due to absence of potentially suitable habitat, the location of the BSA substantially outside of the species' elevational and/or geographic ranges, or the species is restricted to or known to be present only within a specific area outside of the BSA.
- Absent – The species was not detected during focused or protocol-level surveys for the project.

APPENDI D

Photographs



Photo 1. View of disturbed land cover from northern portion of site facing southwest. April 12, 2022.



Photo 2. View from northern portion of site facing north towards Durock Road. April 12, 2022.



Photo 3. View from southeastern portion of site facing southwest. April 12, 2022.



Photo 4. View of foothill pine woodland in western portion of site facing west. April 12, 2022.



Photo 5. View of annual grassland at center of site facing southwest. April 12, 2022.



Photo 6. View facing southwest toward debris found scattered in the foothill pine woodland. April 12, 2022.

SWCA ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

100 Howe Avenue
Suite 230N
Sacramento, California 95825
Tel 916.427.0703
www.swca.com

August 4, 2025

Marc Strauch
Strauch Companies
193 Blue Ravine Rd, Suite 135
Folsom, California 95630
marc.s@strauchco.com

Re: Supplemental Biological Survey Results for the Off-site Impact Area of the ARCO Shingle Springs Project, El Dorado County, California / SWCA Project No. 072467

Dear Marc Strauch:

This memorandum documents the results of a supplemental biological survey covering an approximately 0.84-acre area, hereafter referred to as the off-site survey area, directly adjacent and south of the 3.72-acre biological study area (BSA) previously surveyed in 2022 for the ARCO Shingle Springs Project (project) in El Dorado County, California. This memorandum serves as an addendum to the Biological Resources Evaluation (BRE) prepared for the project (SWCA Environmental Consultants [SWCA] 2022). The supplemental survey provides additional biological resources information for the off-site impact area where road embankment cut/fill work is proposed.

METHODS

The supplemental biological survey was conducted by SWCA biologists Alec Villanueva and Paris Krause on October 3, 2024. The approximately 0.84-acre off-site survey area encompasses proposed road cut/fill work in the southeast corner of the property and a 50-foot survey buffer (Attachment A: Figure A-1). The biologists walked through the off-site survey area while searching for biological resources, including special-status species, habitat for special-status species, and special-status natural communities, including protected oak trees (*Quercus* sp.) and aquatic resources.

Species observed during the supplemental survey were recorded. The survey was conducted at a time of year when special-status plants may not have been evident and identifiable. Natural communities were mapped using the same methods and habitat types described in the 2022 BRE (SWCA 2022). Potential jurisdictional aquatic features were described and mapped.

Certified arborists from California Tree and Landscape Consulting, Inc. (CalTLC) previously visited the property on April 8, 2022, to inventory and evaluate the trees within 50 feet of proposed development. Nine protected trees were evaluated, including three on neighboring parcels that could be impacted by the proposed development. All the trees surveyed qualify as protected trees under the County of El Dorado Oak Resources Conservation Ordinance No. 5061 (CalTLC 2025). CalTLC revisited the project site on November 5, 2024 and inventoried eight additional oak trees within the off-site survey area (CalTLC 2025).

RESULTS

No special-status species were observed during the supplemental biological survey. Table B-1 (Attachment B) lists the plant and animal species observed during the supplemental survey. Attachment C contains representative photographs of the off-site survey area and the current conditions within the BSA. Site conditions were similar to those observed previously (SWCA 2022).

Figure A-1 (see Attachment A) is an updated biological resources map covering the off-site survey area. For reference, this figure includes resources previously documented in the main BSA during the 2022 survey (Figure 4 in SWCA 2022). Figure A-1 also presents natural communities and their acreages (in the off-site survey area and in total).

Eight additional interior live oak (*Quercus wislizeni*) trees with a diameter at breast height of 6 inches or greater were mapped within the off-site survey area. These trees were generally small, with all diameters not exceeding 10 inches, except for a single interior live oak (Tree #7275), which has a diameter of 14 inches (see Attachment A: Figure A-1).

According to the revised (July) 2025 arborist report, there are a total of 17 protected trees inventoried within 50 feet of the proposed development area, including three trees on neighboring parcels. Three protected trees are proposed for removal (Trees #691, #7756, and #7760). One additional tree (Tree #7755) documented in the arborist report will require removal but does not meet the 6-inch minimum trunk diameter to be considered a protected tree. The three protected trees proposed for removal represent a total of 27 inches in trunk diameter at breast height. While not proposed for removal, seven retained trees (Trees #7276, #7752 through #7755, #7757 and #7759) may experience minor to moderate encroachment from the proposed development. Tree #7759 is located on a neighboring parcel, is a multi-trunk heritage tree with a cumulative trunk diameter measuring 42 inches (CalTLC 2025).

A culvert outlet occurs at the southeast corner of the off-site survey area and drains to a likely ephemeral artificial channel (see Attachment A: Figure A-1). The channel appears to be a human-made feature generally lacking an ordinary high-water mark. Wracking from a recent storm event was used to define channel location and extent. The channel is approximately 1.5 to 2.5 feet wide on average and flows south out of the off-site survey area. At approximately the southern edge of the off-site survey area, the channel loses definition and becomes sheet flow across uplands. The channel was dry during fieldwork and lacked any pools. The channel lacked aquatic and riparian vegetation and is most likely an ephemeral channel draining surrounding uplands and road/development runoff. Outside of storm events, the channel functions like the surrounding uplands and does not provide habitat for aquatic or amphibian species. The apparent culvert inlet is located on the east side of South Shingle Road.

DISCUSSION AND RECOMMENDATIONS

The off-site survey area contains biological resources like those documented in the BSA in 2022. These include additional oak trees, foothill-pine woodland, and California annual grassland (see Attachment A: Figure A-1). One likely ephemeral artificial channel was documented at the southeastern corner of the off-site survey area. Potential aquatic resources were not previously identified in the BSA.

Impacts to oaks are shown on Figure A-1 and detailed in the arborist report (CalTLC 2025). The arborist report includes calculation of a mitigation fee for the removal of the four (Trees #691, #7756, and #7760) protected trees. Retained Trees #7276, #7752 through #7755, #7757 through #7759, and #7277 occur near the proposed work area and should be protected with the proposed tree protection fencing (see Attachment A: Figure A-1 and arborist report recommendations).

Human-made ditches excavated or placed in uplands and that do not contain or drain wetlands or other natural channels are often exempt from regulation under federal and state aquatic resource regulatory programs. The likely ephemeral artificial channel at the southern edge of the off-site survey area is unlikely to be considered a Clean Water Act Section 404 jurisdictional feature since it is a human-made feature lacking relatively permanent flow. The Regional Water Quality Control Board may consider the feature a water of the state regulated under the Porter-Cologne Water Quality Control Act. The California Department of Fish and Wildlife may consider the feature a stream regulated by the California Fish and Game Code Section 1602 Lake and Streambed Alteration Program. If the project cannot avoid impacts to the feature, permits from these agencies could be required if the agencies claim jurisdiction and no exemptions apply.

Mitigation measures recommended previously (SWCA 2022) remain applicable.

Sincerely,

Mike Bower, M.S.
Senior Botanist

Attachments: A. Updated Biological Resources Map (incorporating off-site impact area)
B. Plant and Wildlife Species Observed
C. Representative Photographs of the Off-site Impact Area

LITERATURE CITED

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California*. Second edition. Berkeley, California: University of California Press.

California Invasive Plant Council (Cal-IPC). 2024. The Cal-IPC Inventory. Berkeley, California: California Invasive Plant Council. Available at: https://www.cal-ipc.org/plants/inventory/. Accessed October 2024.

California Tree and Landscape Consulting, Inc. (CalTLC). 2025. *Arborist Report, BCE #21863; Arco; 4100 Durock Road; APN 109-080-001; County of El Dorado, California.* May 24. Prepared for Leslie Burnside of Barghausen Consulting Engineers, on behalf of Strauch Companies. Auburn, California: California Tree and Landscape Consulting, Inc. January 8, 2025; Revised July 7, 2025.

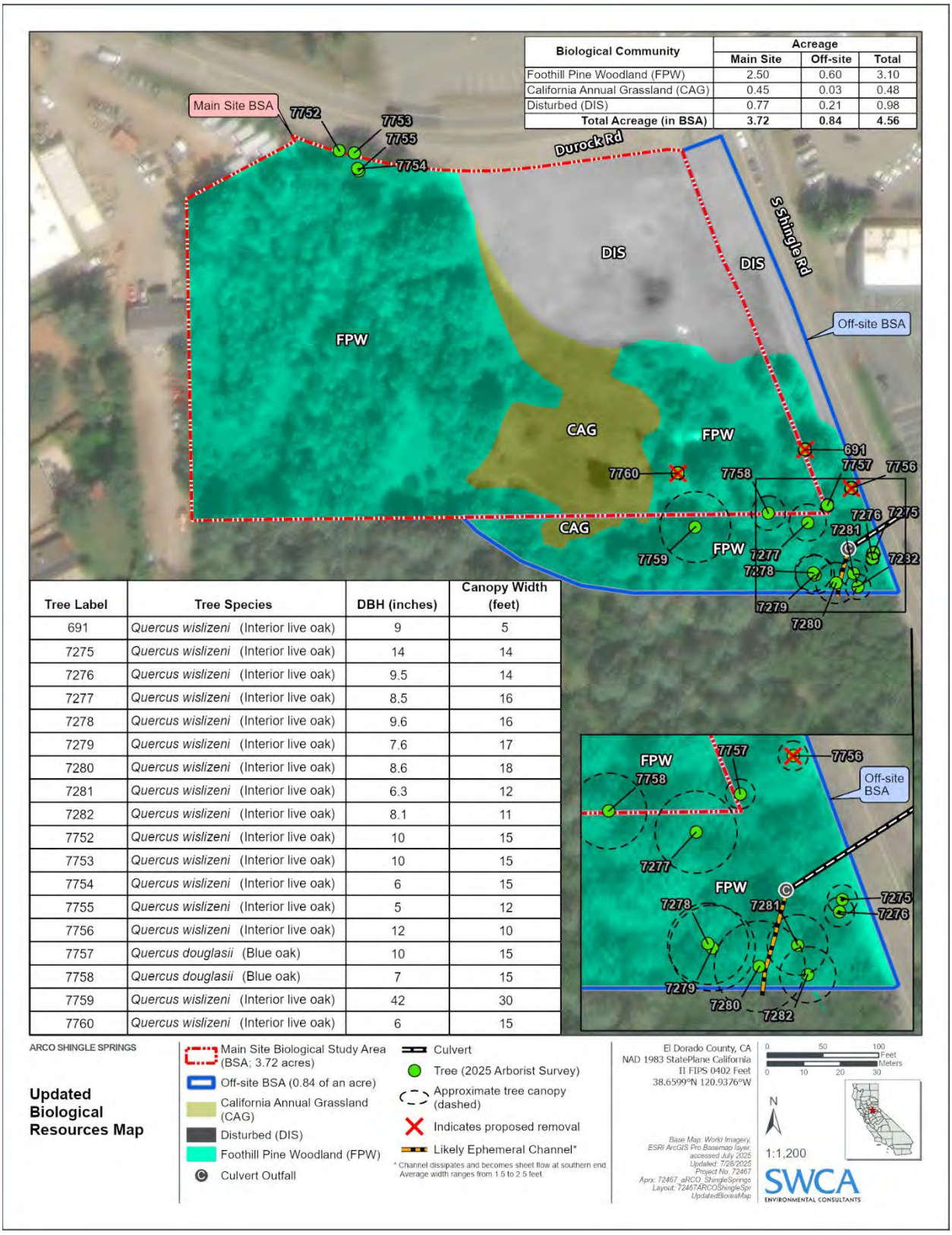
SWCA Environmental Consultants (SWCA). 2022. *Biological Resources Evaluation Report for the ARCO Shingle Springs Project, El Dorado County, California*. July. Prepared for Strauch Companies. Sacramento, California: SWCA Environmental Consultants. July.

Attachment E

ATTACHMENT A

Updated Biological Resources Map

Incorporating Off-Site Impact Area



Tree Label	Tree Species	DBH (inches)	Canopy Width (feet)
691	*Quercus wislizeni* (Interior live oak)	9	5
7275	*Quercus wislizeni* (Interior live oak)	14	14
7276	*Quercus wislizeni* (Interior live oak)	9.5	14
7277	*Quercus wislizeni* (Interior live oak)	8.5	16
7278	*Quercus wislizeni* (Interior live oak)	9.6	16
7279	*Quercus wislizeni* (Interior live oak)	7.6	17
7280	*Quercus wislizeni* (Interior live oak)	8.6	18
7281	*Quercus wislizeni* (Interior live oak)	6.3	12
7282	*Quercus wislizeni* (Interior live oak)	8.1	11
7752	*Quercus wislizeni* (Interior live oak)	10	15
7753	*Quercus wislizeni* (Interior live oak)	10	15
7754	*Quercus wislizeni* (Interior live oak)	6	15
7755	*Quercus wislizeni* (Interior live oak)	5	12
7756	*Quercus wislizeni* (Interior live oak)	12	10
7757	*Quercus douglasii* (Blue oak)	10	15
7758	*Quercus douglasii* (Blue oak)	7	15
7759	*Quercus wislizeni* (Interior live oak)	42	30
7760	*Quercus wislizeni* (Interior live oak)	6	15

Figure A- . Updated biological resources map.

Attachment E

ATTACHMENT B

Plant and Wildli e Species Observed

Table B- . Plant Species Observed

Family	Scienti ic Name	Common Name	N/I [2]	Cal-IPC [3]
Gymnosperms				
Pinaceae	*Pinus sabiniana*	Gray, ghost, or foothill pine	N	
Eudicots				
Agavaceae	*Chlorogalum pomeridianum*	Wavy-leafed soap plant	N	
Anacardiaceae	*Toxicodendron diversilobum*	Poison oak	N	
Apiaceae	*Torilis arvensis*	Tall sock-destroyer	I	Moderate
Asteraceae	*Lactuca serriola*	Prickly lettuce	I	
	Matricaria discoidea	Pineapple weed	I	
	Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	I	Moderate
	Centaurea solstitialis	Yellow star thistle	I	High
	Silybum marianum	Milk thistle	I	Limited
Brassicaceae	*Raphanus raphanistrum*	Wild radish	I	Limited
Ericaceae	*Arctostaphylos viscida*	Whiteleaf manzanita	N	
Fabaceae	*Trifolium hirtum*	Rose clover	I	Limited
	Cercis occidentalis	Western redbud	N	
Fagaceae	*Quercus wislizeni*	Interior live oak	N	
	Quercus douglasii	Blue oak	N	
Geraniaceae	*Erodium cicutarium*	Redstem filaree	I	
Lamiaceae	*Salvia* sp.	Sage	–	
Liliacaea	*Calochortus albus*	Fairy lantern	N	
Plantaginaceae	*Plantago* sp.	Plantain	–	
Rhamnaceae	*Ceanothus tomentosus*	Woollyleaf ceanothus	N	
Rosaceae	*Adenostoma fasciculatum*	Chamise	N	
	Heteromeles arbutifolia	Toyon	N	
Monocots				
Agavaceae	*Chlorogalum pomeridianum var. pomeridianum*	Common soap plant	N	
Liliaceae	*Calochortus albus*	Fairy-lantern	N	
Poaceae	*Cynosurus echinatus*	Bristly dogstail grass	I	Moderate
	Bromus diandrus	Ripgut brome	I	Moderate
	Stipa pulchra	Purple needlegrass	N	
	Festuca perennis	Italian rye-grass	I	Moderate
	Sorghum halepense	Johnson grass	I	
	Bromus hordeaceus	Soft brome	I	Limited
	Avena fatua	Wild oat	I	Moderate
	Briza minor	Lesser quaking-grass	I	
	Elymus caput-medusae	Medusa head	I	High

[1] Nomenclature and taxonomy follow *The Jepson Manual: Vascular Plants of California*, Second Edition (Baldwin et al. 2012).

[2] N = Native to California; I = Introduced.

[3] Negative ecological impact ranking by the California Invasive Plant Council (Cal-IPC 2024).

Attachment E

ATTACHMENT C

Representative Photographs o the O -Site Impact Area



Photo . View o disturbed land cover rom northern portion o pro ect site, acing southwest. Photo taken October 3, 202 .



Photo 2. View rom southeastern portion o pro ect site, acing southeast toward South Shingle Road. Photo taken October 3, 202 .



Photo 3. View rom southeastern portion o pro ect site, acing southwest. Photo taken October 3, 202 .



Photo . View rom southeastern portion o pro ect site, acing west. Photo taken October 3, 202 .



Photo . View o western portion o pro ect site, acing north. Photo taken October 3, 202 .



Photo . View o culvert in o -site impact area, acing downstream/southwest. Photo taken October 3, 202 .

California Tree and Landscape Consulting, Inc.
411 Grass Valley Hwy, #1050, Auburn, CA 95603 (530) 745-4086

January 8, 2025, Revised July 28, 2025

Barghausen Consulting Engineers, Inc.
3007 Douglas Blvd, Suite 130
Roseville, CA 95661
lburnside@barghausen.com

OAK RESOURCES TECHNICAL REPORT

Re: BCE #21863; Arco; 4100 Durock Road; APN 109-080-001; County of El Dorado, California

Summary

Leslie Burnside of Barghausen Consulting Engineers, on behalf of the property owner, contacted California Tree and Landscape Consulting Inc. to inventory and evaluate the trees within 50' of development for purposes of evaluating the impacts to the trees from the proposed preliminary grading plan by Barghausen Consulting Engineers[1]. The property is located at 4100 Durock, Shingle Springs and is subject to the jurisdiction of the County of El Dorado, California. (See Supporting Information, Appendix 1 – Tree Location Map.)

R. Cory Kinley, ISA# WE-9717A, visited the property on April 8, 2022 to evaluate the trees and onsite conditions. A total of nine (9) protected trees were evaluated. Three (3) trees were included from neighboring parcels because they may be impacted by the proposed development[2]. Tyler Thomson, ISA Certified Arborist #12751A, revisited the site on November 5, 2024 and inventoried 8 additional trees. All the trees surveyed are protected according to the County of El Dorado Oak Resources Conservation Ordinance No. 5061.

TABLE 1 – Tree Removal and Mitigation

		Interior Live Oak, *Quercus wislizenii*	Blue Oak, *Quercus douglasii*	Trunk Diameter Inches/Inches Requiring Mitigation
Individual Native Oak Trees				
Individual Oak Trees to be Removed, >6" and <24"		3	0	27
Trees to be removed >24" and <36"		0	0	0
Heritage Trees				
Heritage Trees to be removed		0	0	0[3]

[1] Preliminary Grading Plan- Sheet No. PG (not dated, provided 12/03/24)

[2] CalTLC is not a licensed land surveyor. Tree ownership was not determined. Conclusions within this report are based on existing fences or other landmarks which may not represent the actual property boundary.

[3] Tree #7759 is an off-site Heritage tree (42" Total Diameter). An additional $19,278.00 in mitigation fees will be required if the required protection zone shown in Appendix 1 cannot be met. In addition, since this tree does NOT belong to the subject property, permission from the property owner would be required for removal of the tree.

© July 28, 2025
All Rights reserved

Oak Woodlands				
Acreage of Lot/Oak Woodland Acres	3.69/0			
Acreage of Oak Woodlands to be Impacted or Removed	0			

In lieu fees: Costs based on Removal of Oak Woodlands	Not Applicable
Individual Trees Impacted or to be removed	27" x $153.00 = $4,131.00
Total	$4,131.00

See Appendix 2 for Information on Each Individual Tree & Appendix 5 for Tree Protection Information

While the total encroachment for Tree #7759 is estimated at ~25% the remainder of the tree is undisturbed and with proper excavation monitored by the project arborist and root pruning the tree should not suffer any adverse effects.

It should be noted that the south boundary area has several substandard size oaks trees and numerous foothill pine trees of various sizes.

Observations
The site has a previously graded pad covering approximately 1 acre where the development is proposed. There is no oak woodland on the site. The parcel is primarily foothill pine, *Pinus sabiniana*, chemise, *Adenostoma fasciculatum*, coyote brush, *Baccharis pilularis*, and poison oak, *Toxicodendron diversilobum*. Several interior live oak, *Quercus wislizeni* and a few blue oak, *Quercus* douglasii, were noted. There are seventeen (17) protected trees inventoried within 50' of the proposed development area. Seven (7) of the inventoried trees are off-site including the Heritage tree. (See Supporting Information, Appendix 1 – Tree Protection Plan.)

Three (3) protected trees that meet the minimum size requirements are proposed for removal totaling 27" in diameter. Mitigation for these trees is $153.00 per diameter inch for a total of $4,131.00.

Methods
The protected trees evaluated as part of this report have a numbered tag that was placed on each one that is 1-1/8" x 1-3/8", green anodized aluminum, "acorn" shaped, and labeled: CalTLC, Auburn, CA with 1/4" pre-stamped tree number and Tree Tag. They are attached with a natural-colored aluminum 10d nail, installed at approximately 6 feet above ground level on the approximate north side of the tree. The tag should last ~10-20+ years depending on the species, before it is enveloped by the trees' normal growth cycle.

A Level 2 – Basic Visual Assessment was performed in accordance with the International Society of Arboriculture's best management practices. This assessment level is limited to the observation of conditions and defects which are readily visible. Additional limiting factors, such as blackberries, poison oak, and/or debris piled at the base of a tree can inhibit the visual assessment.

Tree Location: The GPS location of each tree was collected using the ESRI's ArcGIS collector application on an Apple iPhone or Android device. The data was then processed in ESRI's ArcMap to produce the tree location map.

Tree Measurements: DBH (diameter breast high) is normally measured at 4'6" (above the average ground height for "Urban Forestry"), but if that varies then the location where it is measured is noted. A steel diameter tape was used to measure the DBH for all trees. A Stanley laser distance meter was used to measure distances and/or pacing was used to estimate canopy measurements. Canopy radius measurements may also have been estimated due to obstructions, such as steep slopes or other trees.

© July 28, 2025
All Rights reserved

TERMS

Field Tag #	The pre-stamped tree number on the tag which is installed at approximately 6 feet above ground level on the north side of the tree.
Old Tag #	If additional field tags are found on the trees and are legible, they are listed here.
Species	The species of a tree is listed by our local and correct common name and botanical name by genus (capitalized) and species (lower case). Oaks frequently cross-pollinate and hybridize, but the identification is towards the strongest characteristics.
DBH	Diameter breast high' is normally measured at 4'6" (above the average ground height for "Urban Forestry"), but if that varies then the location where it is measured is noted in the next column "measured at"
Measured at	Height above average ground level where the measurement of DBH was taken
Canopy radius	The farthest extent of the crown composed of leaves and small twigs. Most trees are not evenly balanced. This measurement represents the longest extension from the trunk to the outer canopy. The dripline measurement is from the center point of the tree and is shown on the Tree Location Map as a circle. This measurement can further define a protection zone if specified in the local ordinance as such or can indicate if pruning may be required for development.
Protected Root Zone	The radius of the protected root zone is a circle equal to the trunk diameter inches converted to feet and factored by tree age, condition and health pursuant to the industry standard. Best Management Practices: Managing Trees During Construction, the companion publication to the Approved American National Standard, provides guidance regarding minimum tree root protection zones for long term survival. In instances where a tree is multi-stemmed the protected root zone is equal to the extrapolated diameter (sum of the area of each stem converted to a single stem) factored by tree age, condition and health.
Arborist Rating	Subjective to condition and is based on both the health and structure of the tree. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture (ISA) on a numeric scale of 5 (being the highest) to 0 (the worst condition, dead) as in Chart A. The rating was done in the field at the time of the measuring and inspection.

No problem(s)	Excellent		No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect
No apparent problem(s)	Good or Fair to Good		The tree is in good condition and there are no apparent problems that a Certified Arborist can see from a visual ground inspection. If potential structural or health problems are tended to at this stage future hazard can be reduced and more serious health problems can be averted.
Minor problem(s)	Fair	3	The tree is in fair condition. There are some minor

			structural or health problems that pose no immediate danger. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated and/or health can be improved.
Major or uncorrectable problems (2)	Fair to Poor	**2**	The tree has major problems. If the option is taken to preserve the tree, additional evaluation to identify if health or structure can be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. Additionally, risk should be evaluated as a tree rated 2 may have structural conditions which indicate there is a high likelihood of some type of failure. Tree rated 2 should be removed if these additional evaluations will not be performed.
Extreme problem(s)	Poor		The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a dangerous situation.
Dead	Dead	**0**	This indicates the tree has no significant sign of life.

Notes	Provide notable details about each tree which are factors considered in the determination of the tree rating including: (a) condition of root crown and/or roots; (b) condition of trunk; (c) condition of limbs and structure; (d) growth history and twig condition; (e) leaf appearance; and (f) dripline environment. Notes also indicate if the standard tree evaluation procedure was not followed (for example - why dbh may have been measured at a location other than the standard 54”). Additionally, notes will list any evaluation limiting factors such as debris at the base of a tree.
Actions	Recommended actions to increase health and longevity.
Development Impacts	Projected development impacts are based solely on distance relationships between tree location and grading. Field inspections and findings during the project at the time of grading and trenching can change relative impacts. Closely followed guidelines and requirements can result in a higher chance of survival, while requirements that are overlooked can result in a dramatically lower chance of survival. Impacts are measured as follows:

Impact Term:	**Long Term Result of Impact:**
Negligible	Tree is unlikely to show any symptoms. Chance of survival post development is excellent. Impacts to the Protected Root Zone are less than 5%.
Minor	Tree is likely to show minor symptoms. Chance of survival post development is good. Impacts to the Protected Root Zone are less than 15% and species tolerance is good.

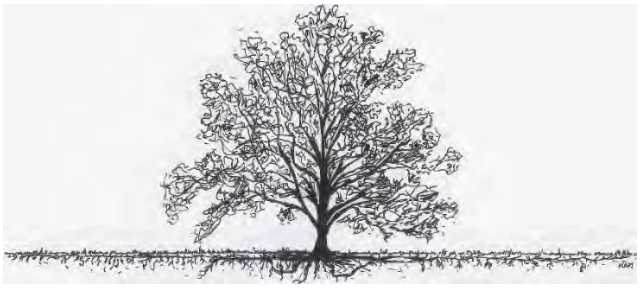
© July 28, 2025
All Rights reserved

Moderate	Tree is likely to show moderate symptoms. Chance of survival post development is fair. Impacts to the Protected Root Zone are less than 35% and species tolerance is good or moderate.
Severe	Tree is likely to show moderate symptoms annually and a pattern of decline. Chance of long term survival post development is low. Impacts to the Protected Root Zone are up to 50% and species tolerance is moderate to poor.
Critical	Tree is likely to show moderate to severe symptoms annually and a pattern of decline. Chance of long term survival post development is negligible. Impacts to the Protected Root Zone are up to 80%.

DISCUSSION

Trees need to be protected from normal construction practices if they are to remain healthy and viable on the site. Our recommendations are based on experience and the County ordinance requirements. Post construction tree longevity is often determined during development by the willingness of the contractor and subcontractors to adhere to the recommendations. Root zones must remain intact and viable, despite heavy equipment being on site, and the need to install foundations, driveways, underground utilities, and landscape irrigation systems. The most effective methodology for preserving trees is exclusion. Simply walking and driving on soil has serious consequences for tree health and accordingly, exclusionary fencing in the most appropriate location will be the most important recommendation for protecting trees during development.

The arborist recommendation for where to place the exclusionary fencing is based on Best Management Practices[4] and experience working in the development industry. The majority of a tree's roots are contained in a radius from the main trunk outward approximately two to three times the canopy of the tree. These roots are located in the top 6" to 3' of soil. It is a common misconception that a tree underground resembles the canopy. The correct root structure of a tree is in the drawing below. All plants' roots need both water and air for survival.



Root structure of a mature tree, shown as twice the canopy in the top 3-4' of the soil

Arborist Classifications

Arboriculture is a broad industry and there are different types of Arborists with different qualifications.

Tree Removal and/or Pruning Companies. These companies may be licensed by the State of California to do business, but they do not necessarily know any of the science of tree growth and response to pruning or root impacts.
Arborists. Arborist is a broad term. It is intended to mean someone with specialized knowledge of trees.

[4] (Smiley, 2008)

ISA Certified Arborist: An International Society of Arboriculture Certified Arborist is someone who has been trained and tested to have specialized knowledge of trees. You can look up certified arborists at the International Society of Arboriculture website: isa-arbor.org.
Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and tested to have specialized knowledge of trees and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists at the American Society of Consulting Arborists website: https://www.asca-consultants.org/

The **project arborist** for your development project is a consulting arborist with experience in interpretation of the County ordinances and requirements, preparation of Tree Protection Plans, onsite supervision of mechanical equipment during grading near trees, and communications with the County regarding tree preservation issues. The project arborist is responsible for notification to the County of the anticipated impacts to the individual trees and woodlands, as well as, verification of the actual impacts at the end of the project. The project arborist will provide an unbiased professional opinion as to the likelihood of survival of the trees retained during development.

Clearance Pruning & Mechanical Damage

The removal of lower foliage from a tree to prevent limb breakage by equipment is often necessary but can cause a significant reduction in the long-term viability of a tree due to fungal infection at the site of the wound. In addition, trees without adequate protection may sustain mechanical damage. Any wound can be an entry site for disease.



Fungi cause all decay of living trees. Decay is considered a disease because cell walls are altered, wood strength is affected, and living sapwood cells may be killed. Fungi decay wood by secreting enzymes. According to Evaluation of Hazard Trees in Urban Areas (Matheny, 1994) decay is a critical factor in the stability of the tree. As decay progresses in the trunk, the stem becomes a hollow tube or cylinder rather than a solid rod. This change is not readily apparent to the casual observer. Trees require only a small amount of bark and wood to transport water, minerals, and sugars. Interior heartwood can be eliminated (or degraded) to a great degree without compromising the transport process. Therefore, trees can contain significant amounts of decay without showing decline symptoms in the crown.

The project arborist should review any proposed pruning and directly supervise the pruning for adherence to industry standard practices.

RECOMMENDATIONS: SUMMARY OF TREE PROTECTION MEASURES

1. Project Arborist: California Tree & Landscape Consulting, Inc. (CalTLC) Edwin Stirtz, ed@caltlc.com (916) 878-0299. Contact the project arborist for access inside the Tree Protection Areas and Onsite Inspections as required.
2. The project arborist is required to inspect the tree protection fencing prior to grading and/or grubbing for compliance with the required protection zones. In particular, within the protected area for the offsite Heritage tree. Due to the proximity of the proposed work to the protected trees and the property line tree protective fencing will be installed on the property line.
3. Clearance pruning should include removal of all the lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site. The Project Arborist should approve the extent of foliage elevation and oversee the pruning to be performed by a contractor who is an ISA Certified Arborist.

© July 28, 2025
All Rights reserved

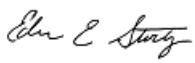
4. Any and all work to be performed inside the protected root zone fencing shall be supervised by the project arborist.

Report Prepared by:



Caroline Nicholas
Arborist Assistant

Project Arborist:



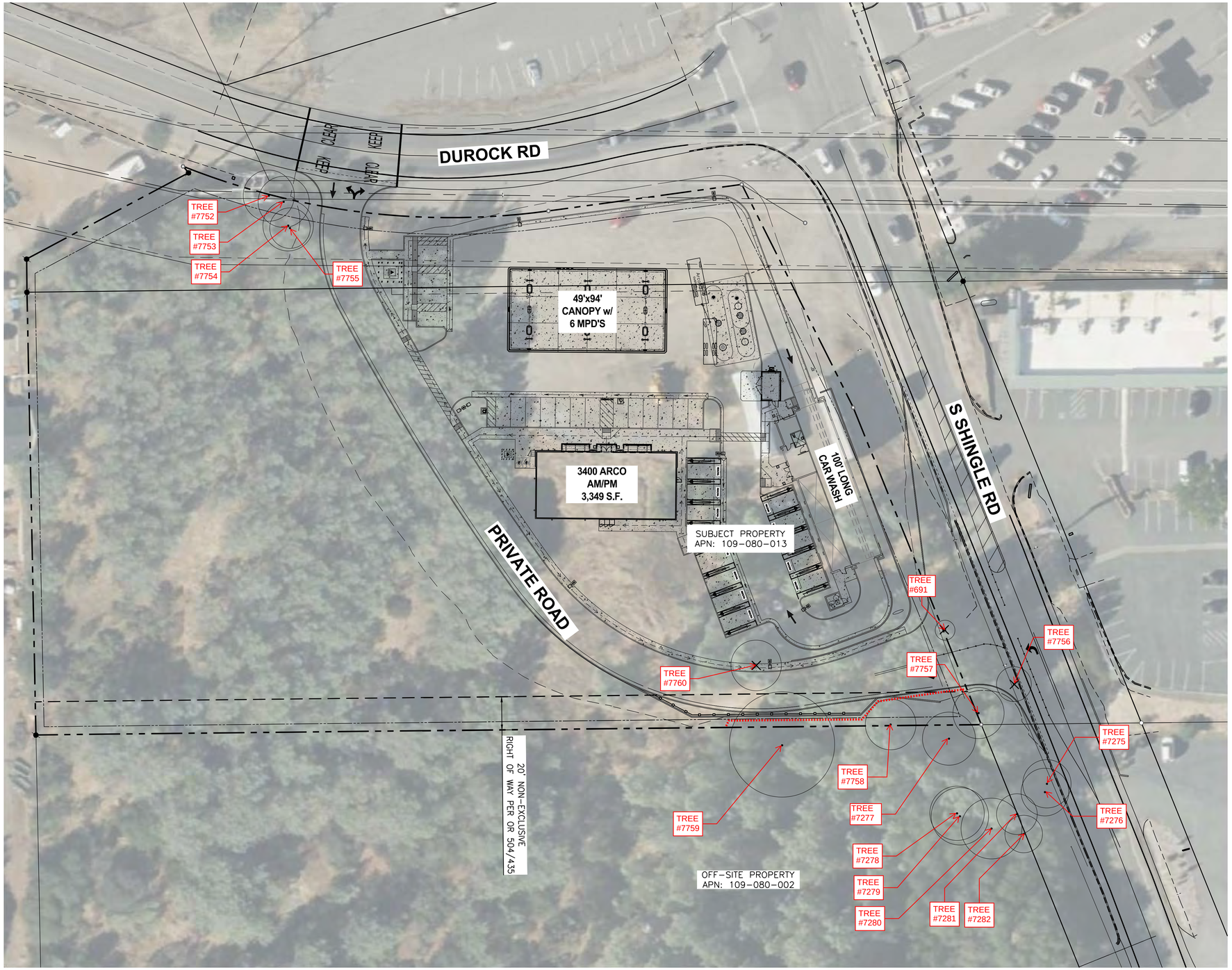
Edwin E. Stirtz
Consulting Arborist
ISA Certified Arborist #WE-0510AM, TRAQ

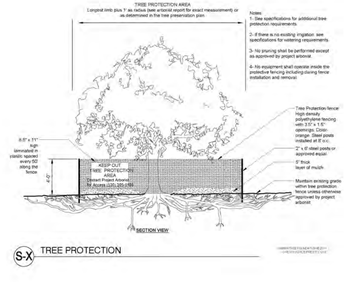
Enc.: Appendix 1 – Map of Tree Locations & Tree Protections
Appendix 2 – Tree Information Data
Appendix 3 – General Practices for Tree Protection
Appendix 4 – Site Photographs

Bibliography

International Society of Arboriculture. (2015). *Glossary of Arboricultural Terms.* Champaign: International Society of Arboriculture.
L.R., C. (2003). *Reducing Infrastructure Damage by Tree Roots.* Porterville: International Society of Arboriculture. Matheny, J. C. (1994). *Evaluation of Hazard Trees in Urban Areas, Second Edition.* Champaign: International Society of Arboriculture.
Menzer, K. (2008). *Consulting Arborist Report.*
Smiley. (2008). *Managing Trees During Construction, Best Management Practices.* Champaign: International Society of Arboriculture.
Stamen, R. (1997). *California Arboriculture Law.* Riverside: Law Offices of Randall S. Stamen.
Tree Care Industry Association. (2017). *Tree, Shrub, and Other Woody Plant Management - Standard Practices (Pruning).* Londonderry: Tree Care Industry Association.
Urban, J. (2008). *Up by the Roots.* Champaign: International Society of Arboriculture.

TREE IMPACT EXHIBIT





Due to the proximity of the proposed work to the protected trees and the property line, tree protective fencing will be installed on the property line.

Tree Protection Fencing

N

0 15' 30' 60'
SCALE: 1"=30'

Preliminary Not For Construction

CLIENT:

bp

ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen
Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1	01/13/23	CUP SUBMITTAL
1	02/08/24	CUP RESUBMITTAL
2	07/29/24	2ND CUP RESUBMITTAL
3		
4		
5		
6		
7		
8		
9		
10		
11		

SEAL:

Not for Construction

DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's
CAR WASH

SITE ADDRESS:
4100 DUROCK RD
@ S SHINGLE ROAD
SHINGLE SPRINGS, CALIFORNIA
FACILITY #TBD

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: -	PROJECT NO: 21863

DRAWING TITLE:
TREE IMPACT EXHIBIT

SHEET NO:
EXH

APPENDIX 2 – TREE INFORMATION DATA

Tag #	SWCA Tag #	Protected By Code	Significant Oak Trees >24"-35"	Heritage Oak Trees >36"	Offsite	Species Common Name	Species Botanical Name	DBH (in.)	DBH Multi-Stem (in.)	Measured At (in.)	Canopy Radius (ft.)	Arborist Rating	Notes	Dvlpmnt Status
691		Yes	No	No		Interior live oak	*Quercus wislizeni*	9	6, 3	54	5	3-Minor Problems	Suppressed, multi stem at ground.	Proposed for Removal.
7275	QW01	Yes	No	No		Interior live oak	*Quercus wislizeni*	14	9, 5	54	14	2-Major Structure or health problems	Slotted for removal. On slope, 5 feet from S Shingle Rd. Codominant at 1 foot, inclusion and 20% bark loss present. Unbalanced main stems with moderate bark loss throughout. Poor taper/balance. Fair foliage health. Crown moderately suppressed.	No encroachment depicted.
7276	QW02	Yes	No	No		Interior live oak	*Quercus wislizeni*	9.5		54	14	3-Minor Problems	Slotted for removal. On slope. Good base, structure and vigor. Moderately suppressed crown.	No new encroachment depicted, existing curb and pavement within CRZ.
7277	QW08	Yes	No	No	Yes	Interior live oak	*Quercus wislizeni*	8.5		54	16	2-Major Structure or health problems	Obscured base from heavy debris. Leans heavy east. Poor crown ratio and trunk taper. Healthy foliage, fair vigor.	No encroachment depicted, protect in place -fence CRZ.
7278	QW07	Yes	No	No	Yes	Interior live oak	*Quercus wislizeni*	9.6		54	16	3-Minor Problems	5 inch low stem connected to flare. Fair flare. Fair crown balance and density. Moderately suppressed crown.	No encroachment depicted.
7279	QW06	Yes	No	No	Yes	Interior live oak	*Quercus wislizeni*	7.6		54	17	2-Major Structure or health problems	Fair flare, buried northeast. Overextended branch with included bark attachment at 2 feet.	No encroachment depicted.

© July 28, 2025
All Rights reserved

Tag #	SWCA Tag #	Protected By Code	Significant Oak Trees >24"-35"	Heritage Oak Trees >36"	Offsite	Species Common Name	Species Botanical Name	DBH (in.)	DBH Multi-Stem (in.)	Measured At (in.)	Canopy Radius (ft.)	Arborist Rating	Notes	Dvlpmnt Status
													Moderate/high amount of dead branches. Suppressed crown. Fair/low vigor.	
7280	QW05	Yes	No	No	Yes	Interior live oak	*Quercus wislizeni*	8.6		54	18	3-Minor Problems	Good flare. Lower trunk leans moderately southwest, corrects mostly around 8 feet. Fair crown balance and density. Fair vigor.	No encroachment depicted.
7281	QW04	Yes	No	No	Yes	Interior live oak	*Quercus wislizeni*	6.3		54	12	2-Major Structure or health problems	Buried flare. Unbalanced base. One-sided crown southwest, severely suppressed. High amount of dead branches. Fair foliage health.	No encroachment depicted.
7282	QW03	Yes	No	No	Yes	Interior live oak	*Quercus wislizeni*	8.1		54	11	2-Major Structure or health problems	Flush cuts on base. unbalanced crown. high amount of small dead branches. swollen crown stems with moderate/severe bark loss.	No encroachment depicted.
7752		Yes	No	No		Interior live oak	*Quercus wislizeni*	10			15	3 Fair - Minor Problems	On south facing bank along Durock. Crowded, growing under transmission lines.	Retain with minor encroachment from driveway grading. Fence CRZ.
7753		Yes	No	No		Interior live oak	*Quercus wislizeni*	10			15	3 Fair - Minor Problems	On south facing bank along Durock. Crowded, growing under transmission lines.	Retain with minor encroachment from driveway grading. Fence CRZ.
7754		Yes	No	No		Interior live oak	*Quercus wislizeni*	6			15	3 Fair - Minor Problems	Bottom of south facing bank along Durock. Crowded, growing	Retain with moderate encroachment from driveway grading. Fence CRZ

© July 28, 2025
All Rights reserved

Tag #	SWCA Tag #	Protected By Code	Significant Oak Trees >24"-35"	Heritage Oak Trees >36"	Offsite	Species Common Name	Species Botanical Name	DBH (in.)	DBH Multi-Stem (in.)	Measured At (in.)	Canopy Radius (ft.)	Arborist Rating	Notes	Dvlpmnt Status
													under transmission lines. Significant suppression dieback lower canopy.	& monitor grading, root prune as necessary.
7755		No	No	No		Interior live oak	*Quercus wislizeni*	5			12	2 Major Structure or Health Problems	Bottom of south facing bank along Durock. Crowded, growing under transmission lines. Suppressed, severe lean.	Retain with moderate encroachment from driveway grading. Fence CRZ & monitor grading, root prune as necessary.
7756		Yes	No	No		Interior live oak	*Quercus wislizeni*	12	3,3,2,2,2		10	2 Major Structure or Health Problems	Along shoulder of South Shingle Rd. Multi stem at ground, weak attachments. Suppressed, crowded.	Proposed for Removal, within proposed driveway footprint.
7757		Yes	No	No		Blue Oak	*Quercus douglasii*	10			15	3 Fair - Minor Problems	Possibly offsite or shared. Buried flare, growing in a south facing bank. Good vigor.	Retain with minor encroachment from driveway grading. Fence CRZ.
7758		Yes	No	No		Blue Oak	*Quercus douglasii*	7			15	3 Fair - Minor Problems	Possibly offsite. Buried flare. Suppressed, crowded. Lower canopy significant dieback, leans south.	Protect in -place. In impact area - no pruning will be necessary, the tree is far enough from the wall.
7759		**Yes**	**No**	**Yes**	**Yes**	**Interior live oak**	***Quercus wislizeni***	**42**	**12,11,9,10**		**30**	**2 Major Structure or Health Problems**	**Offsite. Tree has weak attachments with inclusions. Above average amount of dead wood.**	**PROTECT DURING DEVELOPMENT by having the project arborist monitor the activities. Minor to moderate impact for retaining wall ~5' tall falls 10~ north of trunk. Monitor grading/excavation, root prune as necessary. 2 branches - 5" and 6" require removal to provide**

© July 28, 2025
All Rights reserved

Tag #	SWCA Tag #	Protected By Code	Significant Oak Trees >24"-35"	Heritage Oak Trees >36"	Offsite	Species Common Name	Species Botanical Name	DBH (in.)	DBH Multi-Stem (in.)	Measured At (in.)	Canopy Radius (ft.)	Arborist Rating	Notes	Dvlpmnt Status
														clearance over the new drive isle.
7760		Yes	No	No		Interior live oak	*Quercus wislizeni*	6			15	3 Fair - Minor Problems	Growing out of a south facing bank. Significant lean, vigor good.	Proposed for Removal, at edge of proposed driveway.

© July 28, 2025
All Rights reserved

APPENDIX 3 – GENERAL PRACTICES FOR TREE PROTECTION

Definitions

Root zone: The roots of trees grow fairly close to the surface of the soil, and spread out in a radial direction from the trunk of tree. A general rule of thumb is that they spread 2 to 3 times the radius of the canopy, or 1 to 1 ½ times the height of the tree. It is generally accepted that disturbance to root zones should be kept as far as possible from the trunk of a tree.

Inner Bark: The bark on large valley oaks and coast live oaks is quite thick, usually 1" to 2". If the bark is knocked off a tree, the inner bark, or cambial region, is exposed or removed. The cambial zone is the area of tissue responsible for adding new layers to the tree each year, so by removing it, the tree can only grow new tissue from the edges of the wound. In addition, the wood of the tree is exposed to decay fungi, so the trunk present at the time of the injury becomes susceptible to decay. Tree protection measures require that no activities occur which can knock the bark off the trees.

Methods Used in Tree Protection:

No matter how detailed Tree Protection Measures are in the initial Arborist Report, they will not accomplish their stated purpose unless they are applied to individual trees and a Project Arborist is hired to oversee the construction. The Project Arborist should have the ability to enforce the Protection Measures. The Project Arborist should be hired as soon as possible to assist in design and to become familiar with the project. He must be able to read and understand the project drawings and interpret the specifications. He should also have the ability to cooperate with the contractor, incorporating the contractor's ideas on how to accomplish the protection measures, wherever possible. It is advisable for the Project Arborist to be present at the Pre-Bid tour of the site, to answer questions the contractors may have about Tree Protection Measures. This also lets the contractors know how important tree preservation is to the developer.

Root Protection Zone (RPZ): Since in most construction projects it is not possible to protect the entire root zone of a tree, a Root Protection Zone is established for each tree to be preserved. The minimum Root Protection Zone is the area underneath the tree's canopy (out to the dripline, or edge of the canopy), plus 10'. The Project Arborist must approve work within the RPZ.

Irrigate, Fertilize, Mulch: Supplemental irrigation, fertilization and or addition of mulch may be required at some point in time during the course of construction. The project arborist will recommend any or all of these mitigation measures as necessary during the course of construction.

Fence: Fence around the Root Protection Zone and restrict activity therein to prevent soil compaction by vehicles, foot traffic or material storage. The fenced area shall be off limits to all construction equipment, unless there is express written notification provided by the Project Arborist, and impacts are discussed and mitigated prior to work commencing. Due to the proximity of the proposed work to the protected trees and the property line tree protective fencing will be installed on the property line.

No storage or cleaning of equipment or materials, or parking of any equipment can take place within the fenced off area, known as the RPZ.

The fence should be highly visible, and stout enough to keep vehicles and other equipment out. I recommend the fence be made of orange plastic protective fencing, kept in place by t-posts set no farther apart than 6'.

In areas of intense impact, a 6' chain link fence is preferred.

In areas with many trees, the RPZ can be fenced as one unit, rather than separately for each tree.

© July 28, 2025
All Rights reserved

Where tree trunks are within 3' of the construction area, place 2" by 4" boards vertically against the tree trunks, even if fenced off. Hold the boards in place with wire. Do not nail them directly to the tree. The purpose of the boards is to protect the trunk, should any equipment stray into the RPZ.

Elevate Foliage: Where indicated, remove lower foliage from a tree to prevent limb breakage by equipment. Low foliage can usually be removed without harming the tree, unless more than 25% of the foliage is removed. Branches need to be removed at the anatomically correct location in order to prevent decay organisms from entering the trunk. For this reason, a contractor who is an ISA Certified Arborist should perform all pruning on protected trees.[5]

Expose and Cut Roots: Breaking roots with a backhoe, or crushing them with a grader, causes significant injury, which may subject the roots to decay. Ripping roots may cause them to splinter toward the base of the tree, creating much more injury than a clean cut would make. At any location where the root zone of a tree will be impacted by a trench or a cut (including a cut required for a fill and compaction), the roots shall be exposed with either a backhoe digging radially to the trunk, by hand digging, or by a hydraulic air spade, and then cut cleanly with a sharp instrument, such as chainsaw with a carbide chain. Once the roots are severed, the area behind the cut should be moistened and mulched. A root protection fence should also be erected to protect the remaining roots, if it is not already in place. Further grading or backhoe work required outside the established RPZ can then continue without further protection measures.

Protect Roots in Deeper Trenches: The location of utilities on the site can be very detrimental to trees. Design the project to use as few trenches as possible, and to keep them away from the major trees to be protected. Wherever possible, in areas where trenches will be very deep, consider boring under the roots of the trees, rather than digging the trench through the roots. This technique can be quite useful for utility trenches and pipelines.

Protect Roots in Small Trenches: After all construction is complete on a site, it is not unusual for the landscape contractor to come in and sever a large number of "preserved" roots during the installation of irrigation systems. The Project Arborist must therefore approve the landscape and irrigation plans. The irrigation system needs to be designed so the main lines are located outside the root zone of major trees, and the secondary lines are either laid on the surface (drip systems), or carefully dug with a hydraulic or air spade, and the flexible pipe fed underneath the major roots.

Design the irrigation system so it can slowly apply water (no more than ¼" to ½" of water per hour) over a longer period of time. This allows deep soaking of root zones. The system also needs to accommodate infrequent irrigation settings of once or twice a month, rather than several times a week.

Monitoring Tree Health During and After Construction: The Project Arborist should visit the site at least twice a month during construction to be certain the tree protection measures are being followed, to monitor the health of impacted trees, and make recommendations as to irrigation or other needs. After construction is complete, the arborist should monitor the site monthly for one year and make recommendations for care where needed. If longer term monitoring is required, the arborist should report this to the developer and the planning agency overseeing the project.

Chemical Treatments: The owner or developer shall be responsible to contact an arborist with a pesticide applicators license to arrange for an application of a root enhancing hormone, such as Paclobutrazol, to mitigate the stress produced by the development **prior to grading**. Additionally, at the discretion of the project arborist, an insect infestation preventative for both boring insects and leaf feeding insects and/or fungal preventative for leaf surfaces may be required. Roots pruned during the course of performing a cut may be required to be treated with a bio-fungicide such as Bio-Tam.

[5] International Society of Arboriculture (ISA), maintains a program of Certifying individuals. Each Certified Arborist has a number and must maintain continuing education credits to remain Certified.

APPENDIX 4 – SITE PHOTOGRAPHS by R. Cory Kinley, April 8, 2022



View of gravel pad area and tree line facing west.



View of gravel pad area and tree line facing south.

© July 28, 2025
All Rights reserved



View south of gravel pad area facing west.

Space intentionally left blank



The majority of the site consisted of Gray Pine with understory trees and shrubs; including sporadic undersized native oaks.



Off site heritage-size interior live oak located adjacent to the south property line.

© July 28, 2025
All Rights reserved

SITE PHOTOGRAPHS by Tyler Thomson, November 5, 2024



Shows Trees #7275 & #7276, from left to right



Shows Tree #7275

© July 28, 2025
All Rights reserved



Shows Trees #7278 & #7279, from left to right



Shows Trees #7282 & #7281, from left to right

© July 28, 2025
All Rights reserved

Attachment G

Air Quality & Greenhouse Gas Technical Report

Arco Shingle Springs Project

El Dorado County, California

JUNE 2023

PREPARED FOR

Barghausen Consulting Engineers, Inc.

PREPARED BY

SWCA Environmental Consultants

AIR QUALITY & GREENHOUSE GAS TECHNICAL REPORT ARCO SHINGLE SPRINGS PROJECT

EL DORADO COUNTY, CALIFORNIA

Prepared for

Barghausen Consulting Engineers, Inc.
3300 Douglas Blvd Suite 100
Roseville, CA 95661

Prepared by

Brad Sohm, Principal Air Quality Team Lead
Erin Wielenga, Air Quality Specialist

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

June 2023

CONTENTS

1 Introduction 1
2 Project Location and Description 1
2.1 Project Location 1
2.2 Construction Time Frame and Phasing 4
3 Environmental Setting 4
3.1 Overview of Air Pollution and Potential Health Effects 4
3.1.1 Criteria Air Pollutants 4
3.1.2 Volatile Organic Compounds 7
3.1.3 Toxic Air Contaminants 7
3.1.4 Odors 9
3.2 Existing Air Quality Conditions in the Project Area 10
3.2.1 Regional Air Quality 10
3.2.2 Regional Attainment Status 10
3.2.3 Local Air Quality 11
3.3 Greenhouse Gas Setting 13
3.3.1 Greenhouse Gas Background 14
3.3.2 Greenhouse Gas Emissions Inventories 16
4 Regulatory Setting 16
4.1 Federal 16
4.1.1 Federal Clean Air Act 16
4.1.2 Toxic Substance Control Act 18
4.1.3 National Emission Standards for Hazardous Air Pollutants (Asbestos) 18
4.2 State 18
4.2.1 California Clean Air Act 18
4.2.2 California Code of Regulations 19
4.2.3 Toxic Air Contaminants Regulations 19
4.2.4 Energy Independence and Security Act 19
4.2.5 Executive Order S-3-05, Executive Order B-30-15, and Executive Order B-55-18 20
4.2.6 Assembly Bill 32 — California Global Warming Solution Act 21
4.2.7 Climate Change Scoping Plan 21
4.2.8 Assembly Bill 197 22
4.2.9 Cap-and-Trade Program 22
4.2.10 California Renewables Portfolio Standard 22
4.2.11 Senate Bill 350 22
4.2.12 Senate Bill 100 23
4.2.13 Senate Bill 1368 23
4.2.14 Assembly Bill 1493 (Pavley I) 23
4.2.15 Executive Order S-01-07 (California Low Carbon Fuel Standard) 24
4.2.16 Advanced Clean Car Regulations 24
4.2.17 Senate Bill 375 24
4.2.18 California Appliance Efficiency Regulations (Title 20, Sections 1601–1608) 24
4.2.19 California Building Energy Efficiency Standards (Title 24, Part 6) 25
4.2.20 California Green Building Standards (CALGreen Code) 25
4.2.21 Senate Bill 97 25
4.3 Regional 26
4.3.1 El Dorado County Air Quality Management District 26

5 Thresholds of Significance 27
5.1 Air Quality 27
5.1.1 Construction and Operations 28
5.1.2 Toxic Air Contaminants 28
5.1.3 Consistency with Applicable Air Quality Plans 29
5.1.4 Cumulative Impacts 29
5.2 Greenhouse Gases 30
6 Methodology 32
6.1 Construction Emissions 32
6.1.1 Construction Assumptions 32
6.2 Operational Emissions 34
6.2.1 Regional Emissions 34
6.3 Greenhouse Gas 35
6.4 Toxic Air Contaminants Impacts (Construction and Operations) 36
7 Impact Analysis 36
7.1 Cumulative Impacts 45
7.1.1 Air Quality 45
7.1.2 Greenhouse Gas Emissions 45
7.2 Mitigation Measures 46
8 References & Literature Cited 47

Tables

Table 1. State and Federal Ambient Air Quality Standards 9
Table 2. Summary of Ambient Air Quality in El Dorado County 11
Table 3. California Greenhouse Gas Inventory 12
Table 4. Global Warming Potentials 15
Table 5. Construction Anticipated Schedule, Trips, and Equipment 33
Table 6: Unmitigated Construction Emissions Summary 37
Table 7: Mitigated Construction Emissions Summary 38
Table 8: Unmitigated Operational Emissions Summary 39
Table 9: Estimated Annual Construction Greenhouse Gas Emissions 41
Table 10: Estimated Annual Operational Greenhouse Gas Emissions 42

Figures

Figure 1. Vicinity map. 2
Figure 2. Project location. 3

Appendices

Appendix A. CalEEMod Results – Air Pollutant & GHG Emission Calculations
Appendix B. Health Risk Assessment Screening

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Air Basin	Mountain County Air Basin
AQMP	Air Quality Management Plan
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	California Action Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of El Dorado
County General Plan	County of El Dorado General Plan
DPM	diesel particulate matter
EDCAQMD	El Dorado County Air Quality Management District
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
gsf	gross square feet
GWP	global warming potential
H_2S	hydrogen sulfide
HFCs	hydrofluorocarbons
HRA	health risk assessment
HVAC	heating, ventilation, and air conditioning

IPCC	Intergovernmental Panel on Climate Change
IWMA	Integrated Waste Management Act
LCFS	Low Carbon Fuel Standard
MMT	million metric tons
MT	metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
O_3	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
PFCs	perfluorocarbons
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
project	Arco Shingle Springs Project
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCOTUS	Supreme Court of the United States
SCS	Sustainable Community Strategy
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	source receptor area
TAC	toxic air contaminant
TSCA	Toxic Substances Control Act
VMT	vehicle miles traveled
VOC	volatile organic compound
ZEV	Zero Emission Vehicle

EXECUTIVE SUMMARY

This report analyzes potential air quality and climate change impacts related to the Arco Shingle Springs Project. All analyses have been conducted to comply with the El Dorado County Air Quality Management District (EDCAQMD) requirements for air quality and climate change assessments and satisfy the requirements of the California Environmental Quality Act (CEQA). The findings are as follows:

- The project's emissions during construction and operations would not exceed EDCAQMD significance thresholds.
- The project would not result in significant elevated health risks at sensitive receptors due to proximity to nearby pollution sources.
- The project's carbon monoxide (CO) emissions during long-term project operations would not create any new or exacerbate any existing CO hot spots.
- The project would be consistent with air quality policies set forth by EDCAQMD.
- The project would not conflict with the state's goal of reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030.
- The project would not result in a cumulatively considerable air quality impact.

1 INTRODUCTION

Barghausen Consulting Engineers, Inc., (Barghausen) retained SWCA Environmental Consultants (SWCA) to conduct an air quality and greenhouse gas emissions (GHGs) technical report in support of the proposed Arco Shingle Springs Project (project) in El Dorado County, California (county). The purpose of this report is to describe the methodologies used to quantify project air pollutant and greenhouse gas (GHG) emissions and to evaluate the air quality and GHG emissions impacts associated with the proposed construction and subsequent operation of an Arco AM/PM convenience store, retail gas sales area consisting of twelve fueling stations, and an automatic car wash on ambient air quality & GHGs. This air quality technical report also addresses the consistency of the project with applicable federal, state, and local regulatory policies pertaining to air quality and GHG emissions, and analysis of whether the project would cause an exceedance of an ambient air quality standard or significance threshold. The evaluation of project impacts was conducted as recommended in the El Dorado County Air Quality Management District (EDCAQMD) California Environmental Quality Act (CEQA) Guidelines dated February 2002 (EDCAQMD 2002), which is incorporated into this technical document by reference.

2 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The project is located at 4100 Durock Road in Shingle Springs, El Dorado County, California within the Shingle Springs U.S. Geologic Survey 7.5-minute topographic quadrangle (Figure 1). Specifically, the project is located southwest of the intersection of Durock Road and South Shingle Road.

The project includes the development of a 3,329-square-foot Arco AM/PM gas station with an approximately 6,321-square-foot canopy covering a total of twelve fueling stations, and an automatic 100-foot-long car wash on a currently undeveloped approximately 3.7-acre parcel. The project also includes two underground fuel storage tanks along the northern portion of the site. The development will occur on the eastern half of the parcel and the western half will remain undeveloped. The County's General Plan Land Use Diagram designates the site as Commercial use. The project is bordered to the north by Durock Road and the park and ride, to the east by South Shingle Road and scattered commercial buildings, to the south by mixed coniferous forest, and to the west by mixed residential and commercial buildings (Figure 2).

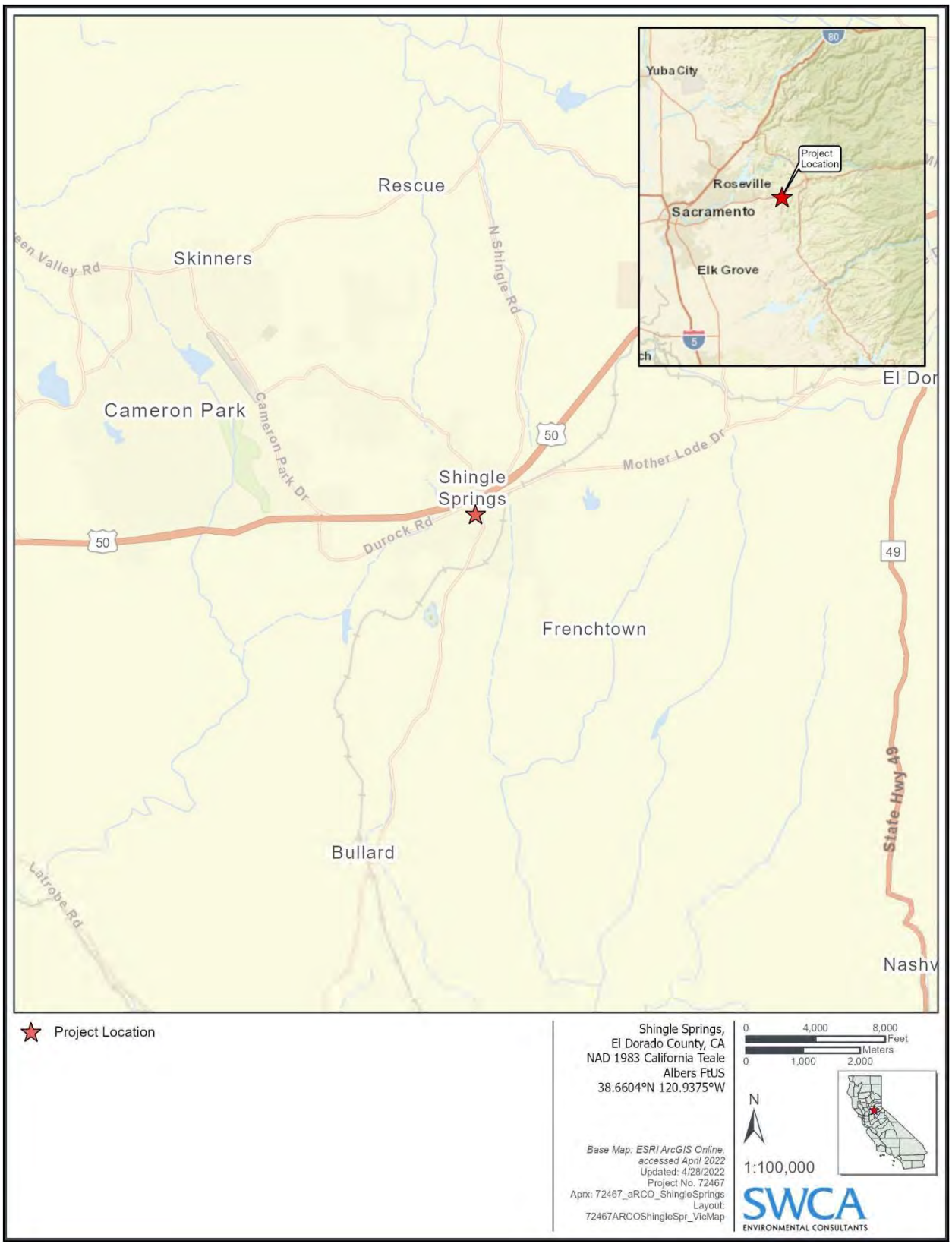


Figure 1. Vicinity map.

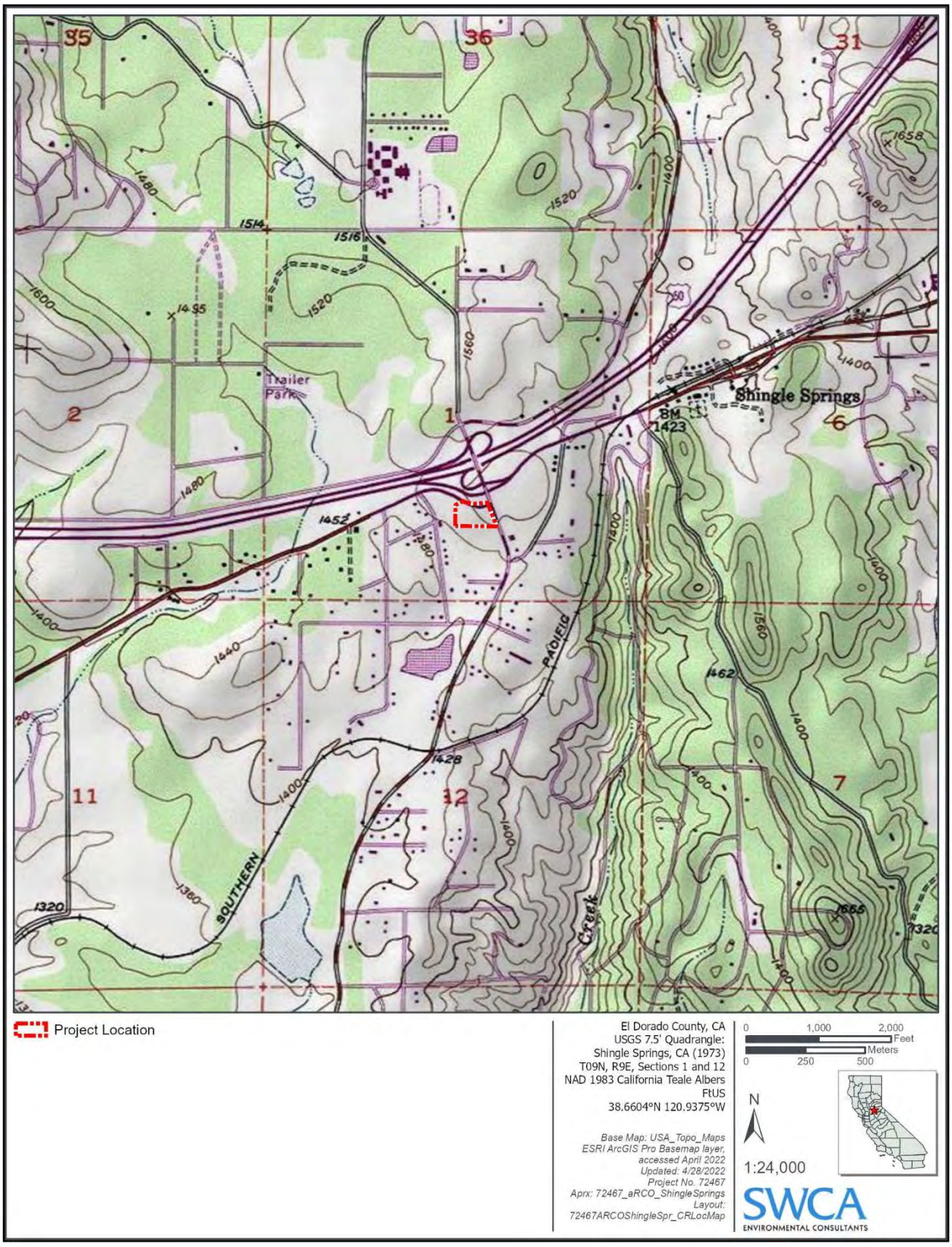


Figure 2. Project location.

2.2 Construction Time Frame and Phasing

Construction of the project, from mobilization to the site to final completion, is expected to occur between 2024 and 2025, and would last for approximately 9 months. The project would be constructed in six phases: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating. All construction activities, including construction staging of equipment, would be situated entirely within the project site. Typical construction equipment would be used during all phases of project construction and would be stored within the staging area, potentially including air compressors, cranes, forklifts, graders, pavers, rollers, dozers, and backhoes. Once construction is completed the project would be an operational gasoline station, with a convenience store and an automated carwash. Employees and public clientele would travel to the project, as necessary. Potential emissions will continue over the operational life of the project and include mobile emissions associated with vehicular traffic, gas pump emissions, water usage for the carwash, landscaping and maintenance.

3 ENVIRONMENTAL SETTING

The project is located in El Dorado County within the Mountain Counties Air Basin (MCAB). The MCAB consists of Amador, Calaveras, Mariposa, Nevada, Placer (portion), Plumas, Sierra, Tuolumne, and El Dorado County (western portion). The EDCAQMD has jurisdiction within this portion of the MCAB. The EDCAQMD has full jurisdiction within all El Dorado County. Ambient air quality within MCAB is affected by the climate, topography, and the type and amount of pollutants emitted.

3.1 Overview of Air Pollution and Potential Health Effects

3.1.1 Criteria Air Pollutants

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants in order to protect the public health and welfare. These pollutants are referred to as “criteria air pollutants” and the national and state standards have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment, either directly or in reaction with other pollutants due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in the air quality with the Air Basin. The criteria air pollutants for which national and state standards have been promulgated and which are most relevant to current air quality planning and regulation in the Air Basin include carbon monoxide (CO), ozone (O_3), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, sulfates, and hydrogen sulfide (H_2S). These pollutants, as well as volatile organic compounds (VOCs) and toxic air contaminants (TACs), are discussed in the following paragraphs. The national and state criteria pollutants and the applicable ambient air quality standards are listed in Table 1.

3.1.1.1 OZONE

O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun’s energy and O_3 precursors. These precursors are mainly oxides of nitrogen (NO_x) and VOCs. The maximum effects of

precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone). The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good" O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2022a). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

3.1.1.2 NITROGEN DIOXIDE

NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2022a).

3.1.1.3 CARBON MONOXIDE

CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions (EPA 2022a).

3.1.1.4 SULFUR DIOXIDE

SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel (EPA 2022a).

3.1.1.5 PARTICULATE MATTER

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SOx), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in $PM_{2.5}$ and PM_{10} (EPA 2022a).

3.1.1.6 LEAD

Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the

phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead (EPA 2022a).

3.1.1.7 OTHERS

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. H_2S is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of H_2S include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to H_2S can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

3.1.2 Volatile Organic Compounds

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as TACs. While there are no specific VOC ambient air quality standards, VOC is a prime component (along with NO_x) of the photochemical processes by which such criteria pollutants as O_3, NO_2, and certain fine particles are formed. They are, thus, regulated as "precursors" to the formation of those criteria pollutants.

3.1.3 Toxic Air Contaminants

TACs refer to a diverse group of "non-criteria" air pollutants that can affect human health but have not have ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hot spots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

The federal TACs are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, although there are no ambient standards established for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or other acute (short-term) or chronic (long-term) health problems. For TACs that are known or suspected carcinogens, the CARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risks they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health effects, a similar factor, called a Hazard Index, is used to evaluate risk. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Examples of TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TACs that are relevant to the implementation of the project include diesel particulate matter (DPM) and airborne asbestos.

DPM was identified as a TAC by the CARB in August 1998 (CARB 1998). DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57% attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3% of emissions, include shipyards, warehouses, heavy-equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities.

Exposure to DPM can have immediate health effects. DPM can have a range of health effects including irritation of eyes, throat, and lungs, causing headaches, lightheadedness, and nausea. Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. Children, the elderly, and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. In California, DPM has been identified as a carcinogen.

Naturally occurring asbestos areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks. Asbestos has been designated a TAC by the CARB and is a known carcinogen. When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Exposure to asbestos can result in adverse health effects such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing) (Van Gosen and Clinkenbeard 2011).

Naturally Occurring Asbestos (NOA) is prevalent in at least 44 of California's 58 counties. Asbestos is the name for a group of naturally occurring silicate minerals. Asbestos may be found in serpentine, other ultramafic and volcanic rock. When rock containing NOA is broken or crushed, asbestos may become released and become airborne, causing a potential health hazard. El Dorado County Air Quality Management Rule 223-2 requires activities to reduce asbestos dust created from earth moving activities. An Asbestos Dust mitigation plan must be prepared, submitted, approved and implemented when more than 20 cubic yards of earth will be moved at all sites identified as being in an Asbestos Review Area as shown on the El Dorado County Naturally Occurring Asbestos Review Area Map. The project is located in the Asbestos Review Area and identified the project area as Quarter Mile Buffer for More Likely To Contain Asbestos or Fault Line (El Dorado County 2015), therefore, an asbestos dust mitigation plan will be required.

3.1.4 Odors

A qualitative assessment should be made as to whether a project has the potential to generate odorous emissions of a type or quantity that could meet the statutory definition for nuisance, i.e., odors "which cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property" (Health & Safety Code § 41700). While offensive odors usually do not cause any physical harm, they can be unpleasant enough to lead to considerable distress among the public and generate citizen complaints to local governments and the EDCAQMD. Any project with the potential to expose members of the public to objectionable odors in a manner that meets the statutory definition of nuisance will be deemed to have a potential significant effect. Chapter 3 of the EDCAQMD CEQA Guidelines provide common types of facilities known to produce odors, such as sanitary landfills, chemical or fiberglass manufacturing, and wastewater treatment plants. The project is not one of these types of facilities. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Table 1. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	--	Same as Primary
	8 hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	
Respirable particulate matter (PM_{10})	24 hour	50 µg/m³	150 µg/m³	Same as Primary
	Annual mean	20 µg/m³	--	
Fine particulate matter ($PM_{2.5}$)	24 hour	--	35 µg/m³	Same as Primary
	Annual mean	12 µg/m³	12.0 µg/m³	15 µg/m³
Carbon monoxide (CO)	1 hour	20 ppm (23 µg/m³)	35 ppm (40 mg/m³)	--
	8 hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	--
Nitrogen dioxide (NO_2)	1 hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	--
	Annual mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
Sulfur dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	--
	3 hour	--	-	0.5 ppm (1300 µg/m³)
	24 hour	0.04 ppm (105 µg/m³)	0.14 ppm	--
	Annual mean	--	0.030 ppm	--
Lead	30-day average	1.5 µg/m³	-	--
	Calendar quarter	--	1.5 µg/m³	Same as Primary
	Rolling 3-month average	--	0.15 µg/m³	Same as Primary
Visibility reducing particles	8 hour	10-mile visibility standard, extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 hour	25 µg/m³		

Hydrogen sulfide (H2S)	1 hour	0.03 ppm (42 µg/m³)
Vinyl chloride	24 hour	0.01 ppm (265 µg/m³)

Source: CARB (2016)
Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; -- = no standard.

3.2 Existing Air Quality Conditions in the Project Area

3.2.1 Regional Air Quality

The Mountain County Air Basin (MCAB) lies along the northern Sierra Nevada Mountain range, close to or contiguous with the Nevada border, and covers an area of roughly 11,000 square miles. The western slope of El Dorado County, from Lake Tahoe on the east to the Sacramento County boundary on the west, lies within the MCAB. Elevations range from over 10,000 feet at the Sierra crest down to several hundred feet above sea level at the Sacramento County boundary. Throughout the county, the topography is highly variable, and includes rugged mountain peaks and valleys with extreme slopes and differences in altitude in the Sierras, as well as rolling foothills to the west. The general climate of the MCAB varies considerably with elevation and proximity to the Sierra ridge. The terrain features of the basin make it possible for various climates to exist in relatively close proximity. The pattern of mountains and hills causes a wide variation in rainfall, temperature, and localized winds throughout the basin. Temperature variations have an important influence on basin wind flow, dispersion along mountain ridges, vertical mixing, and photochemistry. The Sierra Nevada receives large amounts of precipitation from storms moving in from the Pacific in the winter, with lighter amounts from intermittent "Monsoonal" moisture flows from the south and cumulus buildup in the summer. Precipitation levels are high in the highest mountain elevations but decline rapidly toward the western portion of the basin. Winter temperatures in the mountains can be below freezing for weeks at a time, and substantial depths of snow can accumulate, but in the western foothills, winter temperatures usually dip below freezing only at night and precipitation is mixed as rain or light snow. In the summer, temperatures in the mountains are mild, with daytime peaks in the 70s to low 80s F, but the western end of the county can routinely exceed 100 degrees F. For Shingle Springs, July is the hottest month with an average high temperature of 92.3° and days with noticeable humidity are rare throughout the year. November is the snowiest month in Shingle Springs with 0.1 inches of snow, and no months of the year have significant snowfall.

3.2.2 Regional Attainment Status

Depending on whether the applicable ambient air quality standards are met or exceeded, the air basin is classified on a federal and state level as being in "attainment" or "nonattainment." The EPA and CARB determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state and local ambient air monitoring stations with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable/unclassified designation is treated as an attainment designation. The Mountain County Air Basin portion of El Dorado County currently meets the NAAQS for all pollutants, therefore, is considered a "attainment/unclassified" area for these pollutants on the federal level. As of January 2023, the Air Basin is also considered in attainment/unclassified for all pollutants on the state level (EPA 2022b). Outside of the Air Basin, El Dorado County Sacramento Metropolitan Area is considered "non-attainment" for 8-hour O_3, and El Dorado County City of Sacramento "non-attainment" for $PM_{2.5}$ (EPA 2022b).

3.2.3 Local Air Quality

Air pollutants emissions are generated in the local vicinity by stationary and area-wide sources, such as commercial and industrial activity, space and water heating, landscape maintenance, consumer products, and mobile sources primarily consisting of automobile traffic. Area-wide sources are the primary source of pollutants in the local vicinity.

3.2.3.1 EXISTING CRITERIA POLLUTANT LEVELS AT NEARBY MONITORING STATIONS

In El Dorado County, ambient air quality has been monitored at several locations for over 20 years. The most recent data are from monitoring conducted at three CARB-operated monitoring stations in Placerville, Cool, and Echo Summit. The monitoring station most representative of the project site is the Placerville Station, located at 3111 Gold Nugget Way in the city of Placerville, approximately 17 miles east of the project site. Criteria pollutants monitored at this station include 1-hour and 8-hour O_3. No nearby stations monitor PM_{10}, $PM_{2.5}$, CO, NO_2, lead, or sulfate. Table 2 presents the ozone concentrations that have been measured at the Placerville Station for the period 2019–2021, as well as any exceedances of the NAAQS and CAAQS. The GHG inventory for California for years 2015–2019 is presented in Table 3. The national and state criteria pollutants and the applicable ambient air quality standards are listed above in Table 1.

Table 2. Summary of Ambient Air Quality in El Dorado County

Pollutant		Year		
		2019	2020	2021
O3	Maximum 1-hour concentration (ppm)	0.081	0.127	0.090
	Days exceeding CAAQS (0.09 ppm)	0	4	0
	Maximum 8-hour concentration (ppm)	0.075	0.101	0.080
	Days exceeding NAAQS (0.07 ppm)	4	20	10
	Days exceeding CAAQS (0.07 ppm)	4	20	10

Source: CARB (2022a)
Notes: AAM = annual arithmetic mean; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Table 3. California Greenhouse Gas Inventory

Parameter	Unit*	Year				
		2015	2016	2017	2018	2019
Transportation	MMT CO_2e	166.2	169.8	171.2	169.6	166.1
	Percentage	38.5%	40.4%	41.2%	40.7%	40.6%
Electric power	MMT CO_2e	84.8	68.6	62.1	63.1	58.8
	Percentage	19.6%	16.3%	14.9%	15.2%	14.4%
Industrial	MMT CO_2e	90.3	89	88.8	89.2	88.2
	Percentage	20.9%	21.2%	21.4%	21.4%	21.5%
Commercial and residential	MMT CO_2e	38.8	40.6	41.3	41.4	43.8
	Percentage	9.0%	9.7%	9.9%	9.9%	10.7%
Agriculture	MMT CO_2e	33.5	33.3	32.5	32.7	31.8
	Percentage	7.8%	7.9%	7.8%	7.9%	7.8%
High global warming potential (GWP)	MMT CO_2e	18.6	19.2	20	20.4	20.6
	Percentage	4.3%	4.6%	4.8%	4.9%	5.0%
Total Net Emissions	MMT CO_2e	**432.2**	**420.5**	**415.9**	**416.4**	**409.3**

Source: California GHG Inventory for 2000–2019 (CARB 2021)

* MMT CO2e = million metric tons carbon dioxide equivalent

3.2.3.2 EXISTING HEALTH RISK IN THE PROJECT VICINITY

OEHHA, on behalf of the California EPA (CalEPA), provides a screening tool called CalEnviroScreen that can be used to help identify California communities disproportionately burdened by multiple sources of pollution. The project is located in Census Tract 601703080, which has 6,779 people. To determine the existing level of TACs in the area, the CalEnviroScreen indicator that represents modeled air concentration of chemical releases from large facility emissions in and nearby the census tract was identified. This indicator takes the air concentration and toxicity of the chemical to determine the toxic release score. The data is averaged over 2017 to 2019 and the toxic release indicator scores range from 0 to 96,985. The score for this census tract is 32.21 which means the toxic release percentile for this census tract is 15, meaning it is higher than 15% of the census tracts in California.

The CalEnviroScreen for diesel particulate matter was also determined, as diesel particulate matter is also a TAC. This indicator represents how much diesel particulate matter is emitted into the air within and near the populated parts of the census tracts. The data from 2016 indicate that sources of diesel PM within and nearby the populated parts of this census tract emit 0.020 tons per year. The diesel PM percentile for this census tract is 7, meaning it is higher than 7% of the census tracts in California. Diesel emissions in California range between 0 - 15 tons per year. These indicators show that health risk in the project vicinity is low. Overall, according to CalEnviroScreen, the project is located in the 23rd percentile, which means the project area is about less than average in comparison to other communities within California.

3.2.3.3 SENSITIVE USES

Some population groups, including children, elderly, and acutely and chronically ill persons (especially those with cardiorespiratory diseases), are considered more sensitive to air pollution than others. A

sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. The following are land uses where sensitive receptors are typically located:

- schools, playgrounds and childcare centers
- long-term health care facilities
- rehabilitation centers
- convalescent centers
- hospitals
- retirement homes
- residences

Chapter 3 of the EDCAQMD CEQA guidelines states there are also several types of land use conflicts that should be avoided:

- A sensitive receptor in close proximity to a congested intersection or roadway with high levels of emissions from motor vehicles. High concentrations of carbon monoxide or toxic air contaminants are the most common concerns.
- A sensitive receptor close to a source of toxic air contaminants or to a potential source of accidental releases of hazardous materials.
- A sensitive receptor close to a source of odorous emissions. Although odors generally do not pose a health risk, they can be quite unpleasant and often lead to citizen complaints to the EDCAQMD and to local governments.
- A sensitive receptor close to a source of high levels of nuisance dust emissions.

The EDCAQMD maintains an inventory of all facilities that emit significant amounts of TACs. If a project involves purchasing a school site or constructing a new elementary or secondary school, Public Resources Code § 21151.8 requires a lead agency to consult with the air district to identify facilities that emit hazardous air pollutants within 1/4 mile of the site. Similarly, under Health & Safety Code § 42301.6(a), if any new or modified source of TACs is located within 1,000 feet of a school, the EDCAQMD is required to send a notice of the proposed project to the parents of all students and to all residences within 1,000 feet of the source. The notice must include a description of the project and a description of the health risks posed by the project. In recognition of these provisions, under its qualitative criteria, the EDCAQMD will require a risk assessment if TACs are or will be emitted within ¼ mile of a school or proposed school site. Residential uses are located approximately 500 feet to the west of the project and a health risk assessment screening was completed for the project.

3.3 Greenhouse Gas Setting

Global climate change refers to the changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs. GHGs are released by the combustion of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel

on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

Regarding the adverse effects of global warming, as reported by the Southern California Association of Governments (SCAG): "Global warming poses a serious threat to the economic well-being, public health and natural environment in Southern California and beyond. The potential adverse impacts of global warming include, among others, or production in the quantity and quality of water supply, a rise in sea level, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases" (SCAG 2007:116). Over the past few decades, energy intensity of the national and state economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the States in carbon dioxide (CO_2) emissions from fossil fuel consumption per unit of gross state product. However, in terms of total CO_2 emissions, "California is second only to Texas in the nation and is the 16th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state's population and economic activities, is a major contributor to the global warming problem" (SCAG 2007:117).

3.3.1 Greenhouse Gas Background

GHGs include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Carbon is the most abundant GHG. Other GHGs are less abundant but have higher global warming potential than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. The primary GHGs attributed to global climate change are described below.

3.3.1.1 CARBON DIOXIDE (CO_2)

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants, volcanic outgassing, decomposition of organic matter, and evaporation from the oceans. Anthropogenic sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Anthropogenic sources of CO_2 amount to over 30 billion tons per year, globally (Friedlingstein et al. 2022). Natural sources release substantially larger amounts of CO_2. Nevertheless, natural removal processes, such as photosynthesis by land and ocean-dwelling plant species, cannot keep pace with this extra input of human-made CO_2, and, consequently, the gas is building up in the atmosphere.

3.3.1.1.1 Methane (CH_4)

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California.

3.3.1.1.2 Nitrous Oxide (N_2O)

Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion produce N_2O, and the quantity emitted varies according to the type

of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California.

3.3.1.1.3 Hydrofluorocarbons, Perfluorocarbons, Sulfur Hexafluoride

Hydrofluorocarbons (HFCs) are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protocol (1987), an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion. Perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no primary aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

The magnitude of the impact on global warming differs among the GHGs. The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential (GWP). GWPs are one type of simplifies index based upon radiative properties used to estimate the potential future impacts of emissions of different gases upon the climate system, expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalents (CO_2e). GWP are based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO2. The larger GWP, the more that a given gas warms the Earth compared to CO2 over that time period. HFCs, PFCs, and SF_6 have a greater "global warming potential" than CO_2. In other words, these other GHGs have a greater contribution to global warming than CO_2 on a per-mass basis. However, CO_2 has the greatest impact on global warming because of the relatively large quantities of CO_2 emitted into the atmosphere.

A summary of the atmospheric lifetime and GWP of selected gases is presented in Table 4. As indicated in this table, GWPs range from 1 to 23,500 based on IPCC Assessment Reports. IPCC has released three assessment reports (AR4, AR5, and AR6) with updated GWPs, however, CARB reports the statewide GHG inventory using the AR4 GWPs, which is consistent with international reporting standards. By applying the GWP ratios, project-related equivalent mass of CO_2, denoted as CO_2e emissions can be tabulated in metric tons per year.

Table 4. Global Warming Potentials

Greenhouse Gas	GWP Values for 100-year Time Horizon		
	AR4*	AR5	AR6
Carbon dioxide (CO_2)	1	1	1
Methane (CH_4)	25	28	Fossil origin – 29.8 Non-fossil origin – 27.2
Nitrous oxide (N_2O)	298	265	273
Select hydrofluorocarbons (HFCs)	124–14,800	4–12,400	–
Sulfur hexafluoride (SF_6)	22,800	23,500	–

Sources: IPCC (2007, 2013).

* For consistency with the EPA and its Inventory of Greenhouse Gas Reporting, we have represented values from AR4 of the IPCC report in this report.

3.3.2 Greenhouse Gas Emissions Inventories

3.3.2.1 UNITED STATES GHG EMISSIONS

Per the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2020* (EPA 2022c), total U.S. GHG emissions have decreased by 6.6% from 1990 to 2020; 2005 emissions were 15.8% above 1990 levels. The largest source of GHG emissions from human activities in the United States is from burning of fossil fuels for electricity, heat, and transportation. The latest national GHG emissions are for calendar year 2020, in which total gross U.S. GHG emissions were reported at 5,981.4 million metric tons carbon dioxide equivalent (MMT CO_2e). Emissions decreased from 2019 to 2020 by 543.4 MMT CO_2e and net emissions (including sinks) were 5,222.4 MMT CO_2e.

3.3.2.2 STATEWIDE GHG EMISSIONS

According to California's 2000–2019 GHG emissions inventory, California emitted 409.3 MMT CO_2e in 2019 (CARB 2021). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions in 2019 are presented in Table 3. Total GHG emissions in 2019 were approximately 22.9 MMT CO_2e less than 2016 emissions. Based on data presented, the 2016 statewide GHG inventory fell below 1990 levels, consistent with AB 32 (CARB 2018b). The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 $MTCO_2e$ (CARB 2022b).

3.3.2.3 COUNTY OF EL DORADO EMISSIONS

In El Dorado County, the primary source of GHG is fossil fuel combustion mainly in the transportation sector (estimated at 70% of countywide GHG emissions). A distant second are residential sources (approximately 20%), and commercial/industrial sources are third (approximately 7%). The remaining sources are waste/landfill (approximately 3%) and agricultural (<1%) (EDCAQMD 2022).

4 REGULATORY SETTING

Federal, state, and local agencies have set ambient air quality standards for certain air pollutants through statutory requirements and have established regulations and various plans and policies to maintain and improve air quality, as described below.

4.1 Federal

4.1.1 Federal Clean Air Act

4.1.1.1 AIR QUALITY

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to the EPA. The EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the EPA has established the NAAQS for

six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. Ozone (O_3), CO, NO_2, SO_2, lead, and particulate matter (PM_{10} and $PM_{2.5}$) are the six criteria air pollutants. Ozone is a secondary pollutant; NO_X and VOCs are of particular interest as they are precursors to ozone formation. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 1.

The CAA requires the EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The act also mandates that the State submit and implement a State Implementation Plan for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

4.1.1.2 GREENHOUSE GAS EMISSIONS

The Supreme Court of the United States (SCOTUS) ruled in Massachusetts v. Environmental Protection Agency, 127 S.Ct. 1438 (2007), that CO_2 and other GHGs are pollutants under the federal CAA, which the EPA must regulate if it determines they pose an endangerment to public health or welfare. SCOTUS did not mandate that the EPA enact regulations to reduce GHG emissions. Instead, SCOTUS found that the EPA could avoid taking action if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change.

On April 17, 2009, the EPA issued a proposed finding that GHGs contribute to air pollution that may endanger public health or welfare. On April 24, 2009, the proposed rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2009~0171. The EPA stated that high atmospheric levels of GHGs "are the unambiguous result of human emissions and are very likely the cause of the observed increase in average temperatures and other climatic changes." The EPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The findings were signed by the EPA Administrator on December 7, 2009. The final findings were published in the Federal Register on December 15, 2009. The final rule was effective on January 14, 2010. While these findings alone do not impose any requirements on industry or other entities, this action is a prerequisite to regulatory actions by the EPA, including, but not limited to, GHG emissions standards for light-duty vehicles.

On July 20, 2011, the EPA published its final rule deferring GHG permitting requirements for CO_2 emissions from biomass-fired and other biogenic sources until July 21, 2014. Environmental groups challenged the deferral. In September 2011, EPA released an "Accounting Framework for Biogenic CO2 Emissions from Stationary Sources," which analyses accounting methodologies and suggests implementation for biogenic CO_2 emitted from stationary sources.

On April 4, 2012, the EPA published a proposed rule to establish, for the first time, a new source performance standard for GHG emissions. Under the proposed rule, new fossil fuel–fired generating units larger than 25 megawatts are required to limit emissions to 1,000 pounds of CO_2 per megawatt-hour on an average annual basis, subject to certain exceptions.

On April 17, 2022, the EPA issued emission rules for oil production and natural gas production and processing operations, which are required by the CAA under Title 40 of the Code of Federal Regulations (CFR) Parts 60 and 63. The final rules include the first federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently are not regulated at the federal level.

4.1.2 Toxic Substance Control Act

The Toxic Substances Control Act (TSCA) of 1976 provides the EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA became law on October 11, 1976, and became effective on January 1, 1977. The TSCA authorized the EPA to secure information on all new and existing chemical substances, as well as to control any of the substances that were determined to cause unreasonable risk to public health or the environment. Congress later added additional titles to the Act, with this original part designated at Title I – Control of Hazardous Substances. TSCA regulatory authority and program implementation rests predominantly with the federal government (i.e., the EPA). However, the EPA can authorize States to operate their own, EPA-authorized programs for some portions of the statute. TSCA Title IV allows States the flexibility to develop accreditation and certification programs and work practice standards for lead-related inspection, risk assessment, renovation, and abatement that are at least as protective as existing federal standards.

4.1.3 National Emission Standards for Hazardous Air Pollutants (Asbestos)

The EPA's air toxics regulation for asbestos is intended to minimize the release of asbestos fibers during activities involving the handling of asbestos. Asbestos was one of the first hazardous air pollutants regulated under the air toxics program as there are major health effects associated with asbestos exposure (lung cancer, mesothelioma, and asbestosis). On March 31, 1971, the EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA promulgated the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), currently found in 40 CFR 61(M). The Asbestos NESHAP has been amended several times, most comprehensively in November 1990. In 1995, the rule was amended to correct cross-reference citations to Occupational Safety and Health Administration, Department of Transportation, and other EPA rules governing asbestos. Air toxics regulations under the CAA have guidance on reducing asbestos in renovation and demolition of buildings; institutional, commercial, and industrial building; large-scale residential demolition; exceptions to the asbestos removal requirements; asbestos control methods; waste disposal and transportation; and milling, manufacturing, and fabrication.

4.2 State

4.2.1 California Clean Air Act

The California Clean Air Act (CCAA) was adopted by the CARB in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO2, and NO2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. The CARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level AQMPs that would be incorporated into the State Implementation Plan. In California, the EPA has delegated authority to prepare State Implementation Plans to CARB, which in turn, has delegated that authority to individual air districts. Each district plan is required to either 1) achieve a 5% annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or 2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969, under the mandate of the Mulford-Carrell Act. The CCAA requires all air districts of the state to achieve and maintain the CAAQS by the earliest practical date. Table 1 shows the CAAQS currently in effect for each

of the criteria pollutants, as well as the other pollutants recognized by the State. As shown in Table 1, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, H_2S, vinyl chloride, and visibility-reducing particles.

4.2.2 California Code of Regulations

The California Code of Regulations (CCR) is the official compilation and publication of regulations adopted, amended, or repealed by the state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, Section 2485 in Title 13 of the CCR states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to 5 minutes at any location. In addition, Section 93115 in Title 17 of the CCR states that operation of any stationary, diesel-fueled, compression-ignition engine shall meet specified fuel and fuel additive requirements and emission standards.

4.2.3 Toxic Air Contaminants Regulations

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, also known as the Tanner Air Toxics Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 – Connelly). In the early 1980s, the CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Air Toxics Act (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks (CARB 2011).

In August 1998, CARB identified DPM emissions from diesel-fueled engines as a TAC. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles (CARB 2000b). The goal of the plan is to reduce diesel PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75% in 2010, and by 85% by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce DPM emissions from diesel-fueled engines and vehicles were evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce DPM emissions. The project would be required to comply with applicable diesel control measures.

The EDCAQMD has adopted control measures for benzene emissions from retail gasoline dispensing (Rule IX, Section A) and for Hexavalent Chromium from Chrome Plating and Chromic Acid Anodizing Operations (Rule IX, Section B).

4.2.4 Energy Independence and Security Act

The Energy Independence and Security Act of 2007 facilitates the reduction of national GHG emissions by requiring the following:

- increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;

- prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;

- requiring approximately 25% greater efficiency for lightbulbs by phasing out incandescent lightbulbs between 2012 and 2014; requiring approximately 200% greater efficiency with lightbulbs, or similar energy savings, by 2020; and

- while superseded by the EPA and NHTSA actions described above, 1) establishing miles-per-gallon targets for cars and light trucks, and 2) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of the Energy Independence and Security Act address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

4.2.5 Executive Order S-3-05, Executive Order B-30-15, and Executive Order B-55-18

In 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction targets, as well as a process to ensure the targets are met. The order directed the Secretary of the CalEPA to report every 2 years on the State's progress toward meeting the governor's GHG emission reduction targets. The statewide GHG targets established by Executive Order S-3-05 are as follows:

- By 2010, reduce to 2000 emission levels,

- By 2020, reduce to 1990 emission levels, and

- By 2050, reduce to 80 percent below 1990 levels.

EO B-30-15, issued by Governor Brown in April 2015, established an additional statewide policy goal to reduce GHG emissions 40% below their 1990 levels by 2030. Reducing GHG emissions by 40% below 1990 levels in 2030 and by 80% below 1990 levels by 2050 (consistent with EO S-3-05) aligns with scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius.

The State Legislature adopted equivalent 2020 and 2030 statewide targets in the California Global Warming Solutions Act of 2006 (also known as AB 32) and Senate Bill (SB) 32, respectively, both of which are discussed below. However, the legislature has not yet adopted a target for the 2050 horizon year. As a result of EO S-3-05, the California Action Team (CAT), led by the Secretary of CalEPA, was formed. The CAT is made of representatives from a number of state agencies and was formed to implement global warming emission reduction programs and to report on the progress made toward meeting statewide targets established under the EO. The CAT reported several recommendations and strategies for reducing GHG emissions and reaching the targets established in the EO.

The CAT stated that "smart" land use is an umbrella term for strategies that integrate transportation and land use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land use patterns within each jurisdiction or region to match

population increases, workforce, and socioeconomic needs for the full spectrum of the population. "Intelligent transportation systems" is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and service.

EO B-55-18, issued by Governor Brown in September 2018, establishes a new statewide goal to achieve caron neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. Based on this executive order, CARB would work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal, as well as ensuring future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

4.2.6 Assembly Bill 32 — California Global Warming Solution Act

The California Global Warming Solutions Act of 2006 (also known as AB 32) commits the State to achieving the following:

- By 2010, reduce to 2000 GHG emission levels, and
- By 2020, reduce to 1990 levels.

To achieve these goals, which are consistent with the California CAT GHG targets for 2010 and 2020, AB 32 mandates that the CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. In order to achieve the reductions, AB 32 requires CARB to adopt rules and regulations in an open, public process that achieves the maximum technologically feasible and cost-effective GHG reductions.

SB 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

4.2.7 Climate Change Scoping Plan

In 2008, CARB approved a Climate Change Scoping Plan, as required by AB 32. Subsequently, CARB approved updates of the Climate Change Scoping Plan in 2014 (First Update) and 2017 (2017 Update), with the 2017 Update considering SB 32 (adopted in 2016) in addition to AB 32 (CARB 2014, 2017a). The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals (to the level of 427 MMT CO_2e) defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. In May 2022, a draft 2022 Scoping Plan Update was circulated for review, with an errata issued by CARB September 21, 2022, to correct several typographical errors. This draft 2022 Scoping Plan Update assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update, which will likely be adopted by the end of 2022, focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

4.2.8 Assembly Bill 197

AB 197, signed September 8, 2016, is a bill linked to SB 32 that prioritizes efforts to reduce GHG emissions in low-income and minority communities. AB 197 requires the CARB to make available, and update at least annually on its website, the emissions of GHGs, criteria pollutants, and TACs for each facility that reports to CARB and air districts. In addition, AB 197 adds two members of the legislature to the CARB board as ex officio, non-voting members, and also creates the Joint Legislative Committee on Climate Change Policies to ascertain facts and make recommendations to the legislature concerning the State's programs, policies, and investments related to climate change.

4.2.9 Cap-and-Trade Program

The 2008 Climate Change Scoping Plan identified a cap-and-trade program as one of the strategies for California to reduce GHG emissions. The cap-and-trade program is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the state's total GHG emissions. Covered entities subject to the cap-and-trade program are sources that emit more than 25,000 metric tons CO_2e ($MTCO_2e$) per year. Triggering of the 25,000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule).

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system is projected to reduce GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80 percent reduction from 1990 levels by 2050.

4.2.10 California Renewables Portfolio Standard

The California Renewable Portfolio Standard (RPS) program (SB 1078; 2002) requires that 20% of the available energy supplies are from renewable energy sources by 2017. In 2006, SB 107 accelerated the 20% mandate to 2010. These mandates apply directly to investor-owned utilities. On April 12, 2011, Governor Brown signed into law SB 2X, which modified the California RPS program to require that both public- and investor-owned utilities in California receive at least 33% of their electricity from renewable sources by the year 2020. SB 2X also requires regulated sellers of electricity to meet an interim milestone of procuring 25% of their energy supply from certified renewable sources by 2016.

4.2.11 Senate Bill 350

SB 350, signed October 7, 2015, is the clean Energy and Pollution Reduction Act of 2015. The objectives of SB 350 are 1) to increase the procurement of electricity from renewable sources from 33% to 50% by the end of 2030; and 2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

4.2.12 Senate Bill 100

SB 100, signed September 10, 2018, is the 100 Percent Clean Energy Act of 2018. SB 100 updates the goals of California's RPS and SB 350, as discussed above, to the following: achieve a 50% renewable resources target by December 31, 2026, and achieve a 60% target by December 31, 2030. SB 100 also requires that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% procured to serve all state agencies by December 31, 2045.

4.2.13 Senate Bill 1368

SB 1368, signed September 29, 2006, is a companion bill to AB 32, which requires the California Public Utilities Commission and the California Energy Commission (CEC) to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside of California and imported into the state. SB 1368 provides a mechanism for reducing the emissions electricity providers, thereby assisting CARB to meet its mandate under AB 32. On January 25, 2007, the California Public Utilities Commission adopted an interim GHG emissions performance standard, which is a facility-based emission standard requiring that all new long-term commitments for baseload generation to serve California customers be with power plants that have GHG emissions no greater than a combined-cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. Furthermore, on May 23, 2007, the CEC adopted regulations that establish and implement an identical emissions performance standard of 1,100 pounds of CO_2 per megawatt-hour.

4.2.14 Assembly Bill 1493 (Pavley I)

AB 1493, passed in 2002, requires the development and adoption of regulations to achieve the maximum feasible reduction in GHG emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the state. CARB originally approved regulations to reduce GHG from passenger vehicles in September 2004, which took effect in 2009. On September 24, 2009, CARB adopted amendments to these regulations that reduce GHG emissions and new passenger vehicles from 2009 through 2016. Although setting emission standards on automobiles is solely the responsibility of the EPA, the federal CAA allows California to set state-specific emission standards on automobiles, and the State first obtains a waiver from the EPA. The EPA granted California that waiver until July 1, 2009. The comparison between the AB 1493 standards and the federal Corporate Average Fuel Economy standards was completed by CARB, and the analysis determined the California emission standards were 16% more stringent through the 2016 model year and 18% more stringent for the 2020 model year. CARB is also committed to further strengthening these standards beginning with 2020 model year vehicles, to obtain a 45% GHG reduction in comparison to 2009 model years.

In March 2020, the EPA issued the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE) which would roll back feel economy standards and revoke California's waiver. Under this rule, EPA would amend certain average fuel economy and GHG standards for passenger cars covering model years 2021 through 2026. In September 2019, the EPA withdrew the waiver had previously provided in California for the states GHG and Zero Emission Vehicle (ZEV) programs under Section 209 of the Clean Air Act. The withdrawal of the waiver beginning effective on Novembe[r] 26th, 2019. In response, several states including California have a lawsuit challenging the withdrawal of the EPA waiver. These actions continue to be challenged in court. As noted above, on January 20, 2021, President Biden issued an executive order directing all executive departments and agencies to take action, as appropriate, to address federal regulations and other actions taken during the last 4 years that conflict with the administration's climate and environmental justice goals, which include SAFE.

4.2.15 Executive Order S-01-07 (California Low Carbon Fuel Standard)

EO S-01-07, the Low Carbon Fuel Standard (LCFS) (issued January 18, 2007), requires a reduction of at least 10% in the carbon intensity of California transportation fuels by 2020. Regulatory proceedings and implementation of the LCFS was directed to CARB. CARB released a draft version of the LCFS in October 2008. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the LCFS became effective on the same day.

The 2017 update has identified LCFS as a regulatory measure to reduce GHG emission to meet the 2030 emissions target. In calculating statewide emissions and targets, the 2017 update has assumed the LCFS be extended to an 18% reduction in carbon intensity beyond 2020. On September 27, 2018, CARB approved a rulemaking package that amended the LCFS to relax the 2020 carbon intensity reduction from 10% to 7.5%, and to require a carbon intensity reduction of 20% by 2030.

4.2.16 Advanced Clean Car Regulations

In 2012, CARB approved the Advanced Clean Cars program, a new emissions control program for model years 2015 through 2025. The components of the advance clean car standards include the Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero Emission Vehicle regulation, which requires manufacturers to produce an increasing number of pure ZEVs, with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years period. In March 2017, CARB voted unanimously to continue with the vehicle GHG emission standards and the ZEV programs for cars and light trucks sold in California through 2025.

4.2.17 Senate Bill 375

This bill requires CARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization for each region must then develop a “Sustainable Communities Strategy” (SCS) that integrates transportation, land use, and housing policies to plan how it will achieve the emissions target for its region. If the SCS is unable to achieve the regional GHG emissions reductions targets, then the Metropolitan Planning Organization is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target can be achieved through alternative development patterns, infrastructure, and/or transportation measures.

As required under SB 375, CARB is required to update regional GHG emission targets every 8 years, with last update formally adopted March 2018. As part of the 2018 update, CARB has adopted a passenger vehicle–related GHG reduction target of 19% by 2035 for the SCAG region, which is more stringent than the previous reduction target of 13% for 2035.

4.2.18 California Appliance Efficiency Regulations (Title 20, Sections 1601–1608)

The 2014 Appliance Efficiency Regulations, adopted by the CEC, include standards for new appliances (e.g., refrigerators) and lighting, if they are sold or offered for sale in California. These standards include minimum levels for operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

4.2.19 California Building Energy Efficiency Standards (Title 24, Part 6)

California's Energy Efficiency Standards for Residential and Nonresidential Buildings, codified in Title 24, Part 6 of the CCR and commonly referred to as "Title 24", were established 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 efficiency technologies and methods.

On May 9, 2018, the CEC adopted the 2019 Title 24 Standards, which went into effect on January 1, 2020. The 2019 standards continue to improve upon the previous (2016) Title 24 standards for new construction of, and additions and alterations to, residential and non-residential buildings. The 2019 Title 24 Standards ensure that builders use the most energy-efficient and energy-conserving technologies and construction practices. Nonresidential buildings are projected to use approximately 30% less energy, due mainly to lighting upgrades. Compliance with Title 24 is enforced through the building permit process.

4.2.20 California Green Building Standards (CALGreen Code)

The California Green Building Standards Code—Part 11, Title 24, CCR—known as CALGreen, is the first-in-the-nation mandatory green building standards code. In 2007, California Building Standards Commission developed green building standards in an effort to meet the goals of California's landmark initiative AB 32, which established a comprehensive program of cost-effective reductions of GHGs to 1990 levels by 2020.

The California Building Standards Commission has the authority to propose CALGreen standards for nonresidential structures that include new buildings or portions of new buildings, additions and alterations, and all occupancies where no other state agency has the authority to adopt green building standards applicable to those occupancies. This code features:

- Regulations for energy efficiency, water efficiency and conservation, material conservation and resource efficiency, environmental quality, and more.
- Mandatory provisions for commercial, residential, and public school buildings.
- Appendices with voluntary provisions for all of these occupancies plus hospitals.

Residential and nonresidential provisions are in separate chapters for easier use.

4.2.21 Senate Bill 97

Senate Bill 97 (SB 97) was enacted in 2007. SB 97 required Governor's Office of Planning and Research (OPR) to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.

- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply and ways to reduce energy demand, including through the use of efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010. SB 97 applies to any environmental impact report (EIR), negative declaration, mitigated negative declaration, or other document required by CEQA, which has not been finalized.

4.3 Regional

4.3.1 El Dorado County Air Quality Management District

4.3.1.1 AIR QUALITY

EDCAQMD shares responsibility with CARB for ensuring that all state and federal ambient air quality standards are achieved and maintained throughout all of El Dorado County. To meet the CAAQS and NAAQS, the federal CAA requires plans which identify how nonattainment areas will attain and/or maintain the NAAQS. The CAA requires the US EPA to review each plan and any plan revisions and to approve the plan or plan revisions if consistent with the CAA. Key elements of these plans include emission inventories, emission control strategies and rules, air quality data analyses, modeling, air quality progress and attainment or maintenance demonstrations. The Sacramento Air Quality Management District has released a $PM_{2.5}$ Maintenance Plan and Redesignation Request and an 8-Hour Ozone Plan which encompasses portions of El Dorado County (El Dorado County 2013).

The EDCAQMD General Plan contains goals related to air quality. Goal 6.7 discusses air quality maintenance and commits to strive to achieve and maintain ambient air quality standards established by the U.S. EPA and the CARB and minimize public exposure to toxic or hazardous air pollutants and air pollutants that create unpleasant odors. This will be completed with the El Dorado County Clean Air Plan by adopting and enforce Air Quality standards to reduce the health impacts caused by harmful emissions, improve air quality through land use planning decisions, and support local and regional air quality improvement efforts. Vehicular emissions are also discussed in Goal 6.7 including reducing motor vehicle air pollution by developing programs aimed at minimizing congestion and reducing the number of vehicle trips made in the County and encouraging the use of clean fuels; develop and implement a public awareness campaign to educate community leaders and the public about the causes and effects of El Dorado County air pollution and about ways to reduce air pollution; encourage, both through County policy and discretionary project review, the use of staggered work schedules, flexible work hours, compressed work weeks, teleconferencing, telecommuting, and car pool/van pool matching as ways to reduce peak-hour vehicle trips; and to improve traffic flow, synchronization of signalized intersections shall be encouraged as a means to reduce congestion, conserve energy, and improve air quality.

The EDCAQMD has also adopted land use planning guidelines which considers impacts to sensitive receptors from facilities that emit TAC emissions by separating air pollution sensitive land uses from

significant sources of air pollution, reducing construction related, short-term emissions by adopting regulations which minimize their adverse effects. El Dorado County shall also consider air quality when planning the land uses and transportation systems to accommodate expected growth and shall use the recommendations in the most recent version of the EDCAQMD CEQA Guide to Air Quality Assessment.

The purpose of the EDCAQMD CEQA Air Assessment Guide is to facilitate the evaluation and review of air quality impacts for projects in El Dorado County that are subject to CEQA and also contains guidance for construction activities and project operations. For example, Rule 223-1 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. These recommendations were followed in the preparation of this analysis.

4.3.1.2 GREENHOUSE GAS EMISSIONS

On March 25, 2008, the El Dorado County Board of Supervisors adopted the "Environmental Vision for El Dorado County" Resolution No. 29-2008, brought forward by the Youth Commission. The Resolution sets forth goals and calls for implementation of positive environmental changes to reduce global impact, improve air quality and reduce dependence on landfills, promote alternative energies, increase recycling, and encourage local governments to adopt green and sustainable practices.

Climate Change Strategy Group's purpose, with charter members including the air districts of Sacramento Area, SMUD, California Air Resources Board (CARB), Sacramento Area Council of Governments (SACOG), City of Sacramento, and County of Sacramento, is to begin a dialogue regarding what we can do to educate the public and implement specific GHG-reducing measures. There is also the SACOG Climate Change & Air Quality Committee which has involvement in the more traditional air quality issues of ozone and particulate matter. The Committee shall develop recommendations for the full SACOG Board of Directors relative to air quality, energy conservation, climate change and related issues (EDCAQMD 2022).

5 THRESHOLDS OF SIGNIFICANCE

5.1 Air Quality

Based upon the environmental checklist presented in Appendix G of the State CEQA Guidelines, the project would have a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (Impact AQ-1);
- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards (Impact AQ-2);
- Expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3); or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4).

A discussion of applicable thresholds of significance and significance determination follow.

5.1.1 Construction and Operations

The EDCAQMD has established significance thresholds based on the State CEQA significance criteria. Specifically, based on criteria set forth in Chapter 3 of the EDCAQMD CEQA Guide, the project would have a significant impact with regard to construction emissions if any of the following would occur:

- Emissions from both direct and indirect sources would exceed any of the following EDCAQMD-prescribed mass threshold levels: 1) 82 pounds per day for NO_X; and 2) 82 pounds per day for VOCs

These thresholds are based on the emissions offset thresholds that apply to new or modified stationary emission sources under EDCAQMD Rule 523. Rule 523, in turn, conforms with the "no net increase" policy adopted by the California Clean Air Act, which requires offsets for permitting of new or modified sources having the potential to emit 15 tons or more per year of any nonattainment pollutant or its precursors in a district. Note that although these thresholds are based on criteria used for stationary sources, they are applied in these guidelines to the total emissions from proposed projects, including stationary, area, and mobile source emissions. Emissions below these thresholds are considered not significant for industrial sources under the state and federal air quality control programs. It is logical to extend these thresholds as significance criteria under CEQA.

For the other criteria pollutants, including CO, PM_{10}, $PM_{2.5}$, SO_2, NO_2, sulfates, lead, and H_2S, a project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of the applicable national or state ambient air quality standard in Table 2. The determination of whether emissions of these pollutants from a project will cause or contribute to a violation of an applicable AAQS, with applicable mitigation measures, were done in accordance with the methods laid out in Chapter 4 EDCAQMD CEQA Guide for construction activity impacts and Chapter 6 for project operation.

A project in the Mountain Counties Air Basin portion of the county will be considered as having a significant impact on visibility if it will cause or contribute significantly to a violation of the state visibility standard, which is 10 miles (when relative humidity is less than 70%). If a project is not expected to result in a significant impact for ozone or PM_{10}, based on the criteria for those pollutants above, it may be presumed that no significant visibility impacts will result.

5.1.2 Toxic Air Contaminants

Based on its experience with modeling results from various types of projects, the EDCAQMD has identified the following levels as conservative indicators that a project will not result in significant emissions of TACs:

- Development projects with Diesel truck traffic less than 10 trucks/day.
- Industrial projects that result in emissions of organic gases, particulates, NO_x, or SO_x below the applicability levels specified under the Toxic Hot Spots Act AB 2588.
- Construction emissions of ROG and NOx that meet the screening criteria in Chapter 4 of the EDCAQMD CEQA Guide.

The determination of significance shall be made on a case-by-case basis, considering the regulatory framework for the toxic materials and processes involved, the proximity of the toxic air contaminants to sensitive receptors, the quantity, volume, and toxicity of the contaminants expected to be emitted, the

likelihood and potential level of exposure, and the degree to which project design would reduce the risk of exposure.

Based on the criteria set forth in EDCAQMD's CEQA Guide, the project may have a significant TAC impact if:

- The lifetime probability of contracting cancer is greater than one in one million (ten in one million if T-BACT is applied); or
- The ground-level concentration of non-carcinogenic toxic air contaminants would result in a Hazard Index of greater than 1.

5.1.3 Consistency with Applicable Air Quality Plans

CEQA Guidelines Section 15125 requires an analysis of project consistency with applicable governmental plans and policies. The EDCAQMD considers any proposed project that does not demonstrate compliance with all applicable district rules and regulations, and its permitting requirements in particular, as one that has a significant impact on air quality. Satisfaction of this requirement can be achieved through identification of and compliance with the applicable rules and regulations. Because the CEQA process must be completed prior to the issuance of EDCAQMD permits, the district will consider this requirement met as long as the project proposal demonstrates that the project design and operation will meet the applicable rules and regulations.

In general, larger sources of air pollutant emissions complying with district new source review permitting rules and regulations will have to offset any emission increases and, therefore, will not be considered to have a significant air quality impact. Likewise, stationary sources that are exempt from district permit requirements because they fall below emission thresholds for permitting will generally not be considered to have a significant air quality impact. However, permitted or exempt facilities can still be considered not significant under CEQA operations. Consideration must be given to construction activities (if any), to pollutants allowed under a permit, to any unregulated pollutants, and to other criteria not directly addressed in the rule or regulation, including effects on sensitive receptors, toxic air contaminants, conformity, and cumulative impacts. Permitted facilities should be evaluated against these other criteria, just as any other project. Similarly, cumulative impacts are not accounted for in the permitting process, but must be considered under CEQA; for example, a permitted facility may not be significant on a stand-alone basis, but may have a significant impact when its emissions are combined with other projects in a cumulative impacts analysis.

5.1.4 Cumulative Impacts

EDCAQMD CEQA Guide Chapter 8, Cumulative Air quality Impacts, sets forth the method for assessing cumulative impacts. The EDCAQMD's primary criterion for determining whether a project has significant cumulative impacts is whether the project is consistent with an approved plan or mitigation program of district-wide or regional application in place for the pollutants emitted by the project. This criterion is applicable to both the construction and operation phases of a project. The Sacramento Regional Ozone Air Quality Attainment Plan (AQAP) was developed for application in the Sacramento Region, including the Mountain Counties Air Basin portion of El Dorado County, to bring the region into attainment as required by the federal and California Clean Air Acts. The AQAP assumes annual increases in air pollutant emissions resulting from regional growth. However, the AQAP also assumes the incremental increase in emissions will be partially offset through the implementation of stationary, area, and indirect source control measures contained within the AQAP. These measures consist of the

EDCAQMD's rules and regulations and other development- and transportation-related mitigation measures. If a project can demonstrate consistency with the AQAP for ROG and NOx emissions, it can be categorized as not having a significant cumulative air quality impact with respect to ozone.

Based on EDCAQMD guidance, development projects in the Mountain Counties Air Basin portion of the county are considered consistent with the AQAP if:

- the project does not require a change in the existing land use designation (e.g., a general plan amendment or rezone), and projected emissions of ROG and NOx from the proposed project are equal to or less than the emissions anticipated for the site if developed under the existing land use designation;
- the project does not exceed the "project alone" significance criteria;
- the lead agency for the project requires the project to implement any applicable emission reduction measures contained in and/or derived from the AQAP (see Appendix E); and
- the project complies with all applicable district rules and regulations

The cumulative analysis of air quality impacts within this analysis follows EDCAQMD's guidance such that construction or operational project emissions will be considered cumulatively considerable if the above criteria aren't met.

5.2 Greenhouse Gases

Consistent with Appendix G of the State CEQA Guidelines, a project would have a significant GHG impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment (Impact GHG-1); or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (Impact GHG-2).

State CEQA Guidelines Section 15064.4 recommends that lead agencies quantify GHG emissions projects and consider several other factors that may be used in the determination of significance of project-related GHG emissions, including: the extent to which the project may increase or reduce GHG emissions; whether the project exceeds an applicable significant threshold; and the extent to which the project complies with the regulations or requirements adopted to implement a reduction or mitigation of GHG.

Section 15064.4 does not establish a threshold of significance. Lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look at thresholds developed by other public agencies, or suggested by other experts, such as the CAPCOA, as long as any threshold chosen is supported by substantial evidence (see State CEQA Guidelines Section 15064.7(c)). The State CEQA Guidelines also clarify that the events of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see State CEQA Guidelines Section 15130(f)). It is noted that the State CEQA Guidelines were amended in response to SB 97. In particular, the State CEQA Guidelines were amended to specify that compliance with the GHG emissions reduction plan renders a cumulative impact less than significant.

Per State CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions" (14 CCR Section 15064(h)(3)). Put another way, State CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies, and/or other regulatory strategies to reduce GHG emissions.

For example, the San Joaquin Valley Air Pollution Control District (SJVAPCD), CEQA Determinations of Significance tor Projects Subject to ARB's GHG cap-and-trade Regulation, APR- 2030 (June 25, 2014), "determined that GHG emissions increases that are covered under ARB's cap-and-trade regulation cannot constitute significant increases under CEQA...".

Although GHG emissions can be quantified, CARB, EDCAQMD, and the County have not adopted quantitative project-level significance thresholds for GHG emissions that would be applicable to the project. Per State CEQA Guidelines Section 15064.4(b), "in determining the significance of a project's greenhouse gas 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." When determining the significance of GHG impacts, lead agencies should consider the project's impact as compared to the existing environmental setting, whether the project exceeds a threshold of significance, and compliance with relevant GHG-related plans (see, for example, State CEQA Guidelines Section 15064.4(b)). Regarding the latter criterion, lead agencies should consider "the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions (see, for example, State CEQA Guidelines Section 15183.5(b)). Per State CEQA Guidelines Section 15064.4(b)(3), such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions.

For the project, no quantitative threshold has been adopted to evaluate significance for GHG emissions to address the State's more recent GHG-reduction target of achieving carbon neutrality by 2045, per Executive Order B-55-18 (2018). To achieve carbon neutrality by 2045, it is recommended that future development include measures to support building decarbonization, including the replacement of natural gas service with other alternatives, such as use of electrically-powered equipment (CARB 2022b, CEC 2021). Based on recent GHG threshold updates and supportive documentation prepared by the Bay Area Air Quality Management District (BAAQMD) and Sacramento Metropolitan Air Quality Management District (SMAQMD), it is recommended that future development prohibit the installation of natural gas infrastructure/use of natural-gas fired appliances, to the maximum extent possible, and incorporate electric-vehicle charging stations beyond what is required by current building standards in order to contribute its "fair share" of what would be required for the State to achieve its carbon neutrality goal (BAAQMD 2022, SMAQMD 2020). As a result, project-generated GHG emissions would also be considered to have a potentially significant impact if the project would not prohibit the installation of natural gas fired appliances/equipment, to the maximum extent possible, or encourage the installation of electric-vehicle charging stations beyond what is required by current building standards. As an additional significance criterion, consistency with the applicable plans and policies to reduce GHG emissions,

including the emissions reduction policies, strategies, and measures discussed within CARB's Climate Change Scoping Plan, was additionally evaluated.

6 METHODOLOGY

This analysis focuses on the potential change in the air quality environment due to implementation of the project. Air pollution emissions would result from both construction and operation of the project. Specific methodologies used to evaluate these emissions are discussed below.

The analysis is based on project specifics and default values in the latest versions of CalEEMod. Accordingly, this analysis has been conducted with the most recent available tools prepared and accepted by the regulatory agencies. The project phases have been grouped into six CalEEMod phases, based on the types of equipment and workload: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating.

The 3.7-acre project site has been divided into the following land uses for purposes of CalEEMod: 1) parking; 2) other non-asphalt surfaces; 3) convenience market with gas pumps; 4) convenience market; and 5) automobile care center. This analysis includes quantification of construction and operation off-road equipment, fugitive dust, and on-road mobile sources.

6.1 Construction Emissions

The EDCAQMD published the CEQA Air Assessment Guidelines in February 2002 to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects in the Air Basin. The CEQA Guidelines provides standards, methodologies, and procedures for conducting air quality analysis and was used extensively in the preparation of this analysis.

This guidance/information is provided on the EDCAQMD website and includes: 1) thresholds of significance; and 2) construction activities - air quality impacts and mitigation. EDCAQMD also recommends using approved models to calculate emission from land use projects, such as the CalEEMod. These recommendations were followed in the preparation of this analysis.

The project's emissions will be evaluated based on significance thresholds established by EDCAQMD, as discussed above. Daily emissions during construction are estimated by assuming a conservative construction schedule and applying the multiple source and fugitive dust emission factors derived from the EDCAQMD-recommended CalEEMod latest version. Details of the modeling assumptions and emission factors are provided in Appendix A. The calculations of the emissions generated during project construction activities reflect the types and quantities of construction equipment that would be used to prepare and grade the project site, construct the proposed buildings, and pave within the site.

6.1.1 Construction Assumptions

Construction emissions associated with the project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, vehicle travel on paved and unpaved surfaces, and fugitive dust from material handling activities, were calculated using CalEEMod version 2022.1 (CAPCOA 2022). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model uses widely accepted federal and state models

for emission estimates and default data from sources such as EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as CEC. The model quantifies direct emissions from construction and operations, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The model was developed in collaboration with the air districts in California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions.

Emissions modeling included emissions generated during the project have been grouped into six phases in CalEEMod based on the types of equipment and workload: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating.

The 3.7-acre project site has been divided into the following land uses for purposes of CalEEMod: 1) parking (29 spaces); 2) other non-asphalt surfaces (0.60 acres); 3) convenience market with gas pumps (12 stations and a 3,329 square foot buildings); 4) convenience market (6,000 square foot canopy); and 5) automobile care center (4,000 square foot building).

Modeling input data were based on this anticipated construction schedule and phasing. Construction equipment and usage required for each phase were obtained using CalEEMod defaults for the land use types which make up the project site, information provided by Barghausen, and default parameters contained in the model for the project site (El Dorado County). The construction duration is assumed to be approximately 9 months. Project construction would consist of different activities undertaken in phases, through to the operation of the project. Typical construction equipment would be used during all phases of project construction and would be stored within the staging area, potentially including dozers, backhoes, water trucks, paving equipment, cranes, and air compressors. Table 5 shows the project's anticipated construction schedule, presents an estimate of the maximum number of pieces of equipment for each construction phase, and conservatively assumes equipment would be operating 8 hours per day, 5 days per week for the construction phase duration.

Table 5. Construction Anticipated Schedule, Trips, and Equipment

Phase (Duration)	Equipment Used			Daily Vehicle Trips
	Type	Number	Hours per Day	
Demolition	Rubber-tired dozer	1	8	13 worker one-way trips 2 vendor one-way trips
(10 working days)	Tractors/Loaders/Backhoe	3	8	
5/1/2024 – 5/15/2024 Approximately 2 tons of debris	Concrete/Industrial saw	1	8	
Site Preparation	Rubber-tired dozers	1	7	8 worker one-way trips 2 vendor one-way trips
(2 working days)	Tractors/Loaders/Backhoe	1	8	
5/16/2024 – 5/17/2024	Graders	1	8	
Grading	Graders	1	8	10 worker one-way trips 2 vendor one-way trips 52 haul one-way trips
(8 working days)	Rubber-tired dozers	1	8	
5/18/2024 – 5/29/2024	Tractors/Loaders/Backhoe	2	7	

Phase (Duration)	Equipment Used			Daily Vehicle Trips
	Type	Number	Hours per Day	
Building Construction	Forklifts	1	6	14 worker one-way trips 2 vendor one-way trips
(160 working days)	Generator sets	1	8	
5/30/2024 – 1/8/2025	Cranes	1	6	
	Welders	3	8	
	Tractors/Loaders/Backhoe	1	6	
Paving	Pavers	1	6	13 worker one-way trips 2 vendor one-way trips
(5 working days)	Paving equipment	1	8	
1/8/2025 – 1/14/2025	Rollers	1	7	
	Tractors/Loaders/Backhoe	1	8	
	Cement and Mortar Mixers	1	6	
Architectural Coating	Air compressor	1	6	4 worker one-way trips 2 vendor one-way trips
(5 working days)				
1/14/2025 – 1/20/2025				

Notes: For the parameters that are not provided in the table (e.g., equipment horsepower and load factor, on-road trip lengths), CalEEMod defaults were used.

The construction particulate matter emissions were mitigated in the CalEEMod model to comply with the above EDCAQMD measures. During construction, exposed areas and active demolition sites would be watered two times per day, and travel on unpaved roads or surfaces by workers, vendors, or haul trucks would be limited to a speed limit of 25 miles per hour.

6.2 Operational Emissions

6.2.1 Regional Emissions

Criteria pollutant and GHG emissions from the operational phase of the project were estimated using CalEEMod Version 2022.1 (CAPCOA 2022). Year 2025 was assumed as the first full year of operations after completion of construction. The operational emissions were calculated based on CalEEMod defaults associated with the project's land use types. Analysis of the project's likely impact on regional air quality during project operation takes into consideration six types of sources: 1) area, 2) energy, 3) mobile, 4) water, 5) waste, and 6) refrigeration.

6.2.1.1 AREA SOURCES

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating, water heating, and stoves are calculated as part of building energy use in CalEEMod. The project would not include woodstoves or fireplaces (wood or natural gas). Therefore, area source emissions associated with hearths were not included.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2022). Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and on the default factor of pounds of VOC per building square foot per day. For parking lot land uses, CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings, such as in paints and primers using during building maintenance. CalEEMod calculates the VOC evaporative emissions from application of residential and nonresidential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The model default reapplication rate of 10% of area per year is assumed. Architectural coating for the parking surface area was also estimated with CalEEMod defaults.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of nonresidential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For El Dorado County, the average annual "summer" days are estimated to 180 days; so operational days were assumed to be 180 days per year in CalEEMod. Emissions associated with potential landscape maintenance equipment were included and no emission reduction features related to electric landscape equipment were assumed, to conservatively capture potential project operational emission sources.

6.2.1.2 ENERGY SOURCES

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off-site.

6.2.1.3 MOBILE SOURCES

The project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of project operations. Emissions from mobile sources during operation of the project were estimated using information trip rates from project traffic impact study and CalEEMod default trip lengths, fleet mix, and emissions factors for each vehicle.

6.3 Greenhouse Gas

This analysis quantifies the project's total annual GHG emissions from construction and operation, taking into account any GHG emission reduction measures that would be incorporated into the project's design. However, given the lack of a formally adopted numerical significance threshold or a formally adopted local plan for reducing GHG emission applicable to this project, this analysis evaluates the significance of the project's GHG emission by assessing the project's consistency with regulatory schemes and policies.

6.4 Toxic Air Contaminants Impacts (Construction and Operations)

Potential TAC impacts are evaluated by conducting a qualitative analysis consistent with the CARB Handbook (2005) followed by a more detailed analysis (i.e., screening analysis, dispersion modeling), if necessary. The qualitative analysis consists of reviewing the project to identify any new or modified TAC emission sources. As discussed, the EDCAQMD has identified several conservative indicators that project will not result in significant emissions of TACs. However, there should also be consideration of the regulatory framework for the toxic materials and processes involved, the proximity of the toxic air contaminants to sensitive receptors, the quantity, volume, and toxicity of the contaminants expected to be emitted, the likelihood and potential level of exposure, and the degree to which project design would reduce the risk of exposure. The project, being a gasoline dispensing facility, will emit TACs while also complying with the any regulatory restrictions for gas stations. Therefore, a Health Risk Assessment Screening was completed for the project using the CARB 'Gas Station Risk Assessment Screening Tools' (CARB 2022b). The screening 'Look up Tool' utilized the project specific inputs below:

- The project will be ARB certified Phase I and Phase II EVR systems which is deemed to be Best Available Technology (BACT) compliant.
    - Therefore the lifetime probability of contracting cancer should be the T-BACT standard of 10 in one million
- 12 million gallons a year, gasoline only.
- Distance to nearest residence – 120 meters & distance to nearest business – 50 meters
- Includes building downwash due to associated market and carwash structures
- Meteorological data – San Jose, CA was selected due to being the same climate type designation as the project ("Csa" (Mediterranean Climate)) and within closest proximity to the project (98 miles).

The HRA screening assessment (Appendix B) shows that the project is below the significant TAC thresholds from the EDCAQMD's CEQA Guide, discussed in Section 5.1.2. The lifetime probability of contracting cancer is 5.73 for nearby residences and 1.78 for nearby workers which is less than the EDCAQMD's ten in one million threshold for project with T-BACT applied. The ground-level concentration of non-carcinogenic toxic air contaminants would result in a chronic hazard index of 0.08 and an acute hazard index of 0.36 which is less than the EDCAQMD Hazard Index of 1.

Also, Naturally Occurring Asbestos (NOA) will be analyzed with an asbestos dust mitigation plan consistent with El Dorado County Rule 223-2. Due to the project location and consistency with any TAC-related rules and regulations, the results of the HRA screening being below the EDCAQMD TAC significance thresholds, and concurrence of the HRA screening results by the County, a full health risk assessment was not conducted for construction or operations.

7 IMPACT ANALYSIS

Impact AQ-1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. A project is conforming with applicable adopted plans if it complies with the applicable EDCAQMD rules and regulations and emission control strategies in the applicable air quality attainment plans. The project would comply with the applicable rules and regulations, including the use of standard mitigation measures for construction equipment and fugitive PM_{10}.

Consistency with air quality plans is typically conducted based on a comparison of project-generated growth in employment, population, and vehicle miles traveled (VMT) within the region, which is used for development of the emissions inventories contained in the air quality plans. While the project would contribute to energy supply, which is one factor of population growth, the project would not significantly increase employment or growth within the region.

Furthermore, the thresholds of significance, adopted by EDCAQMD, determine compliance with the goals of attainment plans in the region. As such, emissions below the EDCAQMD significance thresholds would not conflict with or obstruct implementation of the applicable air quality plans. As Table 6 and Table 7 show, the emissions from project construction (mitigated) and operation (unmitigated) are below the thresholds of significance; therefore, the project does not conflict with implementation of the EDCAQMD applicable air quality plans. Fugitive dust control measures during construction is required.

Impact AQ-2 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. The project implementation would generate emissions of criteria air pollutants during construction and operation. The estimated emissions from construction and operations of the project are summarized in Table 6, Table 7, and Table 8. The detailed assumptions and calculations, as well as CalEEMod outputs are provided in Appendix A of this report.

Table 6: Unmitigated Construction Emissions Summary

Construction Year	Unmitigated Construction Emissions Summary					
	ROG	NOx	CO	PM10	PM2.5	SO2
	Pollutant Emission (pounds per day)					
2024	1.82	24.0	16.9	59.0	9.45	0.07
2025	64.7	13.9	17.9	18.8	2.36	0.03
Peak daily emission	*64.7*	*24.0*	*17.9*	*59.0*	*9.45*	*0.07*
EDCAQMD significance thresholds	*82*	*82*	*N/A*	*N/A*	*N/A*	*N/A*
Threshold exceeded?	*No*	*No*	*N/A*	*N/A*	*N/A*	*N/A*

Note: ROG = reactive organic gases. Emissions were quantified using CalEEMod version 2022.1 (CAPCOA 2022). NA = Not applicable, no threshold. Summer model results are presented above. Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

As Table 6 shows, estimated unmitigated construction emissions for all pollutants are below EDCAQMD significance thresholds. Table 7 shows the estimated mitigated emissions with the application of mitigation measures which comply with the standard mitigation measures for fugitive dust control regarding on-site and unpaved traffic areas. In CalEEMod the following mitigation measures were included to reflect these standard mitigation measures for fugitive dust control: reduce speed on unpaved roads 25 miles per hour; water exposed areas two times per day and water the unpaved roads a minimum of two times per day.

Table 7: Mitigated Construction Emissions Summary

Construction Year	Unmitigated Construction Emissions Summary					
	ROG	NOx	CO	PM10	PM2.5	SO2
	Pollutant Emission (pounds per day)					
2024	1.82	24.0	16.9	54.4	7.33	0.07
2025	64.7	13.9	17.9	18.3	2.30	0.03
Peak daily emission	*64.7*	*24.0*	*17.9*	*54.4*	*7.33*	*0.07*
EDCAQMD significance thresholds	*82*	*82*	*N/A*	*N/A*	*N/A*	*N/A*
Threshold exceeded?	*No*	*No*	*N/A*	*N/A*	*N/A*	*N/A*

Note: ROG = reactive organic gases. Emissions were quantified using CalEEMod version 2022.1 (CAPCOA 2022). NA = Not applicable, no threshold. Summer model results are presented above. Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

Once construction is completed the project would be an operational gasoline station, with a convenience store and an automated carwash. Employees and public clientele would travel to the project seven days per week at approximately 3,308 net total gas station and car wash trips, consistent with the project traffic impact study. Potential emissions will continue over the operational life of the project and include mobile emissions associated with vehicular traffic, gas pump emissions, water usage for the carwash, landscaping and maintenance. Operational emissions are summarized in Table 8. As shown, the project emissions during operations of the facility would be well below the significance thresholds.

Table 8: Unmitigated Operational Emissions Summary

Operations Source Type	Unmitigated Operations Emissions Summary					
	ROG	NOx	CO	PM10	PM2.5	SO2
	Pollutant Emission (pounds per day)					
Mobile	24.4	11.0	82.6	47.2	7.35	0.10
Area	0.47	<0.005	0.58	<0.005	<0.005	<0.005
Energy	<0.005	0.07	0.06	0.01	0.01	<0.005
Water	0	0	0	0	0	0
Waste	0	0	0	0	0	0
Refrig.	0	0	0	0	0	0
Total	***24.8***	***11.1***	***83.2***	***47.2***	***7.36***	***0.10***
EDCAQMD operational significance thresholds	*82*	*82*	*N/A*	*N/A*	*N/A*	*N/A*
Threshold exceeded?	*No*	*No*	*N/A*	*N/A*	*N/A*	*N/A*

Note: ROG = reactive organic gases. CalEEMod emissions were quantified using CalEEMod, version 2022.1 (CAPCOA 2022).
Summer model results are presented above for daily emissions. Model results (summer, winter, and annual) and assumptions are provided in Appendix A.
The values for each operational source type shown are the maximum summer daily emissions results from the CalEEMod output, assuming operational year 2025. The total values may not sum exactly due to rounding.

As presented above, the project would not violate any air quality significance thresholds or contribute substantially to an existing or projected air quality violation. The impact is less than significant, and no mitigation required; however, per requirements of EDCAQMD, the standard mitigation measures would be implemented during construction and operation of the project, including the following:

- Visible emissions shall not exceed 20% opacity at point-of-origin and shall not extend more than 50 feet from point-of-origin, or cross the project boundary line, whichever is less;
- Vehicle speeds shall be limited to prevent visible emissions past the project boundary line, or 50 feet from the point of origin, whichever is less;
- The dust generating process must be suspended when wind causes visible emissions past the project boundary line, or 50 feet from the point of origin, whichever is less;
- Projects, which require a county grading permit, must submit a Fugitive Dust Plan (FDP) along with applicable fees to the AQMD for approval. Notification must be made to the AQMD 10 days prior to the start of earthmoving activities;
- Records of dust control measures must be maintained and retained for 2 years;
- Applicable Best Management Practices shall be utilized throughout the project to comply with requirements of this Rule;
- Track out from project must be prevented and removed when exceeding 50 feet from the nearest unpaved surface exit point of a site;
- All track out must be cleaned at the end of each workday by manually sweeping, with a rotary brush or broom with sufficient wetting, a PM_{10} efficient street sweeper, or flushing with water, if possible, without causing adverse impacts on storm water drainage or potential violations any National Pollutant Discharge Elimination System permit program;
- Larger sites (>150 vehicle trips/day or > 20 vehicle trips/day for >3 axle vehicles) must also install a track out control device;
- Storage piles must have a means of dust control; and

- Any Naturally Occurring Asbestos discovered on the property must be reported to the AQMD no later than the next business day.

Impact AQ-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptor locations typically include hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. Residential uses are located approximately 500 feet to the west of the project. However, all air quality sensitive receptors are located at greater distances from the project (more than 1,000 feet) and would be less impacted by project emissions. Construction emissions will be short term (nine months) and result in temporary increases in pollutant concentrations. Emissions of all criteria pollutants are below the EDCAQMD thresholds and would not have any significant impact.

The maximum daily on-site emissions generated during operation of the project are also below the EDCAQMD significance thresholds. A Health Risk Assessment Screening was completed for the project using the CARB 'Gas Station Risk Assessment Screening Tools' (CARB 2022b). The screening 'Look up Tool' (Appendix B), which is the HRA screening assessment, shows that the project is below the significant TAC thresholds from the EDCAQMD's CEQA Guide, discussed in Section 5.1.2. Using the methodology discussed in Section 6.4, the lifetime probability of contracting cancer for the project is 5.73 for nearby residences and 1.78 for nearby workers which is less than the EDCAQMD's ten in one million threshold for project with T-BACT applied. The project's ground-level concentration of non-carcinogenic toxic air contaminants would result in a chronic hazard index of 0.08 and an acute hazard index of 0.36 which is less than the ECAQMD Hazard Index of 1. In conclusion, because the emissions are below TAC significance thresholds implementation of the project would not expose sensitive receptors to substantial pollutant concentrations.

Fugitive Dust. During construction and operations activities, the project would implement dust control measures as shown above from El Dorado County Rule 223, including reporting of any discovered NOAs.

Impact AQ-4 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. According to the EDCAQMD CEQA Guide, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project does not include any uses identified by the EDCAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would only occur when construction is active and cease upon project completion. Operation of the project does not include any component with the potential to generate odorous emissions that could affect a substantial number of people. Therefore, there would be a less-than-significant impact from construction and operations.

Impact GHG-1 Would the project generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment?

Impact GHG-2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Less Than Significant Impact.

Construction Emissions

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. The EDCAQMD CEQA Guide does not have GHG significance thresholds, however construction emissions were amortized over a 30-year project lifetime, so that GHG reduction measures would address construction GHG emissions as part of the operational GHG reduction strategies. Thus, the total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described. Construction of the project is anticipated last a total of approximately nine months. On-site sources of GHG emissions include off-road equipment and off-site sources including vendor trucks and worker vehicles. Table 9 presents construction emissions for the project from on-site and off-site emission sources.

Table 9: Estimated Annual Construction Greenhouse Gas Emissions

Construction Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2024	182	0.01	0.01	184
2025	8.46	<0.005	<0.005	8.52
Total	**190.46**	**0.01**	**0.01**	**192.52**
		Amortized construction emissions		***6.4***

Source: Appendix A.

As shown in Table 9, the estimated total GHG emissions during construction would be approximately 192.52 $MTCO_2e$ over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 6.4 $MTCO_2e$ per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would only occur when construction is active, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Due to the potential persistence of GHGs in the environment, impacts are based on annual emissions and construction-period impacts are not assessed for significance independent of operational-period impacts, which are discussed in the next section. The total project GHG emissions include the estimated annual operational project-generated GHG emissions, as well as the construction GHG emissions which have been amortized over the estimated life of the project.

Operational Emissions

Operation of the project would generate GHG emissions through motor vehicle trips to and from the project site, landscape maintenance equipment operation, energy use (natural gas and generation of electricity consumed by the project), solid waste disposal, and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described.

The estimated operational project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, and water usage and wastewater generation are shown in Table 10.

Table 10: Estimated Annual Operational Greenhouse Gas Emissions

Operations Type	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	0.19	< 0.005	< 0.005	0.20
Energy	34.7	< 0.005	< 0.005	34.9
Mobile	1,656	0.20	0.13	1,702
Water	0.65	0.03	< 0.005	1.76
Waste	0.81	0.08	0.00	2.84
Refrigeration	0	0	0.00	252
Total	**1,692**	**0.31**	**0.13**	**1,993.7**
		Amortized construction emissions		*6.4*
		Total operational + amortized construction GHGs		***2,000.10***

Source: Appendix A
Note: These emissions reflect operational year 2025.

As shown in Table 10, estimated annual project-generated GHG emissions would be approximately 1,994 $MTCO_2e$ per year as a result of project operations only. After summing the amortized project construction emissions, total GHGs generated by the project would be approximately 2,000 $MTCO_2e$ per year.

Consistency with Applicable Plans and Policies

As stated above, the GHG impact analysis uses a different significance threshold, relying on consistency with GHG reduction plan and policies. Impact GHG-1's quantification of the project's potential GHG emissions is supplemented below with Impact GHG-2's consistency analysis with GHG reduction plans and policies. In the absence of any final adopted quantitative threshold, the significance of the project's GHG emissions is evaluated consistent with State CEQA Guidelines Section 15064.4(b)(2) by considering whether the project complies with applicable plans, policies, regulations, and requirements adopted for the purpose of reducing the emission of GHGs. As described above, compliance with a GHG emissions reduction plan renders a less-than-significant impact. The discussion below demonstrates that the project would not conflict with the applicable GHG emission reduction plans and policies included within. As shown herein, the project would not conflict with the applicable GHG reduction plans and policies.

CARB's Climate Change Scope Plan

The Climate Change Scoping Plan outlines a framework that relies on a broad array of GHG reduction actions, including direct regulations, alternative compliance mechanisms, incentives, voluntary actions, and market-based mechanisms, such as the cap-and-trade program. The Climate Change Scoping Plan builds off of a wide array of regulatory requirements that have been promulgated to reduce statewide GHG emissions, particularly from energy demand and mobile sources. While these regulatory requirements are not targeted at specific land use development projects, they would indirectly reduce a development project's GHG emissions. A discussion of these regulatory requirements that would reduce the project's GHG emissions is provided below. As detailed below, the project would not conflict with the Climate Change Scoping Plan and the implementation of GHG reduction strategies.

California Renewable Portfolio Standard (RPS) Program SB 100 and SB 350

While this action does not directly apply to individual projects, the project complies with the RPS program inasmuch as its electricity is provided by PG&E, which, in compliance with the RPS program, is required to obtain 33% renewable power by 2020, and has committed to achieving 50% renewable power by 2025. Furthermore, per the updated requirements of SB 100 (2018), PG&E would be required to procure eligible renewable electricity for 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, and should plan to achieve 100% eligible renewable energy resources and zero carbon resources by December 31, 2045. Thus, the project would be supplied with electricity via renewable sources at increasing rates over time, reducing the project's electricity-related GHG emissions. As required under SB 350, doubling of the energy efficiency savings from final end uses of retail customers by 2030 would primarily rely on the existing suite of building energy efficiency standards under CCR Title 24, Part 6 and utility-sponsored programs such as rebates for high-efficiency appliances, heating, ventilation, and air conditioning (HVAC) systems, and insulation. The project would comply with Title 24 Standards.

SB 1368/AB 398, CCR Title 20, Cap-And-Trade Program

The State's cap-and-trade Program reduces GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve emission reduction targets. While the cap-and-trade program does not directly apply to individual projects, the project would benefit from the program inasmuch as the project's electricity usage and mobile source emissions would be covered by the cap-and-trade program since PG&E and California fuel suppliers are covered entities, resulting in an indirect reduction of GHG emissions from the project's energy consumption and mobile source emissions.

AB 1493 (Pavley Regulations)

The State's Pavley Regulations apply to new passenger vehicles from model year 2012 through 2016 (Phase I) and model years 2017 through 2025 (Phase II). While this action does not apply to individual projects, future employees and visitors to the project site would purchase new vehicles in compliance with this regulation. Mobile source emissions generated by future visitors and employees would be reduced with implementation of AB 1493. However, it is noted that the vehicle emissions standards beyond model year 2020 may not occur if the federal SAFE Vehicles Rules and the One National Program on Federal Preemption of State Fuel Economy Standards are upheld by the Advanced Clean Cars programs.
The Advanced Clean Cars program includes Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the ZEV regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years. While this action does not directly apply to individual projects, the standards would apply to all vehicles purchased or used by visitors and employees to the project. As such, the project would support compliance with this regulation.

Advanced Clean Truck Regulation

The Advanced Clean Truck Regulation has two components, a manufacturer sales requirement and a reporting requirement. The manufacturer component of the regulation requires manufacturers that certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b-3 truck sales, 75% of Class 4-8 straight truck sales, and 40% of truck tractor sales. The reporting component of the regulation requires large employers, including retailers, manufacturers, brokers, and others, to report information about shipments and shuttle services. Fleet owners (with 50 or more trucks) would be required to report on their existing fleet operations. This information would help identify future strategies to ensure that fleets purchase

available zero-emission trucks and place them in service where suitable to meet their needs. This would be applicable to occasional delivery trucks to the project.

Low Carbon Fuel Standard (EO S-01-07)

This regulation establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 7.5% by 2020, and a 20% reduction in carbon intensity from a 2010 baseline by 2030. While this action does not directly apply to individual projects, future employees and visitors to the project would use transportation fuels in compliance with this regulation. GHG emissions related to vehicular travel by project would benefit from this regulation and mobile source emissions generated by future employees and visitors to the project would be reduced with implementation of the LCFS.

Post-2030 Analysis

The 2017 and 2022 Scoping Plan also outline strategies to reduce GHG emissions to achieve the 2030 target from sectors that are not directly controlled or influenced by the project, but nonetheless contribute to project-related GHG emissions. For instance, the project itself is not subject to the cap-and-trade regulation; however, project-related emissions would decline pursuant to the regulation as utility providers and transportation fuel producers are subject to renewable energy standards, cap-and-trade, and the LCFS. While CARB is in the process of expanding the regulatory framework to meet the 2030 reduction target based on the existing laws and strategies in the 2022 Scoping Plan, the project would support or not impede implementation of these potential GHG reduction strategies identified by CARB for all the reasons summarized above.

With statewide efforts underway to facilitate the State's achievement of those goals, it is reasonable to expect the project's GHG emissions to decline from their early operational years, as the regulatory initiatives identified by CARB in the 2022 Scoping Plan are implemented, and other technological innovations occur. Stated differently, the project's emissions at buildout likely represent the maximum emissions for the project, as anticipated regulatory developments and technology advances are expected to reduce emissions associated with the project, such as emissions related to electricity use and vehicle use.

Even though the 2022 Scoping Plan and supporting documentation do not provide an exact regulatory and technological roadmap to achieve 2050 goals, they demonstrate that various combinations of policies could allow the Statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the study or not currently feasible at the time the 2022 Scoping Plan was adopted could enable the State to meet the 2050 targets. For example, the 2022 Scoping Plan states some policies are not feasible at this time, such as Net Zero Carbon Buildings, but that this type of policy would be necessary to meet the 2050 target.

Based on the above, the project would not conflict with CARB's Climate Change Scoping Plan, and there would be an anticipated decline in project emissions once fully constructed and operational; the project would not conflict with the State's GHG reduction targets for 2030 and 2050. Therefore, impacts would be less than significant.

Conclusion

In summary, Impact GHG-1 and Impact GHG-2 would be less than significant because the project would be consistent with, and not conflict with, GHG reduction policies, strategies, and regulations outlined in CARB's 2022 Climate Change Scoping Plan, the El Dorado County General Plan, as well as the State's ability to achieve the SB 32 2030 GHG reduction target, and the EO S-3-05 2050 GHG reduction goal.

7.1 Cumulative Impacts

7.1.1 Air Quality

7.1.1.1 CONSTRUCTION AND OPERATIONS

EDCAQMD CEQA Guide Chapter 8, Cumulative Air Quality Impacts, sets forth the method for assessing cumulative impacts. The EDCAQMD's primary criterion for determining whether a project has significant cumulative impacts is whether the project is consistent with an approved plan or mitigation program of district-wide or regional application in place for the pollutants emitted by the project. This criterion is applicable to both the construction and operation phases of a project. The project would not require a change in the existing land use designation (e.g., a general plan amendment or rezone), and projected emissions of ROG and NO_x from the proposed project are equal to or less than the emissions anticipated for the site if developed under the existing land use designation; the project does not exceed the "project alone" significance criteria; and the project complies with all applicable district rules and regulations. Therefore, the project demonstrates consistency with all requirements and would not have a significant cumulative air quality impact

7.1.2 Greenhouse Gas Emissions

As explained above, the analysis of a project's GHG emissions is inherently a cumulative impacts analysis because climate change is a global problem and the emissions from any single project alone would be negligible. Accordingly, the analysis above considers the potential for the project to contribute to the cumulative impact of a global climate change. Table 9 and Table 10 show estimated annual project-generated GHG emissions as a result of project construction and operations. Given that the project would generate GHG emissions that would not conflict with applicable reduction plans and policies and given that GHG emission impacts are cumulative in nature, the project's incremental contribution to cumulatively significant GHG emissions would be less than significant.

Although the project is expected to emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHGs from more than one project and many sources in the atmosphere that may result in global climate change. The resultant consequences of that climate change can cause adverse environmental effects. A project's GHG emissions typically would be very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change. The State has mandated a goal of reducing statewide emissions to 40% below 1990 levels by 2030, even though statewide population and commerce are predicted to continue to expand. In order to achieve this goal, CARB is in the process of establishing and implementing regulations to reduce statewide GHG emissions. Currently, there are no applicable CARB, EDCAQMD, or El Dorado County significance thresholds or specific reduction targets, and no approved policy or guidance to assist in determining significance at the project or cumulative levels. Additionally, there is currently no generally accepted methodology to determine whether GHG emissions associated with a specific project represent new emissions or existing, displaced emissions.

Therefore, consistent with State CEQA Guidelines Section 15064h (3), the County, as Lead Agency, has determined that the project's contribution to cumulative GHG emissions and global climate change would be less than significant if the project would not conflict with the applicable regulatory plans and policies to reduce GHG emissions. In the absence of adopted standards and established significance thresholds, and given this consistency, the project's impacts would not be cumulatively considerable, and, therefore, the project's cumulative GHG emissions impacts would be less than significant.

7.2 Mitigation Measures

As discussed in the El Dorado rules and the EDCAQMD CEQA Guide, all construction projects within El Dorado County must comply with the best management practices regarding fugitive dust and equipment exhaust emissions. No additional mitigation measures were necessary.

8 REFERENCES & LITERATURE CITED

Bay Area Air Quality Management District (BAAQMD). 2022. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en.

California Air Pollution Control Officers Association (CAPCOA). 2008. Report on Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act. Available at: https://www.placer.ca.gov/DocumentCenter/View/8483/Appendix-B---Attachments-to-the-Center-for-Biological-Diversity-Comment-Letter---Pages-202-through-302-PDF.

———. 2022. California Emission Estimator Model (CalEEMod) and User Guide. Version 2022.1. Available at: http://www.caleemod.com/.

California Air Resources Board (CARB). 1998. Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Part A Exposure Assessment (as approved by the Scientific Review Panel).

———. 2000a. A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/asbestos/ofr_2000-019.pdf.

———. 2000b. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/diesel/documents/rrpfinal.pdf.

———. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. Available at: https://sfmohcd.org/sites/default/files/20%20-%20CARB%2C%20Air%20Quality%20and%20Land%20Use%20Handbook%202005.pdf.

———. 2011. CARB Toxic Air Contaminant Identification List. Available at: https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants.

———. 2014. First Update to the Climate Change Scoping Plan. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

———. 2016. Ambient Air Quality Standards Chart. Available at: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

———. 2017a. 2017 Scoping Plan Documents. Available at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2017-scoping-plan-documents,

———. 2017b. Area Designation Maps. Available at: https://www.arb.ca.gov/desig/adm/adm.htm.

———. 2021. Current California GHG Emission Inventory Data. 2000-2019 GHG Inventory (2021 Edition). Available at: https://ww2.arb.ca.gov/ghg-inventory-data.

———. 2022a. Air Quality Data Statistics; Top Four Summary for Monitored data at Placerville Station. Available online: https://www.arb.ca.gov/adam/

———. 2022b. GHG 1990 Emissions Level & 2020 Limit. Available at: https://ww2.arb.ca.gov/ghg-2020-limit.

———. 2022c. Draft 2022 Scoping Plan Update. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf.

California Air Resources Board (CARB). 2022a. Air Quality Data Statistics; Top Four Summary for Monitored data at Placerville Station. Available online: https://www.arb.ca.gov/adam/

———. 2022b. Gas Station Risk Assessment Screening Tools. Available at: https://ww2.arb.ca.gov/resources/documents/gasoline-service-station-industrywide-risk-assessment-guidance.

California Energy Commission (CEC), Energy Research and Development Division. 2018. Final Project Report, Deep Decarbonization in a High Renewables Future Updated Results from the California PATHWAYS Model. Available at: https://www.ethree.com/wp-content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012-1.pdf#:~:text=Deep%20Decarbonization%20in%20a%20High%20Renewables%20Future%3A%20Updated,conducted%20by%20Energy%20and%20Environmental%20Economics%2C%20Inc.%20%28E3%29.

———. 2021. California Building Decarbonization Assessment. Available at: https://www.energy.ca.gov/publications/2021/california-building-decarbonization-assessment.

California National Resource Association. 2009. California Climate Adaptation Strategy. Available at: https://resources.ca.gov/CNRALegacyFiles/docs/climate/Statewide_Adaptation_Strategy.pdf.

El Dorado County. 2015. Asbestos in El Dorado County. Available at: https://www.edcgov.us/Government/AirQualityManagement/Pages/asbestos.aspx#:~:text=Asbestos%20in%20El%20Dorado%20County%20The%20El%20Dorado,facilities%20that%20may%20contain%20asbestos%20containing%20building%20materials.

———. 2013. Air Quality Plans. Available at: https://www.edcgov.us/Government/AirQualityManagement/pages/air_quality_plans.aspx

El Dorado County Air Quality Management District (EDCAQMD). 2002. EDCAQMD California Environmental Quality Act (CEQA) Guidelines. Available at: https://edcgov.us/Government/AirQualityManagement/pages/Guide_to_Air_Quality_Assessment.aspx.

———. 2022. El Dorado County Climate Change. Available at: https://edcgov.us/Government/AirQualityManagement/Pages/climate_change.aspx

Friedlingstein, P., M.W. Jones, M. O'Sullivan, R.M. Andrew, D.C.E. Bakker, J. Hauck, C. Le Quéré, et al. 2022. Global Carbon Budget 2021. Available at: essd-14-1917-2022.pdf. Accessed October 2022.

Governor's Office of Planning and Research (OPR). 2008. Technical Advisory. CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review. Available at: https://opr.ca.gov/docs/june08-ceqa.pdf.

———. 2018. Discussion Draft: CEQA and Climate Change Advisory. Available at: https://www.opr.ca.gov/docs/20181228-Discussion_Draft_Climate_Change_Adivsory.pdf.

Intergovernmental Panel on Climate Change (IPCC). 2007. IPCC Fourth Assessment Report: Climate Change 2007 (AR4): The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Table 2.14. Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf.

———. 2013. IPCC Fifth Assessment Report: Climate Change 2013 (AR5): The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.

Wood Rogers. 2022. Arco Shingle Springs Traffic Impact Study. El Dorado County, California.

Los Angeles Department of Water and Power (LADWP). 2021. 2021 Power Content Label. Available at: https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-powercontentlabel;jsessionid=Td6Bj18LpNt6P981NLlnvzJnGRyw48Jy1tCDgy3nhmM4DmZGJvt1!1445120317?_afrWindowId=null&_afrLoop=1383444693629890&_afrWindowMode=0&_adf.ctrl-state=yxx4b1w16_4#%40%3F_afrWindowId%3Dnull%26_afrLoop%3D1383444693629890%26_afrWindowMode%3D0%26_adf.ctrl-state%3Dm6p6m2dpk_4.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments 2015. Available at: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

———. 2021. CalEnviroScreen 4.0. Available at: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40.

South Coast Air Quality Management District (SCAQMD). 2003b. Appendix D: Cumulative Impact Requirements Pursuant To The California Environmental Quality Act. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf.

U.S. Environmental Protection Agency (EPA). 2022a. Criteria Air Pollutants. Available at: https://www.epa.gov/criteria-air-pollutants.

———. 2022b. Green Book. California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available at: https://www3.epa.gov/airquality/greenbook/anayo_ca.html. Data current as of January 2022.

———. 2022c. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2020. EPA 430-R-22-003. Available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2020.

Van Gosen, B.S., and J.P. Clinkenbeard. 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California, 2011. Open-File Report 2011-1188. Denver, Colorado: U.S. Geological Survey and Sacramento: California Geological Survey. Available at: https://pubs.usgs.gov/of/2011/1188/

Attachment G

APPENDIX A

CalEEMod Results

Air Pollutant & GHG Emission Calculations

Arco Shingle Springs Project Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.3. Construction Emissions by Year, Mitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

2.6. Operations Emissions by Sector, Mitigated

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

3.2. Demolition (2024) - Mitigated

3.3. Site Preparation (2024) - Unmitigated

3.4. Site Preparation (2024) - Mitigated

3.5. Grading (2024) - Unmitigated

3.6. Grading (2024) - Mitigated

3.7. Building Construction (2024) - Unmitigated

3.8. Building Construction (2024) - Mitigated

3.9. Building Construction (2025) - Unmitigated

3.10. Building Construction (2025) - Mitigated

3.11. Paving (2025) - Unmitigated

3.12. Paving (2025) - Mitigated

3.13. Architectural Coating (2025) - Unmitigated

3.14. Architectural Coating (2025) - Mitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.1.2. Mitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.2. Electricity Emissions By Land Use - Mitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.2.4. Natural Gas Emissions By Land Use - Mitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.3.1. Mitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.4.1. Mitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.5.1. Mitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.6.2. Mitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.7.2. Mitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.8.2. Mitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.9.2. Mitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.2.2. Mitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.3.2. Mitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.9.2. Mitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.10.4. Landscape Equipment - Mitigated

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.11.2. Mitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.12.2. Mitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.13.2. Mitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.14.2. Mitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Arco Shingle Springs Project
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	10.4
Location	38.66061377401462, -120.93741085667665
County	El Dorado-Mountain County
City	Unincorporated
Air District	El Dorado County AQMD
Air Basin	Mountain Counties
TAZ	407
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Convenience Market with Gas Pumps	12.0	Pump	0.04	3,329	0.00	0.00	—	—
Automobile Care Center	4.00	1000sqft	0.09	4,000	0.00	0.00	—	—

Parking Lot	29.0	Space	0.26	0.00	25.0	0.00	—	—
Other Non-Asphalt Surfaces	0.60	Acre	0.60	0.00	25.0	0.00	—	—
Convenience Market (24 hour)	6.00	1000sqft	0.14	6,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.17	1.82	24.0	16.9	0.07	0.79	58.2	59.0	0.73	8.72	9.45	—	7,295	7,295	0.13	0.78	8.31	7,538
Mit.	2.17	1.82	24.0	16.9	0.07	0.79	53.6	54.4	0.73	6.60	7.33	—	7,295	7,295	0.13	0.78	8.31	7,538
% Reduced	—	—	—	—	—	—	8%	8%	—	24%	22%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.00	64.7	13.9	17.9	0.03	0.53	18.3	18.8	0.49	1.87	2.36	—	3,196	3,196	0.12	0.05	0.04	3,215

Mit.	2.00	64.7	13.9	17.9	0.03	0.53	17.7	18.3	0.49	1.81	2.30	—	3,196	3,196	0.12	0.05	0.04	3,215
% Reduced	—	—	—	—	—	—	3%	3%	—	3%	2%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.72	0.90	5.11	5.50	0.01	0.20	5.64	5.84	0.18	0.65	0.83	—	1,099	1,099	0.04	0.03	0.24	1,110
Mit.	0.72	0.90	5.11	5.50	0.01	0.20	5.40	5.60	0.18	0.58	0.76	—	1,099	1,099	0.04	0.03	0.24	1,110
% Reduced	—	—	—	—	—	—	4%	4%	—	11%	8%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.13	0.17	0.93	1.00	< 0.005	0.04	1.03	1.07	0.03	0.12	0.15	—	182	182	0.01	0.01	0.04	184
Mit.	0.13	0.17	0.93	1.00	< 0.005	0.04	0.99	1.02	0.03	0.11	0.14	—	182	182	0.01	0.01	0.04	184
% Reduced	—	—	—	—	—	—	4%	4%	—	11%	8%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.17	1.82	24.0	16.9	0.07	0.79	58.2	59.0	0.73	8.72	9.45	—	7,295	7,295	0.13	0.78	8.31	7,538
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.43	1.20	9.63	10.9	0.02	0.37	9.61	9.98	0.34	0.98	1.32	—	2,016	2,016	0.08	0.03	0.02	2,028
2025	2.00	64.7	13.9	17.9	0.03	0.53	18.3	18.8	0.49	1.87	2.36	—	3,196	3,196	0.12	0.05	0.04	3,215
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.72	0.60	5.11	5.50	0.01	0.20	5.64	5.84	0.18	0.65	0.83	—	1,099	1,099	0.04	0.03	0.24	1,110
2025	0.03	0.90	0.22	0.29	< 0.005	0.01	0.32	0.33	0.01	0.03	0.04	—	51.1	51.1	< 0.005	< 0.005	0.01	51.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.13	0.11	0.93	1.00	< 0.005	0.04	1.03	1.07	0.03	0.12	0.15	—	182	182	0.01	0.01	0.04	184
2025	0.01	0.17	0.04	0.05	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	8.46	8.46	< 0.005	< 0.005	< 0.005	8.52

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.17	1.82	24.0	16.9	0.07	0.79	53.6	54.4	0.73	6.60	7.33	—	7,295	7,295	0.13	0.78	8.31	7,538
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.43	1.20	9.63	10.9	0.02	0.37	9.35	9.72	0.34	0.96	1.30	—	2,016	2,016	0.08	0.03	0.02	2,028
2025	2.00	64.7	13.9	17.9	0.03	0.53	17.7	18.3	0.49	1.81	2.30	—	3,196	3,196	0.12	0.05	0.04	3,215
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.72	0.60	5.11	5.50	0.01	0.20	5.40	5.60	0.18	0.58	0.76	—	1,099	1,099	0.04	0.03	0.24	1,110
2025	0.03	0.90	0.22	0.29	< 0.005	0.01	0.31	0.31	0.01	0.03	0.04	—	51.1	51.1	< 0.005	< 0.005	0.01	51.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.13	0.11	0.93	1.00	< 0.005	0.04	0.99	1.02	0.03	0.11	0.14	—	182	182	0.01	0.01	0.04	184
2025	0.01	0.17	0.04	0.05	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	8.46	8.46	< 0.005	< 0.005	< 0.005	8.52

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	25.2	24.8	9.54	74.2	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,759	10,766	1.74	0.73	1,558	12,585
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	21.8	21.3	11.0	82.7	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,092	10,099	2.03	0.81	1,520	11,913
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	22.1	21.6	10.5	76.5	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,216	10,223	1.91	0.78	1,536	12,039
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.04	3.95	1.92	14.0	0.02	0.03	8.60	8.62	0.02	1.32	1.34	1.15	1,691	1,693	0.32	0.13	254	1,993

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	25.1	24.4	9.47	73.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,545	10,545	1.01	0.73	38.1	10,825
Area	0.10	0.47	< 0.005	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.38	2.38	< 0.005	< 0.005	—	2.39
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	209	209	0.03	< 0.005	—	211
Water	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Waste	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Total	25.2	24.8	9.54	74.2	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,759	10,766	1.74	0.73	1,558	12,585

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	21.8	20.9	11.0	82.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	9,881	9,881	1.31	0.81	0.99	10,155
Area	—	0.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	209	209	0.03	< 0.005	—	211
Water	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Waste	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Total	21.8	21.3	11.0	82.7	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,092	10,099	2.03	0.81	1,520	11,913
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	22.1	21.2	10.4	76.2	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,004	10,004	1.19	0.77	16.4	10,280
Area	0.05	0.42	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.18	1.18	< 0.005	< 0.005	—	1.18
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	209	209	0.03	< 0.005	—	211
Water	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Waste	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Total	22.1	21.6	10.5	76.5	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,216	10,223	1.91	0.78	1,536	12,039
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.03	3.87	1.90	13.9	0.02	0.02	8.60	8.62	0.02	1.32	1.34	—	1,656	1,656	0.20	0.13	2.72	1,702
Area	0.01	0.08	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.20
Energy	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.7	34.7	< 0.005	< 0.005	—	34.9
Water	—	—	—	—	—	—	—	—	—	—	—	0.34	0.31	0.65	0.03	< 0.005	—	1.76
Waste	—	—	—	—	—	—	—	—	—	—	—	0.81	0.00	0.81	0.08	0.00	—	2.84
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	252	252
Total	4.04	3.95	1.92	14.0	0.02	0.03	8.60	8.62	0.02	1.32	1.34	1.15	1,691	1,693	0.32	0.13	254	1,993

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	25.1	24.4	9.47	73.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,545	10,545	1.01	0.73	38.1	10,825
Area	0.10	0.47	< 0.005	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.38	2.38	< 0.005	< 0.005	—	2.39
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	209	209	0.03	< 0.005	—	211
Water	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Waste	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Total	25.2	24.8	9.54	74.2	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,759	10,766	1.74	0.73	1,558	12,585
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	21.8	20.9	11.0	82.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	9,881	9,881	1.31	0.81	0.99	10,155
Area	—	0.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	209	209	0.03	< 0.005	—	211
Water	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Waste	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Total	21.8	21.3	11.0	82.7	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,092	10,099	2.03	0.81	1,520	11,913
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	22.1	21.2	10.4	76.2	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,004	10,004	1.19	0.77	16.4	10,280
Area	0.05	0.42	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.18	1.18	< 0.005	< 0.005	—	1.18
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	209	209	0.03	< 0.005	—	211
Water	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6

Waste	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Total	22.1	21.6	10.5	76.5	0.10	0.14	47.1	47.2	0.13	7.22	7.35	6.94	10,216	10,223	1.91	0.78	1,536	12,039
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.03	3.87	1.90	13.9	0.02	0.02	8.60	8.62	0.02	1.32	1.34	—	1,656	1,656	0.20	0.13	2.72	1,702
Area	0.01	0.08	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.20
Energy	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.7	34.7	< 0.005	< 0.005	—	34.9
Water	—	—	—	—	—	—	—	—	—	—	—	0.34	0.31	0.65	0.03	< 0.005	—	1.76
Waste	—	—	—	—	—	—	—	—	—	—	—	0.81	0.00	0.81	0.08	0.00	—	2.84
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	252	252
Total	4.04	3.95	1.92	14.0	0.02	0.03	8.60	8.62	0.02	1.32	1.34	1.15	1,691	1,693	0.32	0.13	254	1,993

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.92	1.61	15.6	16.0	0.02	0.67	—	0.67	0.62	—	0.62	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.43	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	68.3	68.3	< 0.005	< 0.005	—	68.6
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.85	0.00	0.00	7.54	7.54	0.00	0.77	0.77	—	143	143	0.01	0.01	0.59	145
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.9	63.9	< 0.005	0.01	0.15	66.9
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	8.98	8.98	< 0.005	< 0.005	0.01	9.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.21	0.21	0.00	0.02	0.02	—	3.60	3.60	< 0.005	< 0.005	0.01	3.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	1.75	1.75	< 0.005	< 0.005	< 0.005	1.83
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.04	0.04	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.60

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.30
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04

3.2. Demolition (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.92	1.61	15.6	16.0	0.02	0.67	—	0.67	0.62	—	0.62	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.43	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	68.3	68.3	< 0.005	< 0.005	—	68.6
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.85	0.00	0.00	7.54	7.54	0.00	0.77	0.77	—	143	143	0.01	0.01	0.59	145
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.9	63.9	< 0.005	0.01	0.15	66.9
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	8.98	8.98	< 0.005	< 0.005	0.01	9.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.21	0.21	0.00	0.02	0.02	—	3.60	3.60	< 0.005	< 0.005	0.01	3.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	1.75	1.75	< 0.005	< 0.005	< 0.005	1.83
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.04	0.04	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.60
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.30
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.70	1.43	13.7	12.9	0.02	0.65	—	0.65	0.59	—	0.59	—	2,064	2,064	0.08	0.02	—	2,071
Dust From Material Movement	—	—	—	—	—	—	6.26	6.26	—	3.00	3.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.88
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	4.52	4.52	0.00	0.46	0.46	—	85.8	85.8	< 0.005	< 0.005	0.35	87.1

Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.9	63.9	< 0.005	0.01	0.15	66.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.43	0.43	< 0.005	< 0.005	< 0.005	0.44
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.07
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.43	13.7	12.9	0.02	0.65	—	0.65	0.59	—	0.59	—	2,064	2,064	0.08	0.02	—	2,071
Dust From Material Movement	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.88
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	4.52	4.52	0.00	0.46	0.46	—	85.8	85.8	< 0.005	< 0.005	0.35	87.1
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.9	63.9	< 0.005	0.01	0.15	66.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.43	0.43	< 0.005	< 0.005	< 0.005	0.44
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.07
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.96	1.65	15.9	15.4	0.02	0.74	—	0.74	0.68	—	0.68	—	2,454	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	—	7.11	7.11	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.35	0.34	< 0.005	0.02	—	0.02	0.01	—	0.01	—	53.8	53.8	< 0.005	< 0.005	—	54.0

Dust From Material Movement	—	—	—	—	—	—	0.16	0.16	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.90	8.90	< 0.005	< 0.005	—	8.93
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.68	0.00	0.00	6.03	6.03	0.00	0.62	0.62	—	114	114	0.01	< 0.005	0.47	116
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.9	63.9	< 0.005	0.01	0.15	66.9
Hauling	0.15	0.12	7.99	0.81	0.05	0.05	44.0	44.0	0.05	4.56	4.61	—	4,661	4,661	0.03	0.74	7.69	4,890
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.13	0.13	0.00	0.01	0.01	—	2.30	2.30	< 0.005	< 0.005	< 0.005	2.34
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.46
Hauling	< 0.005	< 0.005	0.18	0.02	< 0.005	< 0.005	0.96	0.96	< 0.005	0.10	0.10	—	102	102	< 0.005	0.02	0.07	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24

Hauling	< 0.005	< 0.005	0.03	< 0.005	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	16.9	16.9	< 0.005	< 0.005	0.01	17.7

3.6. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.96	1.65	15.9	15.4	0.02	0.74	—	0.74	0.68	—	0.68	—	2,454	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.35	0.34	< 0.005	0.02	—	0.02	0.01	—	0.01	—	53.8	53.8	< 0.005	< 0.005	—	54.0
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.90	8.90	< 0.005	< 0.005	—	8.93

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.68	0.00	0.00	6.03	6.03	0.00	0.62	0.62	—	114	114	0.01	< 0.005	0.47	116
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.9	63.9	< 0.005	0.01	0.15	66.9
Hauling	0.15	0.12	7.99	0.81	0.05	0.05	44.0	44.0	0.05	4.56	4.61	—	4,661	4,661	0.03	0.74	7.69	4,890
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.13	0.13	0.00	0.01	0.01	—	2.30	2.30	< 0.005	< 0.005	< 0.005	2.34
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.46
Hauling	< 0.005	< 0.005	0.18	0.02	< 0.005	< 0.005	0.96	0.96	< 0.005	0.10	0.10	—	102	102	< 0.005	0.02	0.07	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24
Hauling	< 0.005	< 0.005	0.03	< 0.005	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	16.9	16.9	< 0.005	< 0.005	0.01	17.7

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.50
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.49
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.48	3.99	4.27	0.01	0.16	—	0.16	0.14	—	0.14	—	761	761	0.03	0.01	—	764
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.63
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.73	0.78	< 0.005	0.03	—	0.03	0.03	—	0.03	—	126	126	0.01	< 0.005	—	126
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	0.10
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.95	0.00	0.00	8.44	8.44	0.00	0.86	0.86	—	160	160	0.01	0.01	0.66	163
Vendor	< 0.005	< 0.005	0.11	0.02	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.08	—	69.7	69.7	< 0.005	0.01	0.16	73.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	8.44	8.44	0.00	0.86	0.86	—	144	144	0.01	0.01	0.02	146
Vendor	< 0.005	< 0.005	0.12	0.02	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.09	—	69.7	69.7	< 0.005	0.01	< 0.005	72.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.32	0.00	0.00	3.57	3.57	0.00	0.36	0.36	—	62.2	62.2	< 0.005	< 0.005	0.12	63.1
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.34	0.34	< 0.005	0.04	0.04	—	29.5	29.5	< 0.005	< 0.005	0.03	30.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.65	0.65	0.00	0.07	0.07	—	10.3	10.3	< 0.005	< 0.005	0.02	10.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.88	4.88	< 0.005	< 0.005	< 0.005	5.10
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.50
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.36	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.49
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.48	3.99	4.27	0.01	0.16	—	0.16	0.14	—	0.14	—	761	761	0.03	0.01	—	764
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.63
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.73	0.78	< 0.005	0.03	—	0.03	0.03	—	0.03	—	126	126	0.01	< 0.005	—	126
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	0.10
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.95	0.00	0.00	8.44	8.44	0.00	0.86	0.86	—	160	160	0.01	0.01	0.66	163
Vendor	< 0.005	< 0.005	0.11	0.02	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.08	—	69.7	69.7	< 0.005	0.01	0.16	73.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.74	0.00	0.00	8.44	8.44	0.00	0.86	0.86	—	144	144	0.01	0.01	0.02	146
Vendor	< 0.005	< 0.005	0.12	0.02	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.09	—	69.7	69.7	< 0.005	0.01	< 0.005	72.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.32	0.00	0.00	3.57	3.57	0.00	0.36	0.36	—	62.2	62.2	< 0.005	< 0.005	0.12	63.1
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.34	0.34	< 0.005	0.04	0.04	—	29.5	29.5	< 0.005	< 0.005	0.03	30.8

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.65	0.65	0.00	0.07	0.07	—	10.3	10.3	< 0.005	< 0.005	0.02	10.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.88	4.88	< 0.005	< 0.005	< 0.005	5.10
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	8.95	10.0	0.02	0.33	—	0.33	0.30	—	0.30	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.47
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	28.2	28.2	< 0.005	< 0.005	—	28.3
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.67	4.67	< 0.005	< 0.005	—	4.68
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.69	0.00	0.00	8.44	8.44	0.00	0.86	0.86	—	141	141	< 0.005	0.01	0.02	143
Vendor	< 0.005	< 0.005	0.11	0.02	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.08	—	68.8	68.8	< 0.005	0.01	< 0.005	71.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.13	0.13	0.00	0.01	0.01	—	2.26	2.26	< 0.005	< 0.005	< 0.005	2.29
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	1.08	1.08	< 0.005	< 0.005	< 0.005	1.13
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.38
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.28	1.07	8.95	10.0	0.02	0.33	—	0.33	0.30	—	0.30	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.47
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	28.2	28.2	< 0.005	< 0.005	—	28.3
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.67	4.67	< 0.005	< 0.005	—	4.68
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.69	0.00	0.00	8.44	8.44	0.00	0.86	0.86	—	141	141	< 0.005	0.01	0.02	143
Vendor	< 0.005	< 0.005	0.11	0.02	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.08	—	68.8	68.8	< 0.005	0.01	< 0.005	71.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.13	0.13	0.00	0.01	0.01	—	2.26	2.26	< 0.005	< 0.005	< 0.005	2.29
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	1.08	1.08	< 0.005	< 0.005	< 0.005	1.13
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.38

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.63	6.50	0.01	0.20	—	0.20	0.19	—	0.19	—	992	992	0.04	0.01	—	995
Paving	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.46
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.6	13.6	< 0.005	< 0.005	—	13.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.25	2.25	< 0.005	< 0.005	—	2.26
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.62	0.00	0.00	7.54	7.54	0.00	0.77	0.77	—	126	126	< 0.005	0.01	0.01	128
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.0	63.0	< 0.005	0.01	< 0.005	65.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.10	0.10	0.00	0.01	0.01	—	1.77	1.77	< 0.005	< 0.005	< 0.005	1.79
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.90
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.30
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.59	0.49	4.63	6.50	0.01	0.20	—	0.20	0.19	—	0.19	—	992	992	0.04	0.01	—	995
Paving	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.46
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.6	13.6	< 0.005	< 0.005	—	13.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.25	2.25	< 0.005	< 0.005	—	2.26
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.62	0.00	0.00	7.54	7.54	0.00	0.77	0.77	—	126	126	< 0.005	0.01	0.01	128
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.0	63.0	< 0.005	0.01	< 0.005	65.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.10	0.10	0.00	0.01	0.01	—	1.77	1.77	< 0.005	< 0.005	< 0.005	1.79
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.90

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.30
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	63.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.46
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.83	1.83	< 0.005	< 0.005	—	1.84
Architectural Coatings	—	0.88	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.30	0.30	< 0.005	< 0.005	—	0.30
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	2.41	2.41	0.00	0.25	0.25	—	40.4	40.4	< 0.005	< 0.005	< 0.005	40.9
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.0	63.0	< 0.005	0.01	< 0.005	65.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.03	0.03	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.57
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.90
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	63.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.46
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.83	1.83	< 0.005	< 0.005	—	1.84
Architectural Coatings	—	0.88	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.30	0.30	< 0.005	< 0.005	—	0.30
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	2.41	2.41	0.00	0.25	0.25	—	40.4	40.4	< 0.005	< 0.005	< 0.005	40.9
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.74	0.75	< 0.005	0.08	0.08	—	63.0	63.0	< 0.005	0.01	< 0.005	65.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.03	0.03	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.57
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.90
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenie Market with Gas Pumps	25.1	24.4	9.47	73.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,545	10,545	1.01	0.73	38.1	10,825
Automob ile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Convenie nce Market (24 hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	25.1	24.4	9.47	73.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,545	10,545	1.01	0.73	38.1	10,825
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenie nce Market with Gas Pumps	21.8	20.9	11.0	82.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	9,881	9,881	1.31	0.81	0.99	10,155
Automob ile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Convenience Market (24 hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	21.8	20.9	11.0	82.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	9,881	9,881	1.31	0.81	0.99	10,155
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	4.03	3.87	1.90	13.9	0.02	0.02	8.60	8.62	0.02	1.32	1.34	—	1,656	1,656	0.20	0.13	2.72	1,702
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Convenience Market (24 hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.03	3.87	1.90	13.9	0.02	0.02	8.60	8.62	0.02	1.32	1.34	—	1,656	1,656	0.20	0.13	2.72	1,702

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience Market with Gas Pumps	25.1	24.4	9.47	73.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,545	10,545	1.01	0.73	38.1	10,825
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Convenience Market (24 hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	25.1	24.4	9.47	73.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	10,545	10,545	1.01	0.73	38.1	10,825
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	21.8	20.9	11.0	82.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	9,881	9,881	1.31	0.81	0.99	10,155
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Convenience	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	21.8	20.9	11.0	82.6	0.10	0.13	47.1	47.2	0.12	7.22	7.35	—	9,881	9,881	1.31	0.81	0.99	10,155
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	4.03	3.87	1.90	13.9	0.02	0.02	8.60	8.62	0.02	1.32	1.34	—	1,656	1,656	0.20	0.13	2.72	1,702
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Convenience Market (24 hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.03	3.87	1.90	13.9	0.02	0.02	8.60	8.62	0.02	1.32	1.34	—	1,656	1,656	0.20	0.13	2.72	1,702

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience	—	—	—	—	—	—	—	—	—	—	—	—	95.3	95.3	0.02	< 0.005	—	96.2
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.57	5.57	< 0.005	< 0.005	—	5.62
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.02	< 0.005	—	125
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	95.3	95.3	0.02	< 0.005	—	96.2
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.57	5.57	< 0.005	< 0.005	—	5.62
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.02	< 0.005	—	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	15.8	15.8	< 0.005	< 0.005	—	15.9

Automob Care Center	—	—	—	—	—	—	—	—	—	—	—	—	3.82	3.82	< 0.005	< 0.005	—	3.86
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.92	0.92	< 0.005	< 0.005	—	0.93
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	20.5	20.5	< 0.005	< 0.005	—	20.7

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	95.3	95.3	0.02	< 0.005	—	96.2
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.57	5.57	< 0.005	< 0.005	—	5.62
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.02	< 0.005	—	125
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenie Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	95.3	95.3	0.02	< 0.005	—	96.2
Automob ile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.57	5.57	< 0.005	< 0.005	—	5.62
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.02	< 0.005	—	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenie nce Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Automob ile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	3.82	3.82	< 0.005	< 0.005	—	3.86
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.92	0.92	< 0.005	< 0.005	—	0.93
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	20.5	20.5	< 0.005	< 0.005	—	20.7

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	32.3	32.3	< 0.005	< 0.005	—	32.3
Automobile Care Center	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	53.1	53.1	< 0.005	< 0.005	—	53.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	85.4	85.4	0.01	< 0.005	—	85.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	32.3	32.3	< 0.005	< 0.005	—	32.3
Automobile Care Center	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	53.1	53.1	< 0.005	< 0.005	—	53.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	85.4	85.4	0.01	< 0.005	—	85.6

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.34	5.34	< 0.005	< 0.005	—	5.36
Automobile Care Center	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.80	8.80	< 0.005	< 0.005	—	8.82
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.1	14.1	< 0.005	< 0.005	—	14.2

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	32.3	32.3	< 0.005	< 0.005	—	32.3
Automobile Care Center	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	53.1	53.1	< 0.005	< 0.005	—	53.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	85.4	85.4	0.01	< 0.005	—	85.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	32.3	32.3	< 0.005	< 0.005	—	32.3
Automobile Care Center	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	53.1	53.1	< 0.005	< 0.005	—	53.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	85.4	85.4	0.01	< 0.005	—	85.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.34	5.34	< 0.005	< 0.005	—	5.36
Automobile Care Center	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.80	8.80	< 0.005	< 0.005	—	8.82
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.1	14.1	< 0.005	< 0.005	—	14.2

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.10	< 0.005	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.38	2.38	< 0.005	< 0.005	—	2.39
Total	0.10	0.47	< 0.005	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.38	2.38	< 0.005	< 0.005	—	2.39
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.20
Total	0.01	0.08	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.20

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.10	< 0.005	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.38	2.38	< 0.005	< 0.005	—	2.39
Total	0.10	0.47	< 0.005	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.38	2.38	< 0.005	< 0.005	—	2.39
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.20
Total	0.01	0.08	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.20

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	0.24	0.22	0.46	0.02	< 0.005	—	1.25

Automobile	—	—	—	—	—	—	—	—	—	—	—	1.80	1.64	3.44	0.18	< 0.005	—	9.38
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	0.24	0.22	0.46	0.02	< 0.005	—	1.25
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	1.80	1.64	3.44	0.18	< 0.005	—	9.38
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04	0.08	< 0.005	< 0.005	—	0.21
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	0.30	0.27	0.57	0.03	< 0.005	—	1.55
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.34	0.31	0.65	0.03	< 0.005	—	1.76

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	0.24	0.22	0.46	0.02	< 0.005	—	1.25
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	1.80	1.64	3.44	0.18	< 0.005	—	9.38
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	0.24	0.22	0.46	0.02	< 0.005	—	1.25
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	1.80	1.64	3.44	0.18	< 0.005	—	9.38
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.04	1.86	3.90	0.21	0.01	—	10.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04	0.08	< 0.005	< 0.005	—	0.21

Automob Care Center	—	—	—	—	—	—	—	—	—	—	—	0.30	0.27	0.57	0.03	< 0.005	—	1.55
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.34	0.31	0.65	0.03	< 0.005	—	1.76

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	2.74	0.00	2.74	0.27	0.00	—	9.59
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.16	0.00	2.16	0.22	0.00	—	7.54
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	2.74	0.00	2.74	0.27	0.00	—	9.59
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.16	0.00	2.16	0.22	0.00	—	7.54
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	0.45	0.00	0.45	0.05	0.00	—	1.59

Automob Care Center	—	—	—	—	—	—	—	—	—	—	—	0.36	0.00	0.36	0.04	0.00	—	1.25
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.81	0.00	0.81	0.08	0.00	—	2.84

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	2.74	0.00	2.74	0.27	0.00	—	9.59
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.16	0.00	2.16	0.22	0.00	—	7.54
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Convenie Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenie nce Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	2.74	0.00	2.74	0.27	0.00	—	9.59
Automob ile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.16	0.00	2.16	0.22	0.00	—	7.54
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Convenie nce Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.90	0.00	4.90	0.49	0.00	—	17.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenie nce Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	0.45	0.00	0.45	0.05	0.00	—	1.59
Automob ile Care Center	—	—	—	—	—	—	—	—	—	—	—	0.36	0.00	0.36	0.04	0.00	—	1.25

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.81	0.00	0.81	0.08	0.00	—	2.84

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	690	690
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	829	829
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	690	690
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	829	829
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	114	114
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	137	137
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	252	252

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	690	690

Automobile	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	829	829
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	690	690
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	829	829
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	1,519
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	114	114
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	137	137
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	252	252

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme nt Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/1/2024	5/15/2024	5.00	10.0	—
Site Preparation	Site Preparation	5/16/2024	5/17/2024	5.00	2.00	—
Grading	Grading	5/18/2024	5/29/2024	5.00	8.00	—
Building Construction	Building Construction	5/30/2024	1/8/2025	5.00	160	—
Paving	Paving	1/8/2025	1/14/2025	5.00	5.00	—
Architectural Coating	Architectural Coating	1/14/2025	1/20/2025	5.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	14.3	LDA,LDT1,LDT2
Demolition	Vendor	2.00	8.80	HHDT,MHDT
Demolition	Hauling	0.10	20.0	HHDT
Demolition	Onsite truck	1.00	0.25	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	2.00	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.25	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	2.00	8.80	HHDT,MHDT
Grading	Hauling	51.9	20.0	HHDT
Grading	Onsite truck	1.00	0.25	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	14.0	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	2.18	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	0.25	1.00	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	2.00	8.80	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	1.00	0.25	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	1.00	0.25	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	14.3	LDA,LDT1,LDT2
Demolition	Vendor	2.00	8.80	HHDT,MHDT
Demolition	Hauling	0.10	20.0	HHDT
Demolition	Onsite truck	1.00	0.25	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	2.00	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.25	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	2.00	8.80	HHDT,MHDT
Grading	Hauling	51.9	20.0	HHDT
Grading	Onsite truck	1.00	0.25	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	14.0	14.3	LDA,LDT1,LDT2

Building Construction	Vendor	2.18	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	0.25	1.00	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	2.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	1.00	0.25	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	1.00	0.25	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	19,994	6,665	2,250

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)

Demolition	0.00	0.00	0.00	2.00	—
Site Preparation	0.00	0.00	0.50	0.00	—
Grading	3,320	0.00	3.75	0.00	—
Paving	0.00	0.00	0.00	0.00	0.86

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Convenience Market with Gas Pumps	0.00	0%
Automobile Care Center	0.00	0%
Parking Lot	0.26	100%
Other Non-Asphalt Surfaces	0.60	0%
Convenience Market (24 hour)	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Convenience Market with Gas Pumps	4,956	4,956	4,956	1,808,940	10,811	10,811	10,811	3,945,948

Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Convenience Market (24 hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Convenience Market with Gas Pumps	4,956	4,956	4,956	1,808,940	10,811	10,811	10,811	3,945,948
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Convenience Market (24 hour)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

0	0.00	19,994	6,665	2,250

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Convenience Market with Gas Pumps	170,500	204	0.0330	0.0040	100,661
Automobile Care Center	41,320	204	0.0330	0.0040	165,834
Parking Lot	9,959	204	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

Convenience Market with Gas Pumps	170,500	204	0.0330	0.0040	100,661
Automobile Care Center	41,320	204	0.0330	0.0040	165,834
Parking Lot	9,959	204	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Convenience Market with Gas Pumps	125,486	0.00
Automobile Care Center	939,419	0.00
Parking Lot	0.00	268
Other Non-Asphalt Surfaces	0.00	268
Convenience Market (24 hour)	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Convenience Market with Gas Pumps	125,486	0.00
Automobile Care Center	939,419	0.00
Parking Lot	0.00	268
Other Non-Asphalt Surfaces	0.00	268
Convenience Market (24 hour)	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Convenience Market with Gas Pumps	5.08	0.00
Automobile Care Center	4.00	0.00
Parking Lot	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00
Convenience Market (24 hour)	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Convenience Market with Gas Pumps	5.08	0.00
Automobile Care Center	4.00	0.00
Parking Lot	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00
Convenience Market (24 hour)	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Convenience Market with Gas Pumps	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Convenience Market with Gas Pumps	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Automobile Care Center	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Convenience Market with Gas Pumps	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Convenience Market with Gas Pumps	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Automobile Care Center	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.4	annual days of extreme heat
Extreme Precipitation	11.3	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	17.1	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	0	0	0	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	1	1	1	2
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	76.9
AQ-PM	14.3
AQ-DPM	7.14
Drinking Water	50.2
Lead Risk Housing	7.50
Pesticides	19.8
Toxic Releases	14.8
Traffic	64.2
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	43.8
Haz Waste Facilities/Generators	56.4
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	34.9
Cardio-vascular	29.4
Low Birth Weights	60.6
Socioeconomic Factor Indicators	—
Education	23.7
Housing	29.7
Linguistic	8.49
Poverty	39.2

Unemployment	70.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	56.10162967
Employed	51.71307584
Median HI	78.26254331
Education	—
Bachelor's or higher	64.07031952
High school enrollment	13.5249583
Preschool enrollment	57.97510586
Transportation	—
Auto Access	59.70742974
Active commuting	15.10329783
Social	—
2-parent households	92.95521622
Voting	90.3118183
Neighborhood	—
Alcohol availability	89.56756063
Park access	9.867830104
Retail density	13.49929424
Supermarket access	20.99319902
Tree canopy	97.08712948
Housing	—
Homeownership	90.09367381

Housing habitability	74.47709483
Low-inc homeowner severe housing cost burden	44.87360452
Low-inc renter severe housing cost burden	48.96702169
Uncrowded housing	70.98678301
Health Outcomes	—
Insured adults	59.70742974
Arthritis	0.0
Asthma ER Admissions	68.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	58.0
Cognitively Disabled	10.2
Physically Disabled	36.0
Heart Attack ER Admissions	47.6
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	43.9
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0

No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	7.7
SLR Inundation Area	0.0
Children	79.8
Elderly	6.6
English Speaking	83.0
Foreign-born	13.8
Outdoor Workers	19.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	96.5
Traffic Density	38.4
Traffic Access	0.0
Other Indices	—
Hardship	46.4
Other Decision Support	—
2016 Voting	91.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	23.0
Healthy Places Index Score for Project Location (b)	69.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Automobile Care Center represents the 100ft car wash; Convenience Market is the canopy area (~6,231 sqft); Convenience Market with Gas is the convenience market with pumps (building area ~3,329 sqft)
Construction: Construction Phases	Construction duration approximately 8-9 months
Operations: Water and Waste Water	car wash indoor water use: 72.5 gallons/vehicle * 35.5 washes/day (trip gen/2) * 365 days/year = 939,419 gallons/year Convenience market (24hr) is gas station canopy so zeroed out.
Construction: Dust From Material Movement	Cut: ~5,060 CY ; Fill: ~8,380 CY; Net: 3,320 CY (fill) with no export anticipated
Construction: Trips and VMT	Added vendor trips and onsite truck travel
Operations: Vehicle Data	Modified to be consistent with traffic study
Operations: Energy Use	Removed the Convenience Market (24hr) which is the canopy since electricity is accounted for in other categories.
Operations: Solid Waste	Convenience Market (24hr) is the gas station canopy so no solid waste
Operations: Refrigerants	Convenience Market (24 hour) is the canopy so no refrigerants.

Attachment G

APPENDIX A

CalEEMod Results

Air Pollutant & GHG Emission Calculations

2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool
Version 1.0 - February 18, 2022

Required Value	User Defined Input	Instructions
Annual Throughput (gallons/year)	12000000	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.
Hourly Dispensing Throughput (gallons/hour)	4000	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.
Hourly Loading Throughput (gallons/hour)	8800	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.
Meteorological Data	San Jose	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.
Distance to Nearest Resident (meters)	120	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Nearest Business (meters)	50	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Acute Receptor (meters)	120	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Control Scenario	EVR Phase I & EVR Phase II	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.
Include Building Downwash Adjustments	yes	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.

Risk Value	Results
Max Residential Cancer Risk (chances/million)	5.73
Max Worker Cancer Risk (chances/million)	1.78
Chronic HI	0.08
Acute HI	0.36

6/19/2023 10:21 AM

Environmental Noise Assessment

ARCO AM/PM Shingle Springs

El Dorado County, California

BAC Job # 2022-063

Prepared For:

Barghausen Consulting Engineers, Inc.

Attn: Leslie Burnside
3007 Douglas Boulevard, Suite 130
Roseville, CA 95661

Prepared By:

Bollard Acoustical Consultants, Inc.

Dario Gotchet, Principal Consultant

January 25, 2023

BOLLARD
Acoustical Consultants

CEQA Checklist

***NOISE AND VIBRATION* – Would the Pro ect Result in:**	**NA Not Applicable**	**Potentially Signi icant Impact**	**Less than Signi icant with Mitigation Incorporated**	**Less Than Signi icant Impact**	**No Impact**
a) Generation of 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 groundborne vibration or groundborne 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?					

Introduction

The ARCO AM/PM Shingle Springs (project) is located south of Durock Road and west of S. Shingle Road in El Dorado County) California. The project proposes the development of a combination convenience store (c-store)/gas station, car wash tunnel, and vehicle vacuum system. The project parcel is surrounded by a combination of existing residences and commercial businesses. A vacant residentially zoned parcel is located south of the project property. The project area with aerial imagery is shown in Figure 1. The project preliminary site plan is presented in Figure 2.

The purposes of this assessment are to quantify the existing noise and vibration environments, identify potential noise and vibration impacts resulting from the project, identify appropriate mitigation measures, and provide a quantitative and qualitative analysis of impacts associated with the project. Specifically, impacts are identified if project-related activities would cause a substantial increase in ambient noise or vibration levels at existing sensitive land uses in the project vicinity, or if project-generated noise or vibration levels would exceed applicable federal, state, or local standards at existing sensitive uses.

Noise and Vibration Fundamentals

Noise

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are designated as sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or Hertz (Hz). Definitions of acoustical terminology are provided in Appendix A.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness. Noise levels associated with common noise sources are provided in Figure 3.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}). The L_{eq} is the foundation of the day-night average noise descriptor, DNL (or L_{dn}), and shows very good correlation with community response to noise. DNL is based on the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.). The nighttime penalty is based on the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, while vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of amplitude and frequency. A person's response to vibration will depend on their individual sensitivity as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of velocity in inches per second peak particle velocity (IPS, PPV) or root-mean-square (VdB, RMS). Standards pertaining to perception as well as damage to structures have been developed for vibration in terms of peak particle velocity as well as RMS velocities.

As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance.

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases.

According to the Transportation and Construction-Induced Vibration Guidance Manual (Caltrans, June 2004), operation of construction equipment and construction techniques generate ground vibration. Traffic traveling on roadways can also be a source of such vibration. At high enough amplitudes, ground vibration has the potential to damage structures and/or cause cosmetic damage. Ground vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities. However, traffic rarely generates vibration amplitudes high enough to cause structural or cosmetic damage.



Legend

- Project Parcel Boundary (Approximate)
- Short-Term Vibration Survey Site
- Long-Term Noise & Short-Term Vibration Survey Sites

N

Scale (Feet)

0 100 200

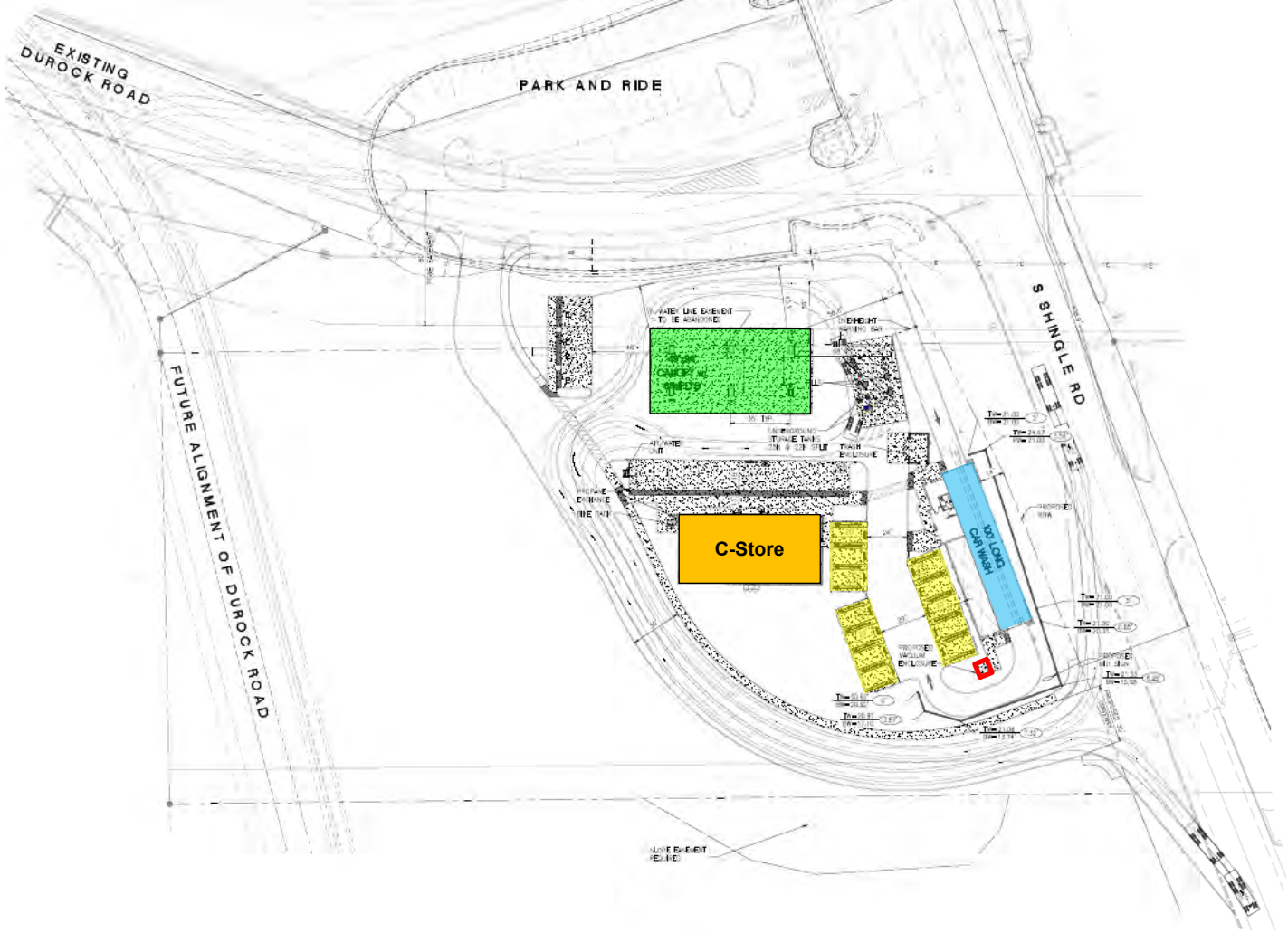
ARCO AM/PM Shingle Springs
El Dorado County, California

Project Area

Figure 1

BOLLARD Acoustical Consultants

Attachment H



Legend

- Vacuum Areas
- Car Wash Tunnel
- Fueling Canopy
- Vacuum Producer Encloser (6' Masonry Wall Construction)

N

Scale (Feet)

0 50 100

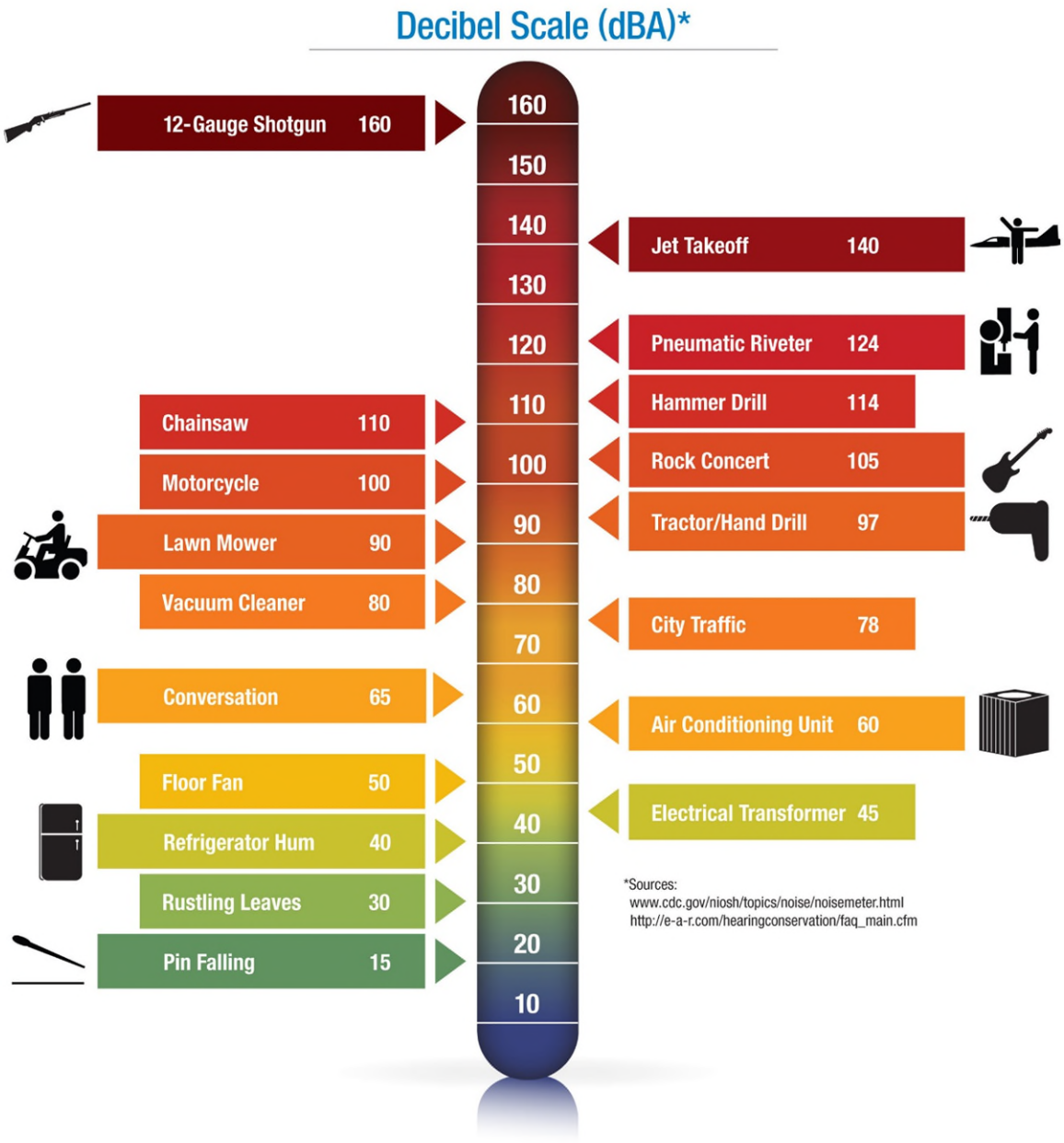
ARCO AM/PM Shingle Springs
El Dorado County, California

Project Site Plan

Figure 2

BOLLARD Acoustical Consultants

Figure 3
Noise Levels Associated with Common Noise Sources



Environmental Setting – Existing Ambient Noise and Vibration Environment

Noise-Sensitive Land Uses in the Pro ect Vicinity

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to these activities. The existing noise-sensitive land uses which would potentially be affected by the project consist of residences to the west, south/southwest and southeast of the project parcel, as identified in Figure 1. Commercial uses are also located within the project vicinity, however such uses are typically not considered to be noise-sensitive, as they are often noise-generating.

Existing Overall Ambient Noise Environment within the Pro ect Vicinity

The existing ambient noise environment within the immediate project vicinity is defined primarily by traffic on Durock Rd, S. Shingle Rd, U.S. Highway 50, and by operations at nearby commercial uses. To quantify existing ambient noise environment within the immediate project vicinity, BAC conducted a long-term (120-hour) ambient noise level survey at three (3) locations April 27th through May 1st, 2022. The ambient noise measurement locations are identified as Sites 1-3 in Figure 1. Photographs of the noise survey locations and equipment are provided in Appendix B-1.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used to complete the long-term noise level survey. The meters were calibrated immediately before use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all specifications of the American National Standards Institute requirements for Type 1 sound level meters (ANSI S1.4). The results of the long-term ambient noise survey are shown numerically and graphically in Appendices C and D (respectively) and are summarized in Table 1.

Table
Summary o Long-Term Ambient Noise Survey Results April 27th - May st, 2022

Site Description[2]	Date	CNEL (dB)	Average Measured Hourly Noise Levels (dB)[3]					
			Daytime		Evening		Nighttime	
			L_e	L_{max}	L_e	L_{max}	L_e	L_{max}
Site 1: Western end of project parcel adjacent to residential	4/27/22	52	49	62	50	59	43	58
	4/28/22	55	55	69	50	59	45	57
	4/29/22	64	67	76	52	62	47	58
	4/30/22	58	59	67	48	63	47	60
	5/1/22	54	53	67	52	69	44	58
Site 2: Southwest of project parcel adjacent to residential	4/27/22	50	47	61	49	62	40	55
	4/28/22	52	48	65	50	59	43	55
	4/29/22	55	52	64	53	68	47	59
	4/30/22	54	51	66	46	60	47	61
	5/1/22	53	52	67	52	68	43	55
Site 3: Southeast of project parcel adjacent to residential	4/27/22	56	55	73	52	68	48	65
	4/28/22	57	55	69	52	67	48	64
	4/29/22	58	55	70	55	79	49	63
	4/30/22	57	55	71	52	66	48	66
	5/1/22	55	55	73	52	66	45	63

[1] Detailed summaries of the noise monitoring results are provided in Appendices C and D.
[2] Long-term ambient noise monitoring locations are identified in Figure 1.
[3] Daytime: 7:00 AM to 7:00 PM | Evening: 7:00 PM to 10:00 PM | Nighttime: 10:00 PM to 7:00 AM

Source: Bollard Acoustical Consultants, Inc. 2022.

Noise level measurements obtained at BAC survey Site 1, located along the western project property boundary, are believed to be representative of the existing ambient noise level environment at the adjacent existing residences to the west. Long-term noise survey Site 2, located southwest of the project parcel, was selected to be representative of the existing ambient noise level environment at the closest residences to the south and southwest of the project. Finally, noise level measurements obtained at BAC survey Site 3 are believed to be representative of the existing ambient noise level environment at the adjacent existing residence to the southeast of the project property across S. Shingle Road.

As shown in Table 1, measured day-evening-night average levels (CNEL) and average measured hourly noise levels (L_{eq} and L_{max}) were generally consistent at the survey sites during the 120-hour monitoring period (i.e., relatively small range of measured values).

Existing Ambient Vibration Environment within the Pro ect Vicinity

During BAC staff visits to the project site, vibration levels were below the threshold of perception within the project vicinity. Nonetheless, to quantify the existing vibration level environment within the project vicinity, BAC conducted short-term (10-minute) vibration measurements at the locations identified in Figure 1 on May 2nd, 2022. Photographs of the vibration survey locations and equipment are provided in Appendix B-2.

A Larson-Davis Laboratories Model LxT precision integrating sound level meter equipped with a vibration transducer was used to complete the measurements. The results are summarized in Table 2.

Table 2
Summary o Short-Term Ambient Vibration Survey Results May 2nd, 2022

Survey Location	Time	Average Measured Vibration Level (VdB)
Site A: Centrally located on project site	4:20 p.m.	36
Site 1: Western end of project parcel adjacent to residential	4:48 p.m.	32
Site 2: Southwest of project parcel adjacent to residential	5:27 p.m.	31
Site 3: Southeast of project parcel adjacent to residential	5:45 p.m.	33

Source: Bollard Acoustical Consultants, Inc. 2022.

Table 2 data indicate that average measured average vibration levels within the project vicinity were well below the 65 VdB threshold of human perception, which is consistent with the BAC staff observations.

Existing Tra ic Noise Levels along the Pro ect Area Roadway Network

To predict traffic noise levels along existing roadway networks with multiple segments, modelling is commonly used rather than monitoring. The FHWA Traffic Noise Model (FHWA-RD-77-108) was used to quantify existing traffic noise levels at the existing sensitive land uses nearest to the project area roadway network. The FHWA Model was also used to quantify the distances to the 60, 65 and 70 dB DNL traffic noise contours for these roadways. The FHWA Model predicts hourly average (L_{eq}) values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop DNL values from L_{eq} values.

Existing traffic data in the form of AM and PM peak hour intersection turning movements were obtained from the project draft transportation impact study prepared by Wood Rodgers (*ARCO Shingle Springs El Dorado County, CA Traffic Impact Study – Draft Report, dated December 2022*). Those data were converted to Average Daily Traffic (ADT) segment volumes by applying a factor of 5 to the sum of AM and PM peak hour conditions. Other inputs were obtained from BAC observations and noise measurement data. The existing traffic noise levels at the distances representing the nearest existing sensitive land uses to the project area roadways and distances from the centerlines of selected roadways to the 60 dB, 65 dB and 70 dB DNL contours are summarized in Table 3. Appendix E contains the FHWA Model inputs for existing conditions.

Table 3
Existing Tra ic Noise Levels at Nearest Receptors and Distances to DNL Contours

	Roadway	Segment Description	DNL at Nearest Sensitive Receptor	Distance to Contour (t)		
				70 dB DNL	dB DNL	0 dB DNL
1	Ponderosa Rd	North of Wild Chaparral Dr	63	26	57	122
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	64	39	84	181
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	64	40	86	186
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	62	27	59	127
5	S. Shingle Rd	Durock Rd to Sunset Ln	50	27	58	125
6	S. Shingle Rd	South of Sunset Ln	63	28	59	128
7	Wild Chaparral Dr	West of Ponderosa Rd	50	14	30	66
8	N. Shingle Rd	East of Ponderosa Rd	58	29	63	137
9	WB US 50 On-Ramp	West of S. Shingle Rd	60	22	48	103
10	EB US 50 On-Ramp	East of S. Shingle Rd	65	47	101	218
11	Mother Lode Dr	East of S. Shingle Rd	55	30	65	140
12	Durock Rd	West of S. Shingle Rd	53	23	49	106
13	Durock Rd	East of S. Shingle Rd	48	3	7	15
14	Sunset Ln	East of S. Shingle Rd	50	6	12	26

[1] Sensitive receptors identified as existing residential uses to roadway segments. Where receptors were not identified adjacent to the roadway segment, DNL was calculated at a default distance of 100' from roadway centerline.

Source: FHWA-RD-77-108 and Wood Rodgers. Appendix E contains FHWA Model inputs for existing conditions.

Regulatory Setting: Criteria for Acceptable Noise and Vibration Exposure

Federal

There are no federal noise or vibration criteria which would be directly applicable to this project. However, El Dorado County does not currently have adopted standards for groundborne vibration. As a result, the following federal vibration criteria was applied to the project.

Federal Transit Administration

El Dorado County does not currently have adopted standards for groundborne vibration. As a result, the vibration impact criteria developed by the Federal Transit Administration (FTA) were applied to the project. The FTA criteria applicable to damage and annoyance from vibration typically associated with construction activities are presented in Tables 4 and 5.

Table
FTA Criteria or Assessing Vibration Damage to Structures

Building Category	Level (VdB)
I. Reinforced-concrete, steel or timber (no plaster)	102
II. Engineered concrete and masonry (no plaster)	98
III. Non-engineered timber and masonry buildings	94
IV. Buildings extremely susceptible to vibration damage	90
[1] RMS velocity in decibels (VdB) re 1 micro-inch/second	

Source: Federal Transit Administration (FTA) Noise and Vibration Manual, Table 12-3

Table
Groundborne Vibration Impact Criteria or General Assessment

	Impact Levels (VdB)		
Land Use Category	Fre uent Events[a]	Occasional Events[b]	In re uent Events[c]
Category 1: Buildings where vibration would interfere with interior ops.	65[d]	65[d]	65[d]
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

a. "Frequent Events" is defined as more than 70 vibration events of the same source per day.
b. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
c. "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.
d. This criterion limit is based on levels that are acceptable for most moderately-sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels.

Source: Federal Transit Administration, Transit Noise Impact and Vibration Assessment, May 2006.

State o Cali ornia

California Environmental Quality Act (CEQA)

Appendix G of the CEQA Guidelines asks whether the project would result in any of the following to determine whether a significant noise or vibration impact would occur:

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 other applicable standards of other agencies; or

B. Generation of excessive groundborne vibration or groundborne noise levels; or

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.

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered significant according to CEQA. Because every physical process creates noise, the

use of audibility alone as significance criteria would be unworkable. CEQA requires a substantial increase in noise levels before noise impacts are identified, not simply an audible change.

Local

El Dorado County General Plan

The Public Health, Safety, and Noise Element of the El Dorado County General Plan contains the County's noise-related policies. The specific policies which are generally applicable to this project are reproduced below:

Policy . . . Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table 6 (General Plan Table 6-1) or the performance standards of Table 7 (General Plan Table 6-2), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

Policy . . .2 Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 7 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

Policy . . .3 Where noise mitigation measures are required to achieve the standards of Tables 6 and Table 7, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project and the noise barriers are not incompatible with the surroundings.

Policy . . .7 Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 7 for noise-sensitive uses.

Policy . . . New development of noise sensitive land uses will not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table 6 unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in Table 6.

Policy . . . Noise created by new transportation noise sources, excluding airport expansion but including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 6 at existing noise-sensitive land uses.

Policy . . . The standards outlined in Tables 8, 9 and 10 (General Plan Tables 6-3, 6-4, 6-5) shall not apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and 8:00 a.m. and 5:00 p.m. on weekends, and on federally-recognized holidays. Further, the standards outlined in Tables 8 through 10 shall not apply to public projects to alleviate traffic congestion and safety hazards.

Policy . . . 2 When determining the significance of impacts and appropriate mitigation for new development projects, the following criteria shall be taken into consideration:

a) Where existing or projected future traffic noise levels are less than 60 dB DNL at the outdoor activity areas of residential uses, an increase of more than 5 dBA DNL (or CNEL) caused by a new transportation noise source will be considered significant.

b) Where existing or projected future traffic noise levels range between 60 and 65 dBA DNL (or CNEL) at the outdoor activity areas of residential uses, an increase of more than 3 dBA DNL (or CNEL) caused by a new transportation noise source will be considered significant; and

c) Where existing or projected future traffic noise levels are greater than 65 dBA DNL (or CNEL) at the outdoor activity areas of residential uses, an increase of more than 1.5 dBA DNL (or CNEL) caused by a new transportation noise source will be considered significant.

Policy . . . 3 When determining the significance of impacts and appropriate mitigation for new development projects, the following criteria shall be taken into consideration:

a) In areas in which ambient noise levels are in accordance with the standards in Table 7, increases in ambient noise levels caused by new non-transportation noise sources that exceed 5 dBA shall be considered significant; and

b) In areas in which ambient noise levels are not in accordance with the standards in Table 7, increases in ambient noise levels caused by new non-transportation noise sources that exceed 3 dBA shall be considered significant.

Table
Maximum Allowable Noise Exposure or Transportation Noise Sources

Land Use	Outdoor Activity Areas DNL/CNEL, dB	Interior Spaces	
		DNL/CNEL, dB	L_e , dB[2]
Residential	60[3]	45	--
Transient Lodging	60[3]	45	--
Hospitals, Nursing Homes	60[3]	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls, Schools	60[3]	--	40
Office Buildings	--	--	45
Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

[1] In Community Regions and Rural Centers, where the location of outdoor activity areas is not clearly defined, the exterior noise level standard shall be applied to the property line of the receiving land use. For residential uses with front yards facing the identified noise source, an exterior noise level criterion of 65 dB DNL shall be applied at the building facade, in addition to a 60 dB DNL criterion at the outdoor activity area. In Rural Regions, an exterior noise level criterion of 60 dB DNL shall be applied at a 100 foot radius from the residence unless it is within Platted Lands where the underlying land use designation is consistent with Community Region densities in which case the 65 dB DNL may apply. The 100-foot radius applies to properties which are five acres and larger; the balance will fall under the property line requirement.

[2] As determined for a typical worst-case hour during periods of use.

[3] Where it is not possible to reduce noise in outdoor activity areas to 60 dB DNL/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB DNL/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: El Dorado County General Plan, Public Health & Safety Element, Table 6-1

Table 7
Noise Level Per ormance Protection Standards or Noise-Sensitive Land Uses
A ected by Non-Transportation Sources

	Daytime 7 am 7 pm		Evening 7 pm 0 pm		Nighttime 0 pm 7 am	
Noise Level Descriptor	Community	Rural	Community	Rural	Community	Rural
Hourly, L_{eq}	55	50	50	45	45	40
Maximum, L_{max}	70	60	60	55	55	50

-Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

-The County can impose noise level standards which are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

-In Community Regions the exterior noise level standard shall be applied to the property line of the receiving property. In Rural Areas the exterior noise level standard shall be applied at a point 100' away from the residence. The above standards shall be measured only on property containing a noise-sensitive land use as defined in Objective 6.5.1.

Source: El Dorado County General Plan, Public Health & Safety Element, Table 6-2

Table
Maximum Allowable Noise Exposure or Non-Transportation Noise Sources in Community Regions and Adopted Plan Areas Construction Noise

Land Use Designation	Time Period	Noise Level (dB) L_e	Noise Level (dB) L_{max}
Higher-Density Residential (MFR, HDR, MDR)	7 am – 7 pm	55	75
	7 pm – 10 pm	50	65
	10 pm – 7 am	45	60
Commercial and Public Facilities (C, R&D, PF)	7 am – 7 pm	70	90
	10 pm – 7 am	65	75
Industrial (I)	Any Time	80	90

[1] Adopted Plan areas should refer to those land use designations that most closely correspond to the similar General Plan land use designations for similar development.

Source: El Dorado County General Plan, Public Health & Safety Element, Table 6-3

Table
Maximum Allowable Noise Exposure or Non-Transportation Noise Sources in Rural Centers Construction Noise

Land Use Designation	Time Period	Noise Level (dB) L_e	Noise Level (dB) L_{max}
All Residential (MFR, HDR, MDR)	7 am – 7 pm	55	75
	7 pm – 10 pm	50	65
	10 pm – 7 am	40	55
Commercial and Public Facilities (C, TR, PF)	7 am – 7 pm	65	75
	10 pm – 7 am	60	70
Industrial (I)	Any Time	70	80
Open Space (OS)	7 am – 7 pm	55	75
	7 pm – 10 pm	50	65

Source: El Dorado County General Plan, Public Health & Safety Element, Table 6-4

Table 0
Maximum Allowable Noise Exposure or Non-Transportation Noise Sources in Rural Regions and Adopted Plan Areas Construction Noise

Land Use Designation	Time Period	Noise Level (dB) L_e	Noise Level (dB) L_{max}
All Residential (LDR)	7 am – 7 pm	50	60
	7 pm – 10 pm	45	55
	10 pm – 7 am	40	50
Commercial and Public Facilities (C, TR, PF)	7 am – 7 pm	65	75
	10 pm – 7 am	60	70
Industrial (I)	Any Time	70	80
Rural Land, Natural Resources, Open Space, Agricultural Lands (RR, NR, OS, AL)	7 am – 7 pm	65	75
	7 pm – 10 pm	60	70

Source: El Dorado County General Plan, Public Health & Safety Element, Table 6-5

According to Figure LU-1 of the El Dorado County General Plan (Land Use Diagram), the project parcel and nearby properties are located within a Community region of the county. As a result, the noise level limits and associated criteria applicable to Community regions identified in Tables 7 and 8 would be applicable to the project.

Impacts and Mitigation Measures

Thresholds o Signi icance

For the purposes of this assessment, a noise and vibration impact is considered significant if the project would result in:

- 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 other applicable standards of other agencies; or

- Generation of excessive groundborne vibration or groundborne noise levels; or

- 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.

The project site is not within the vicinity of a private airstrip, an airport land use plan, or within two miles of a public airport. Therefore, the last threshold listed above is not discussed further.

The following criteria based on standards established by the Federal Transit Administration (FTA) and El Dorado County General Plan were used to evaluate the significance of environmental noise and vibration resulting from the project:

- A significant noise impact would be identified if the project would expose persons to or generate noise levels that would exceed applicable noise standards presented in the El Dorado County General Plan.

- A significant impact would be identified if off-site traffic noise exposure or on-site activities generated by the project would substantially increase noise levels at existing sensitive receptors in the vicinity. A substantial increase would be identified relative to the noise level increase significance criteria established in Policies 6.5.1.12 (transportation noise sources) and 6.2.1.13 (non-transportation noise sources) of the El Dorado County General Plan.

- A significant impact would be identified if project construction activities or proposed on-site operations would expose existing sensitive receptors to excessive groundborne vibration levels. Specifically, an impact would be identified if groundborne vibration levels due to these sources would exceed the FTA vibration impact criteria.

Noise Impacts Associated with Pro ect-Generated Increases in O -Site Tra ic

With development of the project, traffic volumes on the local roadway network will increase. Those increases in daily traffic volumes will result in a corresponding increase in traffic noise levels at existing sensitive uses located along those roadways. Impacts 1 & 2 evaluate increases in off-site traffic noise levels which would result from the project.

Impact : Increases in Existing Tra ic Noise Levels due to the Pro ect

The FHWA Traffic Noise Model (FHWA-RD-77-108) was used to quantify increases in existing traffic noise levels at the existing sensitive land uses nearest to the project area roadway network. The FHWA Model predicts hourly L_{eq} values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop DNL values from L_{eq} values.

Traffic data in the form of peak hour intersection turning movements were obtained from the project draft transportation impact study prepared by Wood Rodgers (*ARCO Shingle Springs El Dorado County, CA Traffic Impact Study – Draft Report, dated December 2022*). Those data were converted to Average Daily Traffic (ADT) segment volumes by applying a factor of 5 to the sum of AM and PM peak hour conditions. Other inputs were obtained from BAC observations and noise measurement data. Appendices E and F contain the FHWA Model inputs for existing and existing plus project conditions, respectively.

The existing and existing plus project traffic noise levels at the distances representing the nearest sensitive land uses to the project area roadways are summarized in Table 11. Table 11 also shows the thresholds for determination of a significant traffic noise increase (pursuant to Policy 6.5.1.12 of the El Dorado County General Plan), whether the roadway segment contains sensitive uses, and whether or not significant noise impacts are identified for each segment.

It should be noted that the FHWA Model predictions presented in Table 11 are based on inputs that include peak hour traffic volumes, day/night and truck type percentages (e.g., medium and heavy trucks), vehicle speed, and distance from roadway centerlines. The FHWA Model does not account for non-traffic ambient noise sources such as nearby wildlife (e.g., birds chipping) or other anthropogenic noise sources within an area (e.g., distant traffic from other roadways, recreational activities, commercial or industrial operations, etc.).

Table
Predicted Tra ic Noise Level Increases at Existing Sensitive Receptors Existing vs. Existing Plus Pro ect Conditions

			Predicted DNL (dB)						
	Roadway	Segment Description	Existing	Existing Pro ect	Increase	Signi icance Threshold	Threshold Exceeded	Sensitive Receptors Present [2]	Signi icant Impact Identi ied [3]
1	Ponderosa Rd	North of Wild Chaparral Dr	63.2	63.2	0.0	3.0	No	**Yes**	No
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	63.9	63.9	0.0	3.0	No	No	No
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	64.0	64.2	0.1	3.0	No	No	No
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	61.5	62.0	0.4	3.0	No	No	No
5	S. Shingle Rd	Durock Rd to Sunset Ln	49.8	50.0	0.3	5.0	No	**Yes**	No
6	S. Shingle Rd	South of Sunset Ln	63.5	63.5	0.0	3.0	No	**Yes**	No
7	Wild Chaparral Dr	West of Ponderosa Rd	50.1	50.1	0.0	5.0	No	**Yes**	No
8	N. Shingle Rd	East of Ponderosa Rd	58.4	58.4	0.0	5.0	No	**Yes**	No
9	WB US 50 On-Ramp	West of S. Shingle Rd	60.2	60.2	0.0	3.0	No	No	No
10	EB US 50 On-Ramp	East of S. Shingle Rd	65.1	65.2	0.1	1.5	No	No	No
11	Mother Lode Dr	East of S. Shingle Rd	55.0	55.1	0.0	5.0	No	**Yes**	No
12	Durock Rd	West of S. Shingle Rd	53.2	53.6	0.4	5.0	No	**Yes**	No
13	Durock Rd	East of S. Shingle Rd	47.8	47.8	0.0	5.0	No	No	No
14	Sunset Ln	East of S. Shingle Rd	50.2	50.2	0.0	5.0	No	**Yes**	No
15	Project Driveway 1	West of S. Shingle Rd (on project site)	55.0[4]	40.7	-14.3	5.0	No	**Yes**	No
16	Project Driveway 2	South of Durock Rd (on project site)	55.0[4]	43.8	-11.2	5.0	No	**Yes**	No

[1] Significance thresholds pursuant to General Plan Policy 6.5.1.12.
[2] Sensitive receptors identified in this analysis include existing residences.
[3] A significant impact is identified only along segments where the project-related traffic noise level increase would exceed applicable significance threshold AND where sensitive receptors are present along the roadway segment.
[4] The project traffic study did not contain data for segments 15 and 16 under existing conditions, which are project access points located on the project property. For the purposes of calculating increases in ambient noise levels at nearby receptors, the calculated mean of measured ambient DNL's at BAC noise monitoring Site 1 throughout the 5-day monitoring period was utilized as existing conditions along segments 15 and 16 (55 dB DNL). Noise level measurements obtained at BAC monitoring Site 1 are believed to be representative of the existing ambient noise level environment at the closest sensitive receptors to roadway segments 15 and 16 (residences west of segments).

Source: FHWA-RD-77-108 with inputs from Wood Rodgers.

As stated previously, the FHWA Model does not account for non-traffic ambient noise sources such as nearby wildlife or other anthropogenic noise sources within an area. Consideration of such sources typically results in higher ambient noise levels (i.e., existing no project) than those predicted by the FHWA Model alone.

Based on the analysis presented in Table 11, including consideration of measured ambient noise conditions within the project area (as footnoted in Table 11), project-generated traffic noise level increases would not result in significant noise impacts at existing sensitive receptors located along the project area roadway network. As a result, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (existing vs. existing with project conditions) are identified as being ***less than significant***.

Impact 2: Increases in Cumulative Tra ic Noise Levels due to the Pro ect

The FHWA Traffic Noise Model (FHWA-RD-77-108) was used to quantify increases in future (cumulative) traffic noise levels at the nearest existing sensitive land uses to the project area roadway network. This analysis first assesses whether a cumulative roadway noise impact would occur by comparing the cumulative with project conditions to existing conditions (Table 12). If a cumulative roadway noise impact is identified, it is further evaluated to assess whether the proposed project would make a cumulatively considerable contribution to the cumulative impact. This process is completed through a comparison of the roadway noise associated with the cumulative with project scenario against the cumulative no-project scenario (Table 13). Appendices G and H contain the FHWA Model inputs for cumulative and cumulative plus project conditions, respectively.

Table 2
Predicted Tra ic Noise Level Increases at Existing Sensitive Receptors Existing vs. Cumulative Plus Pro ect Conditions

			Predicted DNL (dB)						
	Roadway	Segment Description	Existing	Cumulative Pro ect	Increase	Signi icance Threshold[2]	Threshold Exceeded	Sensitive Receptors Present [3]	Signi icant Impact Identi ied
1	Ponderosa Rd	North of Wild Chaparral Dr	63.2	64.8	1.6	3.0	No	**Yes**	No
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	63.9	65.4	1.6	1.5	**Yes**	No	No
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	64.0	66.4	2.4	1.5	**Yes**	No	No
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	61.5	64.4	2.9	3.0	No	No	No
5	S. Shingle Rd	Durock Rd to Sunset Ln	49.8	53.6	3.9	5.0	No	**Yes**	No
6	S. Shingle Rd	South of Sunset Ln	63.5	65.0	1.5	3.0	No	**Yes**	No
7	Wild Chaparral Dr	West of Ponderosa Rd	50.1	--	n/a	n/a	n/a	n/a	n/a
8	N. Shingle Rd	East of Ponderosa Rd	58.4	60.8	2.4	3.0	No	**Yes**	No
9	WB US 50 On-Ramp	West of S. Shingle Rd	60.2	61.7	1.5	3.0	No	No	No
10	EB US 50 On-Ramp	East of S. Shingle Rd	65.1	66.6	1.6	1.5	**Yes**	No	No
11	Mother Lode Dr	East of S. Shingle Rd	55.0	56.5	1.4	5.0	No	**Yes**	No
12	Durock Rd	West of S. Shingle Rd	53.2	44.4	-8.8	5.0	No	**Yes**	No
13	Durock Rd	East of S. Shingle Rd	47.8	46.0	-1.8	5.0	No	No	No
14	Sunset Ln	East of S. Shingle Rd	50.2	54.6	4.4	5.0	No	**Yes**	No
15	Project Driveway 1	West of S. Shingle Rd (on project site)	55.0[5]	41.7	-13.3	5.0	No	**Yes**	No
16	Project Driveway 2	South of Durock Rd (on project site)	55.0[5]	53.2	-1.8	5.0	No	**Yes**	No

[1] Peak turning movement data for roadway segment 7 under cumulative plus project conditions not contained in project traffic impact analysis.
[2] Significance thresholds pursuant to General Plan Policy 6.5.1.12.
[3] Sensitive receptors identified in this analysis include existing residences.
[4] A significant impact is identified only along segments where the project-related traffic noise level increase would exceed applicable significance threshold AND where sensitive receptors are present along the roadway segment.
[5] The project traffic study did not contain data for segments 15 and 16 under existing conditions, which are project access points located on the project property. For the purposes of calculating increases in ambient noise levels at nearby receptors, the calculated mean of measured ambient DNL's at BAC noise monitoring Site 1 throughout the 5-day monitoring period was utilized as existing conditions along segments 15 and 16 (55 dB DNL). Noise level measurements obtained at BAC monitoring Site 1 are believed to be representative of the existing ambient noise level environment at the closest sensitive receptors to roadway segments 15 and 16 (residences west of segments).

Source: FHWA-RD-77-108 with inputs from Wood Rodgers.

Table 3
Predicted Tra ic Noise Level Increases at Existing Sensitive Receptors Cumulative No Pro ect vs. Cumulative Plus Pro ect Conditions

			Predicted DNL (dB)					
	Roadway	Segment Description	Cumulative No Pro ect	Cumulative Pro ect	Increase	Signi icance Threshold[2]	Threshold Exceeded	Pro ect's Contribution to Cumulative Condition Considerable [3]
1	Ponderosa Rd	North of Wild Chaparral Dr	64.8	64.8	0.0	3.0	No	No
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	65.4	65.4	0.0	1.5	No	No
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	66.3	66.4	0.1	1.5	No	No
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	64.2	64.4	0.2	3.0	No	No
5	S. Shingle Rd	Durock Rd to Sunset Ln	53.5	53.6	0.2	5.0	No	No
6	S. Shingle Rd	South of Sunset Ln	64.9	65.0	0.0	3.0	No	No
7	Wild Chaparral Dr	West of Ponderosa Rd	--	--	n/a	n/a	n/a	n/a
8	N. Shingle Rd	East of Ponderosa Rd	60.8	60.8	0.0	3.0	No	No
9	WB US 50 On-Ramp	West of S. Shingle Rd	61.7	61.7	0.0	3.0	No	No
10	EB US 50 On-Ramp	East of S. Shingle Rd	66.6	66.6	0.1	1.5	No	No
11	Mother Lode Dr	East of S. Shingle Rd	56.5	56.5	0.0	5.0	No	No
12	Durock Rd	West of S. Shingle Rd	39.0	43.9	4.9	5.0	No	No
13	Durock Rd	East of S. Shingle Rd	46.0	46.0	0.0	5.0	No	No
14	Sunset Ln	East of S. Shingle Rd	54.6	54.6	0.0	5.0	No	No
15	Project Driveway 1	West of S. Shingle Rd (on project site)	57.0[5]	41.7	-15.3	5.0	No	No
16	Project Driveway 2	South of Durock Rd (on project site)	57.0[5]	53.2	-3.8	5.0	No	No

[1] Peak turning movement data for roadway segment 7 under cumulative no project and cumulative plus project conditions not contained in project traffic impact analysis.
[2] Significance thresholds pursuant to General Plan Policy 6.5.1.12.
[3] A significant impact is identified only along segments where the project-related traffic noise level increase would exceed applicable significance threshold AND where sensitive receptors are present along the roadway segment.
[4] The project traffic study did not contain data for segments 15 and 16 under cumulative no project conditions, which are project access points located on the project property. For the purposes of calculating increases in cumulative noise levels at nearby receptors along segments 15 and 16, a 2 dB DNL increase was applied to the calculated mean of measured ambient DNL's at BAC noise monitoring Site 1 (55 dB DNL), which is equivalent to a 50% future increase in traffic volumes within the project vicinity. Noise level measurements obtained at BAC monitoring Site 1 are believed to be representative of the existing ambient noise level environment at the closest sensitive receptors to roadway segments 15 and 16 (residences west of segments).

Source: FHWA-RD-77-108 with inputs from Wood Rodgers.

Based on the analyses presented in Tables 12 and 13, including consideration of measured ambient noise conditions within the project area (as footnoted in the tables), project-generated traffic noise level increases would not result in significant noise impacts at existing sensitive receptors located along the project area roadway network. As a result, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (existing vs. cumulative with project conditions) are identified as being ***less than significant***.

O -Site Noise Impacts Associated with Pro ect On-Site Operations

The project consists of the construction and operation of a combination c-store/ gas station, car wash tunnel, and vehicle vacuum system. Noise generated by those operations were quantified through a combination of reference noise level data and application of accepted noise modeling techniques.

The primary on-site noise sources associated with the car wash component of the project have been identified as the drying assembly (used for drying the vehicles at the end of the wash cycle) and vacuum system operations. The most significant on-site noise sources associated with the proposed c-store/gas station component of the project include on-site truck circulation (i.e., medium and heavy truck passbys), truck delivery activities (i.e., loading and unloading of product at convenience storefront), on-site passenger vehicle circulation, parking movements, and mechanical equipment (HVAC). The following section includes impact discussions for each of the above-identified on-site project noise sources at nearby existing residential uses.

Impact 3: Car Wash Drying Assembly Noise at Existing Residential Uses

Based on the experience of BAC, noise levels generated by car washes are primarily due to the drying portion of the operation. It is the understanding of BAC that the project proposes the installation of twelve (12) Tech 21 (15 HP) dryers manufactured by MacNeil Wash Systems. According to manufacturer's noise specification data sheet (provided as Appendix I), an assembly equipped with twelve (12) dryers generates a maximum (L_{max}) noise level of approximately 76 dB at a distance of 30 feet from the tunnel exit.

It is the experience of BAC in similarly configured car wash projects that the average car wash cycle is approximately 5 minutes in duration. The dryers would operate during the last 1 minute of the cycle. Therefore, during a worst-case busy hour, the car wash would go through 12 full cycles and the dryers would operate for approximately 12 minutes during that hour. Based on the above operations assumptions, the resulting hourly average (L_{eq}) dryer noise level is calculated to be 69 dB at a distance of 30 feet.

The noise level generation of car wash drying assemblies vary depending on the orientation of the measurement position relative to the tunnel opening. Worst-case drying assembly noise levels occur at a position directly facing the car wash exit, considered to be 0 degrees off-axis. For car wash tunnels that are 100 feet or greater in length, drying assembly noise levels at the car wash entrance are approximately 10 dB lower than those at the exit. At off-axis positions, the building facade provides varying degrees of noise level reduction. At positions 45 degrees off-axis relative to the facade of the car wash exit and entrance, drying assembly noise levels are

approximately 5 dB lower. At 90 degrees off-axis, drying assembly noise levels are approximately 10 dB lower.

Car wash drying assembly noise level exposure was calculated based on the orientation to tunnel entrance/exit. Noise attenuation due to distance was calculated based on standard spherical spreading loss from a point source (-6 dB per doubling of distance). Car wash drying assembly noise exposure was calculated at the property lines of nearby existing residential uses and the results of those calculations are presented in Table 14.

Table
Predicted Car Wash Drying Assembly Noise Levels at Nearby Existing Residential Uses

Receiver	Predicted Noise Level, L_e (dB)[2]	County Community Noise Standards, L_e (dB)		
		Daytime	Evening	Nighttime
Residential – West	33			
Residential – Southwest	37		**0**	
Residential – Southeast	42			

[1] Residential receiver locations illustrated in Figure 1.
[2] Hourly average noise level predicted from equipment at a receiver and based on 12 minutes of dryer operation during a worst-case busy hour.

Source: Bollard Acoustical Consultants, Inc. 2023.

As indicated in Table 14, project car wash drying assembly noise levels are predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average (L_{eq}) noise level standards at the property lines of nearby existing residential uses.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured noise levels at each monitoring location during the surveys, ambient plus project car wash drying assembly noise level increases were calculated at the nearby existing residential uses. According to the results from that exercise, project-generated increases in ambient hourly average noise levels are calculated to be highest at the nearest residential receiver to the southwest (1.9 dB L_{eq} during nighttime hours). However, the calculated increase of 1.9 dB L_{eq} during nighttime hours is well below the applicable increase significance criterion of 5 dB established in General Plan Policy 6.5.1.13.

Because project car wash drying assembly noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average noise level standards at nearby existing residential uses, and because increases in ambient noise levels resulting from those activities are not expected to exceed the applicable impact significance criteria contained in General Plan Policy 6.5.1.13 at those uses, this impact is identified as being ***less than significant.***

Impact : Vacuum System Noise at Existing Residential Uses

The project applicant proposes the installation of a central vacuum piping system offered by Vacutech. The project site plan indicates that there will be three vacuum areas containing a total of 12 stalls. The locations of the vacuum areas are shown in Figure 2. The project site plan further indicates that the system's noise-generating vacuum turbine producer will be contained within a 6-foot-tall solid masonry enclosure (also shown in Figure 2). Based on BAC's experience and field observations with similarly configured car washes, noise impacts due to the operation of the vacuum turbine producer are not expected due to the screening that would be provided by the solid 6' masonry enclosure. As a result, no further analysis would be warranted for the vacuum turbine producer.

Based on noise level measurements conducted by BAC staff at recently completed car wash projects, the primary noise-generating aspects of central vacuum piping systems are use of the suction nozzles located at each of the stalls – specifically, noise associated with active suction nozzles hanging off nozzle hangers. Reference sound level data obtained from the proposed vacuum system manufacturer (Vacutech) is provided as Appendix J. The sound level data provided in Appendix J show measured and projected sound levels from 19 vacuum hoses off their respective nozzle hangers at distances ranging from 45 to 85 feet.

For the purposes of this analysis, it was conservatively assumed that all proposed vacuum suction nozzles would be in concurrent operation (worst-case noise exposure). Based on the manufacturer sound level data in Appendix J, operations assumptions above, and assuming standard spherical spreading loss (-6 dB per doubling of distance from a stationary source), worst-case project vacuum equipment noise exposure at the property lines of nearby existing residential uses was calculated and the results of those calculations are presented in Table 15.

Table
Predicted Vacuum Suction No le Noise Levels at Nearby Existing Residential Uses

Receiver	Predicted Noise Level, L_e (dB)	County Community Noise Standards, L_e (dB)		
		Daytime	Evening	Nighttime
Residential – West	34			
Residential – Southwest	32		**0**	
Residential – Southeast	31			

[1] Residential receiver locations illustrated in Figure 1.
[2] Hourly average noise level predicted from effective noise center of vacuum area at a receiver.

Source: Bollard Acoustical Consultants, Inc. 2023.

Table 15 data indicates that worst-case project vacuum nozzle noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average (L_{eq}) noise level standards at the property lines of nearby existing residential uses.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured noise levels at each monitoring location during the surveys, ambient plus project

vacuum equipment noise level increases were calculated at the nearby existing residential uses. According to the results from that exercise, project-generated increases in ambient hourly average noise levels are calculated to be highest at the nearest residential receiver to the southwest (0.6 dB L_{eq} during nighttime hours). However, the calculated increase of 0.6 dB L_{eq} during nighttime hours is well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13.

Because project vacuum equipment noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average noise level standards at nearby existing residential uses, and because increases in ambient noise levels resulting from those activities are not expected to exceed the applicable impact significance criteria contained in General Plan Policy 6.5.1.13 at those uses, this impact is identified as being ***less than significant.***

Impact : On-Site Truck Circulation Noise at Existing Residential Uses

It is the experience of BAC that deliveries of product to c-stores such as the one proposed by the project occur at the front of the store with medium-duty vendor trucks/vans. However, the gas station component will also receive deliveries from heavy fueling trucks for the purpose of refilling the underground storage tanks. The proposed on-site truck circulation route is shown in Figure 2.

On-site truck passbys are expected to be relatively brief and will occur at low speeds. To predict noise levels generated by on-site truck circulation, BAC utilized file data obtained from measurements conducted by BAC of heavy and medium duty truck passbys. According to BAC file data, single-event heavy truck passby noise levels are approximately 74 dB L_{max} and 83 dB SEL at a reference distance of 50 feet. BAC file data also indicate that single-event medium truck passby noise levels are approximately 66 dB L_{max} and 76 SEL at a reference distance of 50 feet. For the purposes of predicting hourly average noise levels for comparison against the County's hourly average (L_{eq}) noise standards, it was assumed that 1 heavy fueling truck and 2 medium duty trucks could have store deliveries during the same worst-case hour.

Based on a conservative 1 heavy fueling truck and 2 medium truck and trips per hour, and SEL's of 83 and 76 dB SEL per passby, the hourly average noise level generated by project delivery truck circulation computes to 49 dB L_{eq} at a reference distance of 50 feet from the passby route during the worst-case hour of deliveries (maximum noise level of 74 dB L_{max}). Based on the reference noise level data and operations assumptions above, project on-site truck circulation noise exposure at nearby existing residential uses was calculated and the results of those calculations are presented in Tables 16 and 17.

Table
Predicted Truck Circulation Noise Levels at Nearby Existing Residential Uses Hourly L_e

Receiver	Predicted Noise Level, L_e (dB)[2]	County Community Noise Standards, L_e (dB)		
		Daytime	Evening	Nighttime
Residential – West	33			
Residential – Southwest	29		**0**	
Residential – Southeast	27			

[1] Residential receiver locations illustrated in Figure 1.
[2] Hourly average noise level predicted from nearest portion of on-site truck circulation route to a receiver.

Source: Bollard Acoustical Consultants, Inc. 2023.

Table 7
Predicted Truck Circulation Noise Levels at Nearby Existing Residential Uses Maximum L_{max}

Receiver	Predicted Noise Level, L_{max} (dB)[2]	County Community Noise Standards, L_{max} (dB)		
		Daytime	Evening	Nighttime
Residential – West	58			
Residential – Southwest	55	**70**	**0**	
Residential – Southeast	53			

[1] Residential receiver locations illustrated in Figure 1.
[2] Maximum noise level predicted from nearest portion of on-site truck circulation route to a receiver.

Source: Bollard Acoustical Consultants, Inc. 2023.

As indicated in Table 16, predicted hourly average (L_{eq}) noise levels from project on-site truck circulation would satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average (L_{eq}) noise level standards at the property lines of nearby existing residential uses. However, the Table 17 data indicate that maximum (L_{max}) noise levels from project on-site truck circulation are predicted to exceed the County nighttime maximum noise level criterion at the nearest residential receiver to the west. It should be noted that Table 17 data also indicate that on-site truck circulation noise level exposure is predicted to meet the County's nighttime maximum (L_{max}) noise level criterion at the nearest residential receiver to the southwest.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured noise levels at each monitoring location during the surveys, ambient plus project on-site truck circulation noise level increases were calculated at the nearby existing residential uses. According to the results from that exercise, project-generated increases in ambient hourly average noise levels are calculated to be highest at the nearest residential receivers to the west and southwest (0.4 dB L_{eq} during nighttime hours). However, the calculated increase of 0.4 dB L_{eq} during nighttime hours is well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13. However, project-generated increases in ambient maximum noise levels are calculated to be 3.8 dB L_{max} during nighttime hours at the nearest

residential receiver to the west, which would exceed the applicable 3 dB increase significance criterion established in General Plan Policy 6.5.1.13.

Based on the analysis and results presented above, this impact is identified as being **potentially signi icant**.

Mitigation Impact 5:

To satisfy the General Plan nighttime maximum (L_{max}) noise level standard and applicable increase significance criterion contained in General Plan Policy 6.5.1.13 at the property lines of the nearest residential uses to the west, and to reduce the potential for an exceedance of the General Plan evening maximum (L_{max}) noise level standard at those locations, implementation of the following noise mitigation measure would be required:

MM- : All on-site truck circulation (i.e., truck deliveries) at the project site shall be limited to daytime hours only (7:00 a.m. to 7:00 p.m.).

After implementation of Mitigation Measure 5 (MM-5), increases in ambient maximum noise levels from project on-site truck circulation are calculated to be 1.6 dB L_{max} or below during daytime hours at the nearest residential receivers, which would be well below the applicable 5 dB increase significance criterion established in General Plan Policy 6.5.1.13.

Signi icance o Impact a ter Implementation o MM- : *Less than Significant*

Impact : Truck Delivery Activity Noise at Existing Residential Uses

As mentioned previously, it is the experience of BAC that deliveries of product to c-stores such as the one proposed by the project occur at the front of the store with medium-duty vendor trucks/vans. The location of the c-store building is shown in Figure 2. The primary noise sources associated with delivery activities are trucks stopping (air brakes), trucks backing into position (back-up alarms), and pulling away from the loading/unloading area (revving engines).

For a conservative assessment of daily truck delivery noise levels at the proposed c-store, it was assumed that 4 medium duty trucks/vans would deliver products to the store on a typical busy day. For the purposes of predicting hourly average noise levels for comparison against the County's hourly average (L_{eq}) noise standards, it was assumed that 2 medium duty trucks could have store deliveries during the same worst-case hour.

BAC file data indicate that noise levels associated with medium-duty truck deliveries (including side-step vans) are approximately 66 dB L_{max} and 76 dB SEL at a distance of 100 feet. Based on 2 medium duty truck deliveries during any given hour and an SEL of 76 dB, the hourly average noise level computes to 43 dB L_{eq} at a reference distance of 100 feet during the worst-case busy hour of deliveries. Assuming standard spherical spreading loss (-6 dB per doubling of distance), project on-site truck delivery operations noise exposure at nearby existing residential uses was calculated and the results of those calculations are presented in Tables 18 and 19.

Table
Predicted Truck Delivery Noise Levels at Nearby Existing Residential Uses Hourly L_e

Receiver	Predicted Noise Level, L_e (dB)[2]	County Community Noise Standards, L_e (dB)		
		Daytime	Evening	Nighttime
Residential – West	31			
Residential – Southwest	28		**0**	
Residential – Southeast	25			

[1] Residential receiver locations illustrated in Figure 1.
[2] Hourly average noise level predicted from truck delivery area at a receiver.

Source: Bollard Acoustical Consultants, Inc. 2023.

Table
Predicted Truck Delivery Noise Levels at Nearby Existing Residential Uses Maximum L_{max}

Receiver	Predicted Noise Level, L_{max} (dB)[2]	County Community Noise Standards, L_{max} (dB)		
		Daytime	Evening	Nighttime
Residential – West	54			
Residential – Southwest	51	**70**	**0**	
Residential – Southeast	47			

[1] Residential receiver locations illustrated in Figure 1.
[2] Maximum noise level predicted from truck delivery area at a receiver.

Source: Bollard Acoustical Consultants, Inc. 2023.

An impact discussion for project-generated on-site truck circulation noise was provided in **Impact** . As concluded in that discussion, implementation of Mitigation Measure 5 (MM-5) would be required to satisfy applicable the General Plan nighttime maximum noise level standard, General Plan Policy 6.5.1.13 increase significance criterion, and to reduce the potential for an exceedance of the General Plan's evening maximum noise level criterion at the nearest residential uses to the west. Specifically, implementation of Mitigation Measure 5 (MM-5) limits all on-site truck circulation (i.e., truck deliveries) at the project site to daytime hours only (7:00 a.m. to 7:00 p.m.). Due to the required implementation of Mitigation Measure MM-5, project truck delivery activity noise level exposure would subsequently be subject to the County's daytime noise level criteria only. As shown in Tables 18 and 19, project truck delivery noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime hourly average (L_{eq}) and maximum (L_{max}) noise level standards at the property lines of nearby existing residential uses.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured daytime noise levels at each monitoring location during the surveys, ambient plus project truck delivery noise level increases during daytime hours were calculated at the nearby existing residential uses. According to the results from that exercise, project-generated increases in ambient hourly average noise levels during daytime hours are calculated to range from less than 0.1 to 0.1 dB L_{eq} at nearby residential receivers. Additionally, project-generated increases

in ambient maximum noise levels are calculated to range from less than 0.1 to 0.6 dB L_{max} during daytime hours at nearby residential receivers. The calculated increases above would be well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13. Based on the analysis and results presented above, this impact is identified as being ***less than significant***.

Impact 7: On-Site Vehicle Circulation Noise at Existing Residential Uses

According to the project site plan, passenger vehicle access points to the project property will be located off Durock Road and S. Shingle Road. The locations of the passenger vehicle access points are shown in Figure 2. To quantify on-site traffic circulation noise levels at nearby existing residential uses, BAC utilized the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with trip generation data contained in the project draft transportation impact study prepared by Wood Rodgers (*ARCO Shingle Springs El Dorado County, CA Traffic Impact Study – Draft Report, dated December 2022*). According to that data, the project is estimated to generate a total of 761 daily trips, with 39 AM peak hour trips and 33 PM peak hour trips. Assuming an on-site vehicle speed of less than 25 mph, 39 vehicle trips in a worst-case busy hour (day, evening or night), project on-site passenger vehicle circulation noise exposure at nearby existing residential uses was calculated and the results of those calculations are presented in Tables 20 and 21.

Table 20
On-Site Vehicle Circulation Noise at Nearby Existing Residential Uses Hourly L_e

Receiver	Predicted Noise Level, L_e (dB)[2]	County Community Noise Standards, L_e (dB)		
		Daytime	Evening	Nighttime
Residential – West	32			
Residential – Southwest	29		**0**	
Residential – Southeast	27			

[1] Residential receiver locations illustrated in Figure 1.
[2] Hourly average noise level predicted from nearest portion of on-site circulation route to a receiver and based on 39 vehicle trips within a given hour.

Source: Bollard Acoustical Consultants, Inc. 2023.

Table 2
On-Site Vehicle Circulation Noise at Nearby Existing Residential Uses Maximum L_{max}

Receiver	Predicted Noise Level, L_{max} (dB)[2]	County Community Noise Standards, L_{max} (dB)		
		Daytime	Evening	Nighttime
Residential – West	42			
Residential – Southwest	39	**70**	**0**	
Residential – Southeast	37			

[1] Residential receiver locations illustrated in Figure 1.
[2] Maximum noise level predicted from nearest portion of on-site circulation route to a receiver and conservatively assumed to be 10 dB higher than predicted hourly Leq values.

Source: Bollard Acoustical Consultants, Inc. 2023.

Tables 20 and 21 data indicate that predicted hourly average (L_{eq}) and maximum (L_{max}) noise levels from project on-site passenger vehicle circulation would satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average and maximum noise level standards at the property lines of nearby existing residential uses.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured noise levels at each monitoring location during the surveys, ambient plus project on-site vehicle circulation noise level increases were calculated at the nearby existing residential uses. According to the results from that exercise, project-generated increases in ambient hourly average noise levels are calculated to be highest at the nearest residential receivers to the west and southwest (0.3 dB L_{eq} during nighttime hours). However, the calculated increase of 0.3 dB L_{eq} during nighttime hours is well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13. Further, project-generated increases in ambient maximum noise levels are also calculated to be highest at the nearest residential receivers to the west and southwest (0.1 dB L_{eq} during nighttime hours) but would be well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13.

Because project on-site passenger vehicle circulation noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average and maximum noise level standards at nearby existing residential uses, and because increases in ambient noise levels resulting from those activities are not expected to exceed the applicable impact significance criteria contained in General Plan Policy 6.5.1.13 at those uses, this impact is identified as being ***less than significant***.

Impact : Parking Area Noise at Existing Residential Uses

To quantify noise exposure due to project parking area activities, BAC utilized specific parking lot noise level measurements conducted by BAC. Specifically, a series of individual noise measurements were conducted of multiple vehicle types arriving and departing a parking area, including engines starting and stopping, car doors opening and closing, and persons conversing as they entered and exited the vehicles. The results of those measurements revealed that individual parking lot movements generated mean noise levels of approximately 70 dB SEL at a reference distance of 50 feet. The maximum noise level associated with parking lot activity typically did not exceed 65 dB L_{max} at the same reference distance.

To compute hourly average (L_{eq}) noise levels generated by parking activities, the approximate number of hourly operations in any given area and distance to the effective noise center of those activities is required. According to the project draft transportation impact study prepared by Wood Rodgers, the project is estimated to have approximately 39 vehicle trips during a worst-case busy hour of operations (AM peak hour). Based on this information, it was conservatively assumed that all stalls within the nearest proposed parking area to a residential receiver could fill or empty during a given peak hour (worst-case). The hourly average noise level generated by parking lot movements is computed using the following formula:

$$\textit{Peak Hour } L_{eq} = 70+10*\log(N) - 35.6$$

Where 70 is the mean Sound Exposure Level (SEL) for an automobile parking lot arrival or departure, N is the number of parking lot operations in a given hour, and 35.6 is 10 times the logarithm of the number of seconds in an hour. Using the information provided above, the provided site plan, and assuming standard spherical spreading loss (-6 dB per doubling of distance), worst-case project parking area noise exposure at nearby residential uses was calculated and the results of those calculations are presented in Tables 22 and 23.

Table 22
Predicted Parking Area Noise Levels at Nearby Existing Residential Uses Hourly L_e

Receiver	Predicted Noise Level, L_e (dB)[2]	County Community Noise Standards, L_e (dB)		
		Daytime	Evening	Nighttime
Residential – West	32			
Residential – Southwest	29		**0**	
Residential – Southeast	27			

[1] Residential receiver locations illustrated in Figure 1.
[2] Hourly average noise level predicted from effective noise center of nearest proposed parking area to a receiver and utilizes 39 parking operations during a worst-case busy hour (conservative estimation).

Source: Bollard Acoustical Consultants, Inc. 2023.

Table 23
Predicted Parking Area Noise Levels at Nearby Existing Residential Uses Maximum L_{max}

Receiver	Predicted Noise Level, L_{max} (dB)[2]	County Community Noise Standards, L_{max} (dB)		
		Daytime	Evening	Nighttime
Residential – West	54			
Residential – Southwest	49	**70**	**0**	
Residential – Southeast	47			

[1] Residential receiver locations illustrated in Figure 1.
[2] Maximum noise level predicted from nearest proposed parking stall to a receiver.

Source: Bollard Acoustical Consultants, Inc. 2023.

As indicated in Tables 22 and 23, worst-case project parking noise exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average (L_{eq}) and maximum (L_{max}) noise level standards at the property lines of nearby existing residential uses.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured noise levels at each monitoring location during the surveys, ambient plus project parking activity noise level increases were calculated at the nearby existing residential uses. According to the results from that exercise, project-generated increases in ambient hourly average noise levels are calculated to be highest at the nearest residential receiver to the west (0.4 dB L_{eq} during nighttime hours). However, the calculated increase of 0.4 dB L_{eq} during nighttime hours is well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13. Additionally, project-generated increases in ambient maximum

noise levels are also calculated to be highest at the nearest residential receiver to the west (1.7 dB L_{eq} during nighttime hours) but would be well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13.

Because project parking noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average and maximum noise level standards at nearby existing residential uses, and because increases in ambient noise levels resulting from those activities are not expected to exceed the applicable impact significance criteria contained in General Plan Policy 6.5.1.13 at those uses, this impact is identified as being ***less than significant.***

Impact : Mechanical E uipment (HVAC) Noise at Existing Residential Uses

Heating, ventilating, and air conditioning (HVAC) requirements for the proposed c-store will most likely be met using packaged roof-mounted systems. As a means of determining potential noise exposure due to rooftop mechanical equipment, BAC utilized reference file data collected for previous studies. BAC reference file data for HVAC systems indicate that a 12.5-ton packaged unit can be expected to generate an A-weighted sound power level of 85 dB. Using this sound power data, and assuming standard spherical spreading loss (-6 dB per doubling of distance), project HVAC equipment noise exposure at the property lines of nearby residential uses was calculated and the results of those calculations are presented in Table 24. Because mechanical equipment operation typically generates sustained, steady-state, noise levels, impacts of project rooftop mechanical equipment are assessed in this study relative to the County's hourly average (L_{eq}) noise level criteria.

Table 2
Predicted HVAC E uipment Noise Levels at Nearby Existing Residential Uses

Receiver	Predicted Noise Level, L_e (dB)[2]	County Community Noise Standards, L_e (dB)		
		Daytime	Evening	Nighttime
Residential – West	33			
Residential – Southwest	30		**0**	
Residential – Southeast	27			

[1] Residential receiver locations illustrated in Figure 1.
[2] Hourly average noise level predicted from c-store building rooftop at a receiver.

Source: Bollard Acoustical Consultants, Inc. 2023.

Table 24 data indicates that project HVAC equipment noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average (L_{eq}) noise level standards at the property lines of nearby existing residential uses.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured noise levels at each monitoring location during the surveys, ambient plus project HVAC equipment noise level increases were calculated at the nearby existing residential uses. According to the results from that exercise, project-generated increases in ambient hourly

average noise levels are calculated to be highest at the nearest residential receiver to the west (0.5 dB L_{eq} during nighttime hours). However, the calculated increase of 0.5 dB L_{eq} during nighttime hours is well below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13.

Because project HVAC equipment noise level exposure is predicted to satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average noise level standards at nearby existing residential uses, and because increases in ambient noise levels resulting from the equipment are not expected to exceed the applicable impact significance criteria contained in General Plan Policy 6.5.1.13 at those uses, this impact is identified as being ***less than significant.***

Impact 0: Cumulative (Combined) Noise Levels at Existing Residential Uses

The calculated cumulative (combined) noise levels from analyzed project on-site noise sources at nearby residential uses are presented in Tables 25 and 26. It should be noted that due to the logarithmic nature of the decibel scale, the sum of two noise values which differ by 10 dB equates to an overall increase in noise levels of 0.4 dB. When the noise sources are equivalent, the sum would result in an overall increase in noise levels of 3 dB.

Table 2
Calculated Cumulative On-Site Operations Noise Levels at Existing Residential Uses Hourly L_e

Receiver	Predicted Noise Levels, L_e (dB)							Calculated Cumulative, L_e (dB)	County Community Noise Standards, L_e (dB)[2]		
	Car Wash Dryers	Vacuum No les	On-Site Truck Circ.	Truck Deliveries	On-Site Vehicle Circ.	Parking	HVAC		Daytime	Evening	Nighttime
Residential – West	33	34	33	31	32	32	33	41			
Residential – Southwest	37	32	29	28	29	29	30	41		**0**	
Residential – Southeast	42	31	27	25	27	27	27	43			

[1] Calculated cumulative hourly average noise levels based on predicted hourly average values presented in Impacts 3-10.

Source: Bollard Acoustical Consultants, Inc. 2023.

Table 2
Highest Predicted On-Site Operations Noise Levels at Existing Residential Uses Maximum L_{max}

Receiver	Predicted Noise Levels, L_{max} (dB)							Highest Predicted, L_{max} (dB)[2]	County Community Noise Standards, L_{max} (dB)[2]		
	Car Wash Dryers	Vacuum No les	On-Site Truck Circ.	Truck Deliveries	On-Site Vehicle Circ.	Parking	HVAC		Daytime	Evening	Nighttime
Residential – West	--	--	58	54	42	54	--	58			
Residential – Southwest	--	--	55	51	39	49	--	55	**70**	**0**	
Residential – Southeast	--	--	53	47	37	47	--	53			

[1] Cumulative noise level exposure from car wash drying assembly, vacuum equipment, and HVAC equipment quantified in Table 25.
[2] Highest predicted maximum noise levels based on predicted maximum values presented in Impacts 3-10.

Source: Bollard Acoustical Consultants, Inc. 2023.

As shown in Table 25, calculated cumulative hourly average (L_{eq}) noise levels from project on-site operations would satisfy the applicable El Dorado County General Plan daytime, evening, and nighttime hourly average noise level standards at the property lines of nearby existing residential uses. However, Table 26 data indicate that the highest predicted maximum (L_{max}) noise levels from project on-site operations are predicted to exceed the County nighttime maximum noise level criterion at the nearest residential use to the west (58 dB L_{max}). Table 26 data also indicate that the highest predicted maximum noise level of 55 dB L_{max} at the nearest residential receiver to the southwest would meet the County's nighttime maximum (L_{max}) noise level criterion. It should be noted that the highest predicted project-generated maximum noise levels at residential receivers is associated with on-site truck circulation.

Table 1 of this report contains the results from the BAC long-term ambient noise surveys at Sites 1-3, which are believed to be representative of the existing ambient noise environments at nearby existing residential uses to the west, southwest and southeast. Using the lowest average measured noise levels at each monitoring location during the surveys, ambient plus cumulative project noise level increases were calculated at the nearby existing residential uses. According to the results from that exercise, cumulative project-generated increases in ambient hourly average noise levels are calculated to be highest at the nearest residential receivers to the southwest (3.3 dB L_{eq} during nighttime hours). However, the calculated increase of 3.3 dB L_{eq} during nighttime hours is below the applicable increase significance criterion of 5 dB contained in General Plan Policy 6.5.1.13. However, project-generated increases in ambient maximum noise levels are calculated to be 3.8 dB L_{max} during nighttime hours at the nearest residential receiver to the west, which would exceed the applicable 3 dB increase significance criterion established in General Plan Policy 6.5.1.13. Once again, it should be noted that the highest calculated increase in ambient maximum noise levels at residential receivers is attributed to on-site truck circulation.

Based on the analysis and results presented above, this impact is identified as being **potentially signi icant**.

Mitigation Impact 10:

To satisfy the General Plan nighttime maximum (L_{max}) noise level standard and applicable increase significance criterion contained in General Plan Policy 6.5.1.13 at the property lines of the nearest residential uses to the west, and to reduce the potential for an exceedance of the General Plan evening maximum (L_{max}) noise level standard at those locations, implementation of the following noise mitigation measure would be required:

MM- 0: Implementation of Mitigation Measure 5 (MM-5) as outlined in this report. Specifically, all truck deliveries at the project site shall be limited to daytime hours only (7:00 a.m. to 7:00 p.m.).

After implementation of Mitigation Measure 10 (MM-10), the highest predicted increase in ambient maximum noise levels from project on-site operations is calculated to be 1.7 dB L_{max} (during nighttime hours) at the nearest residential receiver to the west, which would be well below the applicable 5 dB increase significance criterion established in General Plan Policy 6.5.1.13. It should be noted that implementation of Mitigation Measure 10 (MM-10) would also subsequently

reduce increases in ambient hourly average (L_{eq}) noise levels during nighttime and evening hours at nearby residential receivers.

Signi icance o Impact a ter Implementation o MM- 0: ***Less than Significant***

Noise Impacts Associated with Pro ect On-Site Construction Activities

Impact : On-Site Construction Noise Levels at Existing Residential Uses

During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project work area would also vary depending upon the proximity of equipment activities to that point.

Table 27 includes the range of maximum noise levels for equipment commonly used in general construction projects at full-power operation at a distance of 50 feet. Not all of these construction activities would be required of this project. Table 27 data also include predicted maximum equipment noise levels at nearby existing residential receivers to the west, southwest and southeast, which assumes a standard spherical spreading loss of 6 dB per doubling of distance.

Table 27
Construction E uipment Re erence and Predicted Noise Levels Noise Levels

E uipment Description	Re erence Noise Level at 0 Feet, L_{max} (dB)	Predicted E uipment Noise Level, L_{max} (dB)		
		Residential West	Residential Southwest	Residential Southeast
Air compressor	80	66	60	58
Backhoe	80	66	60	58
Ballast equalizer	82	68	62	60
Ballast tamper	83	69	63	61
Compactor	82	68	62	60
Concrete mixer	85	71	65	63
Concrete pump	82	68	62	60
Concrete vibrator	76	62	56	54
Crane, mobile	83	69	63	61
Dozer	85	71	65	63
Excavator	85	71	65	63
Generator	82	68	62	60
Grader	85	71	65	63
Impact wrench	85	71	65	63
Loader	80	66	60	58
Paver	85	71	65	63
Pneumatic tool	85	71	65	63
Pump	77	63	57	55
Saw	76	62	56	54
Scarifier	83	69	63	61
Scraper	85	71	65	63
Shovel	82	68	62	60
Spike driver	77	63	57	55
Tie cutter	84	70	64	62
Tie handler	80	66	60	58
Tie inserter	85	71	65	63
Truck	84	70	64	62
	Low	62	56	54
	High	71	65	63
	Average	67	61	58

Source: Federal Transit Administration Noise and Vibration Impact Assessment Manual, Table 7-1 (2020)

Table 27 data indicate that worst-case on-site project construction equipment maximum noise levels at the property lines of nearby existing residential uses are expected to range from approximately 54 to 71 dB. The predicted range of construction equipment maximum noise levels are either below or within the range of measured ambient daytime maximum noise levels at those nearby residential uses (BAC ambient noise survey Sites 1-3). Based on the data presented in Table 27 and the results from the BAC ambient noise survey, substantial short-term increases over ambient maximum noise levels from project construction activities are not expected at nearby residential uses. However, based on the Table 27 data, it is possible that noise from on-site construction activities could exceed applicable El Dorado County General Plan noise level limits applicable to construction operations (presented in Table 8 of this report), should the criteria be applicable to the project.

As noted in the Regulatory Setting Section of this report, Policy 6.5.1.11 of the El Dorado County General Plan exempts noise sources associated with construction provided such activities take place between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and 8:00 a.m. and 8:00 p.m. on weekends, and on federally recognized holidays. For the purposes of this analysis, it is reasonably assumed that all noise-generating on-site project construction equipment and activities would occur pursuant to General Plan Policy 6.5.1.11 and would thereby be exempt from County noise level criteria.

Based on the discussion and analysis provided above, this impact is identified as being ***less than significant***. Nonetheless, to reduce the potential for annoyance at nearby existing residential uses, the following measures should be incorporated into project on-site construction operations:

- All on-site noise-generating construction activities shall occur within the hours and days identified in Policy 6.5.1.11 of the El Dorado County General Plan.
- All noise-producing project equipment and vehicles using internal-combustion engines shall be equipped with manufacturers-recommended mufflers and be maintained in good working condition.
- All mobile or fixed noise-producing equipment used on the project site that are regulated for noise output by a federal, state, or local agency shall comply with such regulations while in the course of project activity.
- Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive uses.
- Project area and site access road speed limits shall be established and enforced during the construction period.
- Nearby residences shall be notified of construction schedules so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels.

Vibration Impacts Associated with the Pro ect

Impact 2: Vibration Generated by Pro ect Construction and On-Site Operations

During project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of those activities. The nearest identified existing structure, a newer engineered commercial building (not highly susceptible to damage by vibration), is located approximately 125 feet from where construction activities could occur within the project area. The nearest identified existing residence, a newer engineered residential structure (not highly susceptible to damage by vibration), is located approximately 400 feet from where construction activities could occur within the project area.

Table 28 includes the range of vibration levels for equipment commonly used in general construction projects at a distance of 25 feet. The Table 28 data also include projected equipment vibration levels at the aforementioned existing nearby structures.

Table 2
Re erence and Pro ected Vibration Source Amplitudes or Construction E uipment

E uipment	Re erence Maximum Vibration Level at 2 eet, VdB (rms)	Pro ected Maximum Vibration Level, VdB (rms)	
		2 Feet (Commercial Building)	00 Feet (Residence)
Vibratory Roller	94	61	57
Hoe Ram	87	61	57
Large bulldozer	87	61	57
Loaded trucks	86	60	55
Jackhammer	79	58	<50
Small bulldozer	58	<50	<50

[1] RMS velocity in decibels (VdB) re 1 micro-inch/second.

Source: 2018 FTA Transit Noise and Vibration Impact Assessment Manual and BAC calculations.

As shown in Table 28, vibration levels generated from on-site construction activities are below the FTA threshold for damage to engineered structures (98 VdB) at a distance of 25 feet from those activities. In addition, the construction-related vibration levels shown in Table 28 are predicted to be below the human threshold of perception (65 VdB) at the nearest structures. Based on the analysis provided above, on-site construction within the project area is not expected to result in excessive groundborne vibration levels at nearby existing structures.

Results from the BAC-conducted ambient vibration level survey indicate that average measured vibration levels were below the 65 VdB threshold of perception within the project vicinity (Table 2 of this report). Therefore, it is expected that the project would not result in the exposure of persons to excessive groundborne vibration levels at proposed uses of the development.

Finally, the project proposes the development of a combination c-store/gas station, car wash tunnel, and vehicle vacuum facilities. It is the experience of BAC these uses do not typically have equipment that generates appreciable vibration.

Because vibration levels due to both project construction and operations related to proposed uses within the project area are expected to be satisfactory relative to the applicable FTA vibration impact criteria for damage to structures and annoyance, this impact is considered to be ***less than significant***.

This concludes BAC's noise and vibration assessment for the ARCO AM/PM Shingle Springs ARCO AM/PM Car Wash in El Dorado County, California. Please contact BAC at (530) 537-23285 or dariog@bacnoise.com if you have any comments or questions regarding this report.

Appendix A
Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Fre uency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

IIC Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.

L_{dn} Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

L_e Equivalent or energy-averaged sound level.

L_{max} The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{0} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

STC Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSTC.

BOLLARD
Acoustical Consultants







Legend

A Site 1: Long-term noise monitoring equipment

B Site 2: Long-term noise monitoring equipment

C Site 3: Long-term noise monitoring equipment

ARCO AM/PM Shingle Springs
El Dorado County, California

Noise Survey Photographs







Legend

- A — Site A: Short-term vibration monitoring equipment
- B — Site 1: Short-term vibration monitoring equipment (near Site 1)
- C — Site 2: Short-term vibration monitoring equipment (near Site 2)

ARCO AM/PM Shingle Springs
El Dorado County, California

Vibration Survey Photographs

Appendix B-2

BOLLARD Acoustical Consultants

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Wednesday, April 27, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	37	54	34	29
1:00 AM	35	54	31	27
2:00 AM	36	51	32	28
3:00 AM	36	50	33	29
4:00 AM	43	64	38	33
5:00 AM	46	61	44	40
6:00 AM	50	79	46	44
7:00 AM	49	67	48	46
8:00 AM	48	59	47	45
9:00 AM	47	60	46	44
10:00 AM	50	59	50	45
11:00 AM	47	60	46	44
12:00 PM	50	68	48	45
1:00 PM	48	65	47	44
2:00 PM	49	61	48	45
3:00 PM	51	59	50	47
4:00 PM	50	59	50	47
5:00 PM	52	60	51	49
6:00 PM	51	63	50	47
7:00 PM	51	63	50	47
8:00 PM	50	58	50	47
9:00 PM	48	57	48	45
10:00 PM	44	55	41	36
11:00 PM	39	55	36	32

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	52	47	49	51	48	50	50	35	43
Lmax (Maximum)	68	59	62	63	57	59	79	50	58
L50 (Median)	51	46	48	50	48	49	46	31	37
L90 (Background)	49	44	46	47	45	46	44	27	33

Computed CNEL, dB	52
% Daytime Energy	68%
% Evening Energy	19%
% Nighttime Energy	13%

GPS Coordinates	38°39'36.67"N
	120°56'18.63"W

BOLLARD
Acoustical Consultants

Appendix C-2
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Thursday, April 2 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	38	56	34	30
1:00 AM	36	50	34	31
2:00 AM	38	49	37	32
3:00 AM	37	51	36	32
4:00 AM	42	59	40	35
5:00 AM	47	65	45	42
6:00 AM	49	69	47	44
7:00 AM	50	63	49	46
8:00 AM	50	67	49	47
9:00 AM	50	63	49	47
10:00 AM	64	88	59	49
11:00 AM	48	62	47	45
12:00 PM	52	71	48	46
1:00 PM	49	69	47	45
2:00 PM	48	59	47	45
3:00 PM	56	77	49	46
4:00 PM	52	78	49	46
5:00 PM	50	64	49	45
6:00 PM	49	66	48	45
7:00 PM	50	58	49	47
8:00 PM	51	62	51	48
9:00 PM	47	58	46	43
10:00 PM	47	59	45	40
11:00 PM	46	56	44	39

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	64	48	55	51	47	50	49	36	45
Lmax (Maximum)	88	59	69	62	58	59	69	49	57
L50 (Median)	59	47	49	51	46	49	47	34	40
L90 (Background)	49	45	46	48	43	46	44	30	36

Computed CNEL, dB	55
% Daytime Energy	87%
% Evening Energy	7%
% Nighttime Energy	6%

GPS Coordinates	38°39'36.67"N
	120°56'18.63"W

BOLLARD
Acoustical Consultants

Appendix C-3
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Friday, April 2 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	41	50	40	35
1:00 AM	39	54	37	33
2:00 AM	40	56	38	34
3:00 AM	41	55	39	36
4:00 AM	46	60	45	40
5:00 AM	49	63	48	45
6:00 AM	50	67	49	48
7:00 AM	50	61	49	47
8:00 AM	52	74	49	47
9:00 AM	51	65	50	48
10:00 AM	54	68	52	50
11:00 AM	67	95	61	50
12:00 PM	71	89	65	52
1:00 PM	69	85	56	50
2:00 PM	73	98	59	50
3:00 PM	71	96	52	49
4:00 PM	51	62	51	49
5:00 PM	52	67	51	48
6:00 PM	50	58	49	46
7:00 PM	50	60	49	45
8:00 PM	54	64	53	51
9:00 PM	52	63	51	49
10:00 PM	50	60	50	47
11:00 PM	47	58	46	42

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	73	50	67	54	50	52	50	39	47
Lmax (Maximum)	98	58	76	64	60	62	67	50	58
L50 (Median)	65	49	54	53	49	51	50	37	43
L90 (Background)	52	46	49	51	45	48	48	33	40

Computed CNEL, dB	64
% Daytime Energy	98%
% Evening Energy	1%
% Nighttime Energy	1%

GPS Coordinates	38°39'36.67"N
	120°56'18.63"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Saturday, April 30, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	45	62	44	39
1:00 AM	46	58	43	37
2:00 AM	46	64	43	37
3:00 AM	43	57	41	36
4:00 AM	46	60	44	39
5:00 AM	50	65	48	44
6:00 AM	52	60	51	48
7:00 AM	48	60	47	43
8:00 AM	50	68	49	44
9:00 AM	48	68	46	43
10:00 AM	52	66	51	47
11:00 AM	52	62	50	47
12:00 PM	69	97	50	48
1:00 PM	52	70	50	48
2:00 PM	52	68	50	47
3:00 PM	52	59	51	48
4:00 PM	52	66	52	49
5:00 PM	53	62	53	50
6:00 PM	53	61	53	50
7:00 PM	51	65	50	47
8:00 PM	48	58	47	42
9:00 PM	44	65	43	40
10:00 PM	44	60	42	40
11:00 PM	41	58	39	35

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	69	48	59	51	44	48	52	41	47
Lmax (Maximum)	97	59	67	65	58	63	65	57	60
L50 (Median)	53	46	50	50	43	47	51	39	44
L90 (Background)	50	43	47	47	40	43	48	35	39

Computed CNEL, dB	58
% Daytime Energy	93%
% Evening Energy	2%
% Nighttime Energy	4%

GPS Coordinates	38°39'36.67"N
	120°56'18.63"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Sunday, May 0 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	44	60	41	36
1:00 AM	41	56	38	33
2:00 AM	41	52	39	34
3:00 AM	37	56	33	29
4:00 AM	39	54	35	31
5:00 AM	46	66	41	35
6:00 AM	46	64	43	40
7:00 AM	45	59	44	41
8:00 AM	47	58	46	44
9:00 AM	49	68	48	46
10:00 AM	54	73	51	49
11:00 AM	55	74	52	50
12:00 PM	53	63	52	50
1:00 PM	53	65	53	51
2:00 PM	54	72	52	50
3:00 PM	54	68	53	50
4:00 PM	53	67	52	50
5:00 PM	52	65	52	49
6:00 PM	56	68	54	50
7:00 PM	53	73	51	49
8:00 PM	52	69	51	48
9:00 PM	51	66	50	46
10:00 PM	48	58	47	41
11:00 PM	40	57	38	34

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	56	45	53	53	51	52	48	37	44
Lmax (Maximum)	74	58	67	73	66	69	66	52	58
L50 (Median)	54	44	51	51	50	51	47	33	39
L90 (Background)	51	41	48	49	46	48	41	29	35

Computed CNEL, dB	54
% Daytime Energy	78%
% Evening Energy	15%
% Nighttime Energy	7%

GPS Coordinates	38°39'36.67"N
	120°56'18.63"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Wednesday, April 27, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	37	53	32	27
1:00 AM	35	57	29	26
2:00 AM	34	48	30	26
3:00 AM	34	47	31	27
4:00 AM	37	53	33	29
5:00 AM	45	66	42	36
6:00 AM	45	61	43	40
7:00 AM	46	58	45	42
8:00 AM	46	58	46	42
9:00 AM	45	59	43	41
10:00 AM	44	59	43	40
11:00 AM	44	59	43	41
12:00 PM	46	68	44	42
1:00 PM	46	68	42	40
2:00 PM	46	62	44	41
3:00 PM	47	62	46	44
4:00 PM	47	56	47	44
5:00 PM	51	61	50	47
6:00 PM	49	64	48	45
7:00 PM	49	65	47	44
8:00 PM	51	67	50	47
9:00 PM	46	54	46	43
10:00 PM	42	53	40	33
11:00 PM	38	55	35	29

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	51	44	47	51	46	49	45	34	40
Lmax (Maximum)	68	56	61	67	54	62	66	47	55
L50 (Median)	50	42	45	50	46	48	43	29	35
L90 (Background)	47	40	42	47	43	45	40	26	30

Computed CNEL, dB	50
% Daytime Energy	63%
% Evening Energy	26%
% Nighttime Energy	11%

GPS Coordinates	38°39'32.58"N
	120°56'18.61"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C-7
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Thursday, April 2 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	37	57	32	27
1:00 AM	35	52	32	29
2:00 AM	34	45	33	29
3:00 AM	34	51	32	29
4:00 AM	39	51	37	33
5:00 AM	46	59	43	38
6:00 AM	45	62	44	40
7:00 AM	47	59	47	43
8:00 AM	49	62	48	45
9:00 AM	48	63	47	45
10:00 AM	48	65	46	44
11:00 AM	46	64	45	43
12:00 PM	52	72	45	43
1:00 PM	48	67	44	42
2:00 PM	46	66	44	42
3:00 PM	46	60	44	42
4:00 PM	50	75	45	42
5:00 PM	48	64	47	41
6:00 PM	46	60	44	41
7:00 PM	50	59	49	45
8:00 PM	52	60	52	48
9:00 PM	47	57	46	43
10:00 PM	46	57	45	40
11:00 PM	47	60	45	40

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	52	46	48	52	47	50	47	34	43
Lmax (Maximum)	75	59	65	60	57	59	62	45	55
L50 (Median)	48	44	46	52	46	49	45	32	38
L90 (Background)	45	41	43	48	43	45	40	27	34

Computed CNEL, dB	52
% Daytime Energy	63%
% Evening Energy	23%
% Nighttime Energy	14%

GPS Coordinates	38°39'32.58"N
	120°56'18.61"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Friday, April 2 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	41	53	40	35
1:00 AM	41	57	38	34
2:00 AM	42	62	39	35
3:00 AM	43	59	41	37
4:00 AM	48	56	47	43
5:00 AM	49	62	48	46
6:00 AM	51	62	51	49
7:00 AM	50	63	50	48
8:00 AM	49	61	48	46
9:00 AM	50	68	49	47
10:00 AM	54	70	52	50
11:00 AM	53	62	52	50
12:00 PM	53	60	52	50
1:00 PM	56	71	53	50
2:00 PM	53	68	51	47
3:00 PM	51	63	50	47
4:00 PM	50	61	50	46
5:00 PM	51	67	51	48
6:00 PM	48	58	47	44
7:00 PM	51	67	50	44
8:00 PM	55	73	53	51
9:00 PM	52	64	51	48
10:00 PM	51	65	50	46
11:00 PM	46	56	44	40

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	56	48	52	55	51	53	51	41	47
Lmax (Maximum)	71	58	64	73	64	68	65	53	59
L50 (Median)	53	47	50	53	50	51	51	38	44
L90 (Background)	50	44	48	51	44	48	49	34	41

Computed CNEL, dB	55
% Daytime Energy	65%
% Evening Energy	19%
% Nighttime Energy	16%

GPS Coordinates	38°39'32.58"N
	120°56'18.61"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Saturday, April 30, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	49	80	43	36
1:00 AM	45	60	43	35
2:00 AM	46	62	43	37
3:00 AM	43	57	41	35
4:00 AM	46	60	44	38
5:00 AM	49	59	49	44
6:00 AM	52	62	51	47
7:00 AM	47	62	45	41
8:00 AM	57	72	48	43
9:00 AM	47	71	43	39
10:00 AM	50	69	49	45
11:00 AM	50	68	47	43
12:00 PM	47	60	46	43
1:00 PM	49	66	47	44
2:00 PM	52	71	48	44
3:00 PM	50	64	50	44
4:00 PM	51	60	51	48
5:00 PM	53	67	52	49
6:00 PM	52	63	52	49
7:00 PM	48	61	46	44
8:00 PM	46	67	45	41
9:00 PM	43	53	42	38
10:00 PM	41	58	40	36
11:00 PM	39	52	36	31

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	57	47	51	48	43	46	52	39	47
Lmax (Maximum)	72	60	66	67	53	60	80	52	61
L50 (Median)	52	43	48	46	42	44	51	36	43
L90 (Background)	49	39	44	44	38	41	47	31	38

Computed CNEL, dB	54
% Daytime Energy	73%
% Evening Energy	5%
% Nighttime Energy	21%

GPS Coordinates	38°39'32.58"N
	120°56'18.61"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C- 0
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Sunday, May 0 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	40	60	37	31
1:00 AM	38	49	37	31
2:00 AM	38	49	36	30
3:00 AM	35	50	31	27
4:00 AM	36	49	33	28
5:00 AM	47	63	41	33
6:00 AM	46	63	43	39
7:00 AM	47	72	43	41
8:00 AM	46	68	45	43
9:00 AM	48	61	47	44
10:00 AM	52	70	51	48
11:00 AM	53	63	52	50
12:00 PM	53	70	53	50
1:00 PM	54	65	54	51
2:00 PM	54	70	52	50
3:00 PM	54	69	53	51
4:00 PM	53	69	52	50
5:00 PM	52	62	51	49
6:00 PM	53	65	52	50
7:00 PM	53	72	51	49
8:00 PM	53	70	52	49
9:00 PM	50	62	49	46
10:00 PM	47	56	46	38
11:00 PM	38	53	36	31

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	54	46	52	53	50	52	47	35	43
Lmax (Maximum)	72	61	67	72	62	68	63	49	55
L50 (Median)	54	43	50	52	49	51	46	31	38
L90 (Background)	51	41	48	49	46	48	39	27	32

Computed CNEL, dB	53
% Daytime Energy	75%
% Evening Energy	18%
% Nighttime Energy	7%

GPS Coordinates	38°39'32.58"N
	120°56'18.61"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Wednesday, April 27, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	42	62	29	26
1:00 AM	42	68	28	25
2:00 AM	40	61	27	24
3:00 AM	41	62	29	26
4:00 AM	46	69	32	27
5:00 AM	51	65	46	36
6:00 AM	53	68	47	39
7:00 AM	56	71	55	46
8:00 AM	56	78	54	47
9:00 AM	56	82	53	45
10:00 AM	54	66	52	44
11:00 AM	54	65	51	44
12:00 PM	55	72	53	45
1:00 PM	55	76	52	44
2:00 PM	55	72	53	46
3:00 PM	57	83	53	47
4:00 PM	55	69	54	47
5:00 PM	55	71	54	49
6:00 PM	54	68	52	46
7:00 PM	53	73	50	45
8:00 PM	52	66	49	45
9:00 PM	51	64	46	42
10:00 PM	48	66	41	31
11:00 PM	45	68	32	27

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	57	54	55	53	51	52	53	40	48
Lmax (Maximum)	83	65	73	73	64	68	69	61	65
L50 (Median)	55	51	53	50	46	49	47	27	34
L90 (Background)	49	44	46	45	42	44	39	24	29

Computed CNEL, dB	56
% Daytime Energy	80%
% Evening Energy	9%
% Nighttime Energy	10%

GPS Coordinates	38°39'31.24"N
	120°56'12.52"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix C- 2
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Thursday, April 2 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	42	61	30	26
1:00 AM	43	67	31	28
2:00 AM	39	59	32	29
3:00 AM	41	64	31	28
4:00 AM	45	63	36	30
5:00 AM	51	69	45	38
6:00 AM	53	68	49	40
7:00 AM	56	70	55	46
8:00 AM	56	68	55	48
9:00 AM	55	68	54	48
10:00 AM	55	66	53	46
11:00 AM	55	66	53	46
12:00 PM	56	69	53	46
1:00 PM	54	67	52	46
2:00 PM	54	67	53	45
3:00 PM	55	73	53	46
4:00 PM	55	75	53	46
5:00 PM	55	78	53	46
6:00 PM	54	64	52	44
7:00 PM	54	68	51	46
8:00 PM	52	63	50	46
9:00 PM	50	69	46	38
10:00 PM	48	64	40	34
11:00 PM	47	64	41	36

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	56	54	55	54	50	52	53	39	48
Lmax (Maximum)	78	64	69	69	63	67	69	59	64
L50 (Median)	55	52	53	51	46	49	49	30	37
L90 (Background)	48	44	46	46	38	43	40	26	32

Computed CNEL, dB	57
% Daytime Energy	79%
% Evening Energy	10%
% Nighttime Energy	11%

GPS Coordinates	38°39'31.24"N
	120°56'12.52"W

BOLLARD
Acoustical Consultants

Appendix C- 3
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Friday, April 2 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	42	58	39	35
1:00 AM	45	70	36	32
2:00 AM	41	58	37	34
3:00 AM	43	62	40	36
4:00 AM	48	63	45	40
5:00 AM	52	67	48	45
6:00 AM	54	66	51	47
7:00 AM	56	71	55	49
8:00 AM	56	66	54	47
9:00 AM	55	70	53	48
10:00 AM	55	67	53	49
11:00 AM	55	67	53	49
12:00 PM	55	68	53	49
1:00 PM	55	75	53	49
2:00 PM	56	73	54	48
3:00 PM	55	69	54	49
4:00 PM	55	67	53	48
5:00 PM	56	76	53	47
6:00 PM	54	75	52	45
7:00 PM	55	80	52	45
8:00 PM	57	84	52	47
9:00 PM	53	74	50	45
10:00 PM	51	64	48	41
11:00 PM	47	59	41	35

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	56	54	55	57	53	55	54	41	49
Lmax (Maximum)	76	66	70	84	74	79	70	58	63
L50 (Median)	55	52	53	52	50	51	51	36	43
L90 (Background)	49	45	48	47	45	46	47	32	38

Computed CNEL, dB	58
% Daytime Energy	69%
% Evening Energy	18%
% Nighttime Energy	13%

GPS Coordinates	38°39'31.24"N
	120°56'12.52"W

BOLLARD
Acoustical Consultants

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Saturday, April 30, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	51	77	37	31
1:00 AM	42	63	36	30
2:00 AM	44	62	37	31
3:00 AM	43	64	34	30
4:00 AM	43	61	37	32
5:00 AM	49	65	46	41
6:00 AM	53	66	49	44
7:00 AM	52	67	48	39
8:00 AM	54	67	51	43
9:00 AM	55	68	52	42
10:00 AM	55	82	52	44
11:00 AM	55	67	53	47
12:00 PM	54	68	52	47
1:00 PM	56	79	52	46
2:00 PM	55	74	53	46
3:00 PM	55	73	52	47
4:00 PM	54	66	53	48
5:00 PM	56	75	53	48
6:00 PM	55	69	52	48
7:00 PM	53	68	50	45
8:00 PM	51	64	47	41
9:00 PM	50	65	44	35
10:00 PM	49	73	42	32
11:00 PM	47	65	34	28

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	56	52	55	53	50	52	53	42	48
Lmax (Maximum)	82	66	71	68	64	66	77	61	66
L50 (Median)	53	48	52	50	44	47	49	34	39
L90 (Background)	48	39	45	45	35	40	44	28	33

Computed CNEL, dB	57
% Daytime Energy	78%
% Evening Energy	9%
% Nighttime Energy	13%

GPS Coordinates	38°39'31.24"N
	120°56'12.52"W

BOLLARD
Acoustical Consultants

Appendix C-
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Sunday, May 0 , 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	45	63	36	29
1:00 AM	43	62	32	28
2:00 AM	39	61	30	26
3:00 AM	42	64	27	24
4:00 AM	42	62	30	26
5:00 AM	47	70	39	31
6:00 AM	49	66	44	39
7:00 AM	51	65	45	40
8:00 AM	53	68	49	43
9:00 AM	54	70	51	45
10:00 AM	54	68	53	48
11:00 AM	55	74	53	48
12:00 PM	55	73	53	49
1:00 PM	56	77	53	49
2:00 PM	55	77	53	49
3:00 PM	56	84	53	49
4:00 PM	54	68	52	48
5:00 PM	55	79	52	48
6:00 PM	55	77	52	47
7:00 PM	53	71	51	47
8:00 PM	52	63	50	47
9:00 PM	51	64	48	42
10:00 PM	47	63	42	35
11:00 PM	42	58	34	31

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	56	51	55	53	51	52	49	39	45
Lmax (Maximum)	84	65	73	71	63	66	70	58	63
L50 (Median)	53	45	52	51	48	49	44	27	35
L90 (Background)	49	40	47	47	42	45	39	24	30

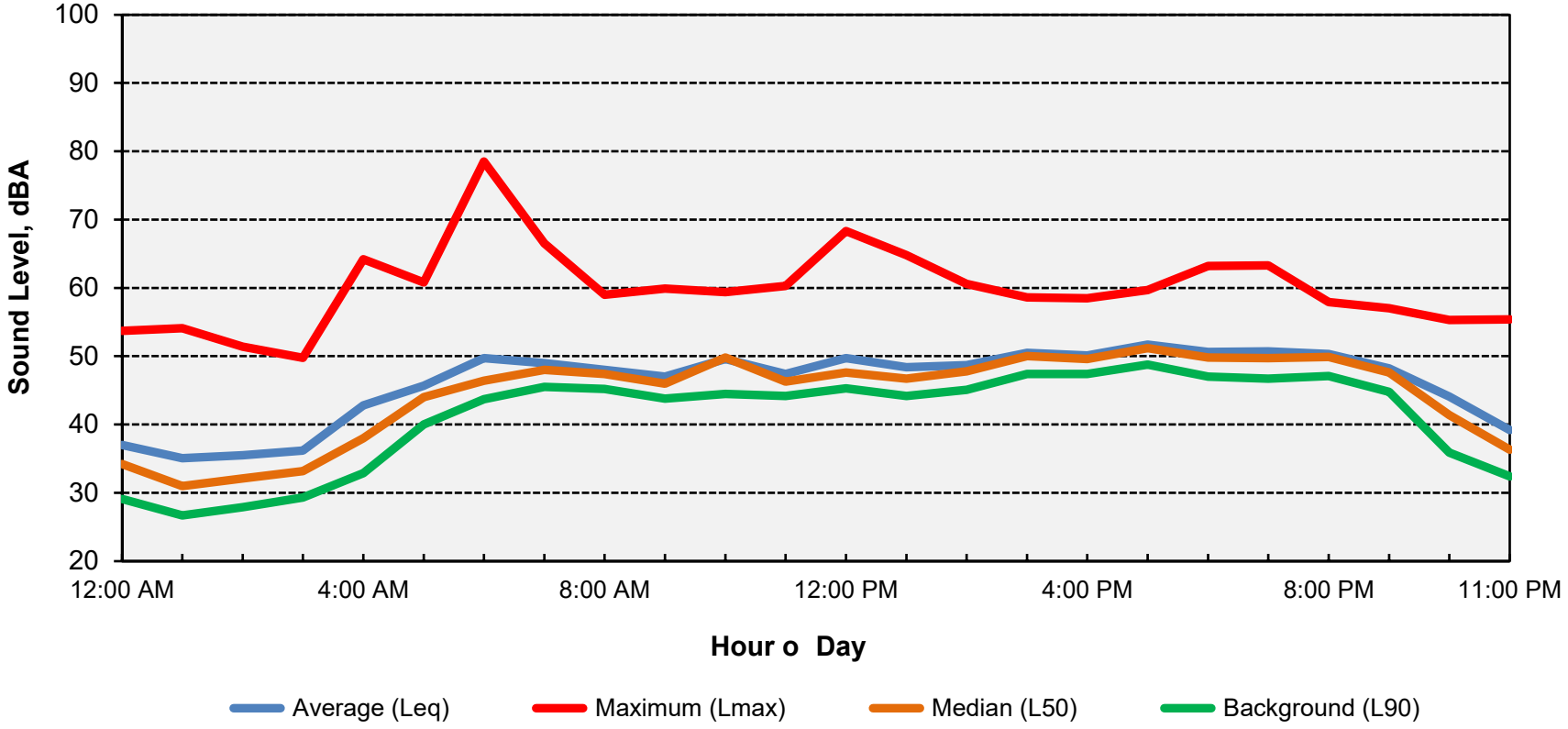
Computed CNEL, dB	55
% Daytime Energy	82%
% Evening Energy	11%
% Nighttime Energy	7%

GPS Coordinates	38°39'31.24"N
	120°56'12.52"W

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Wednesday, April 27, 2022

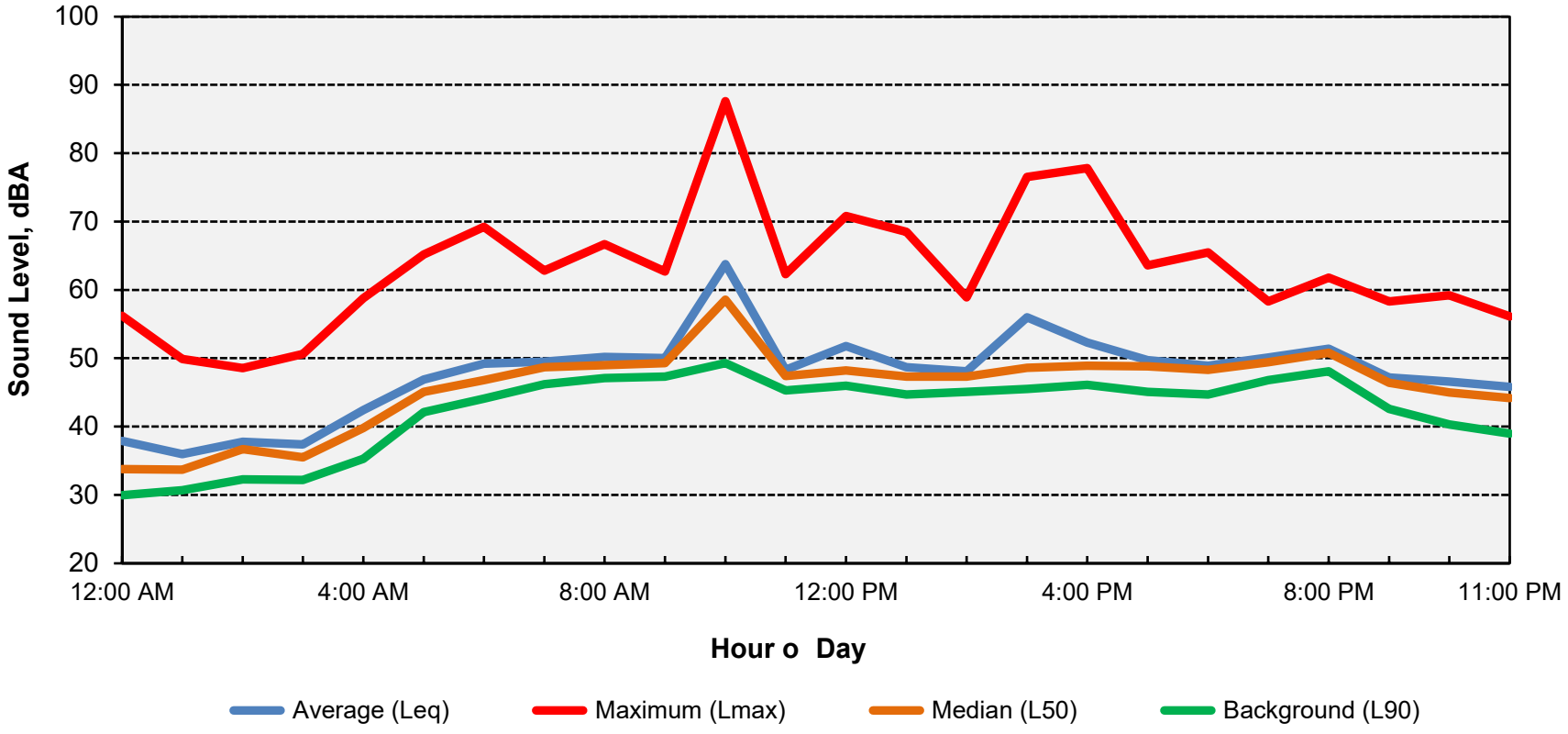


Computed CNEL: 2 dBA

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-2
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Thursday, April 2 , 2022

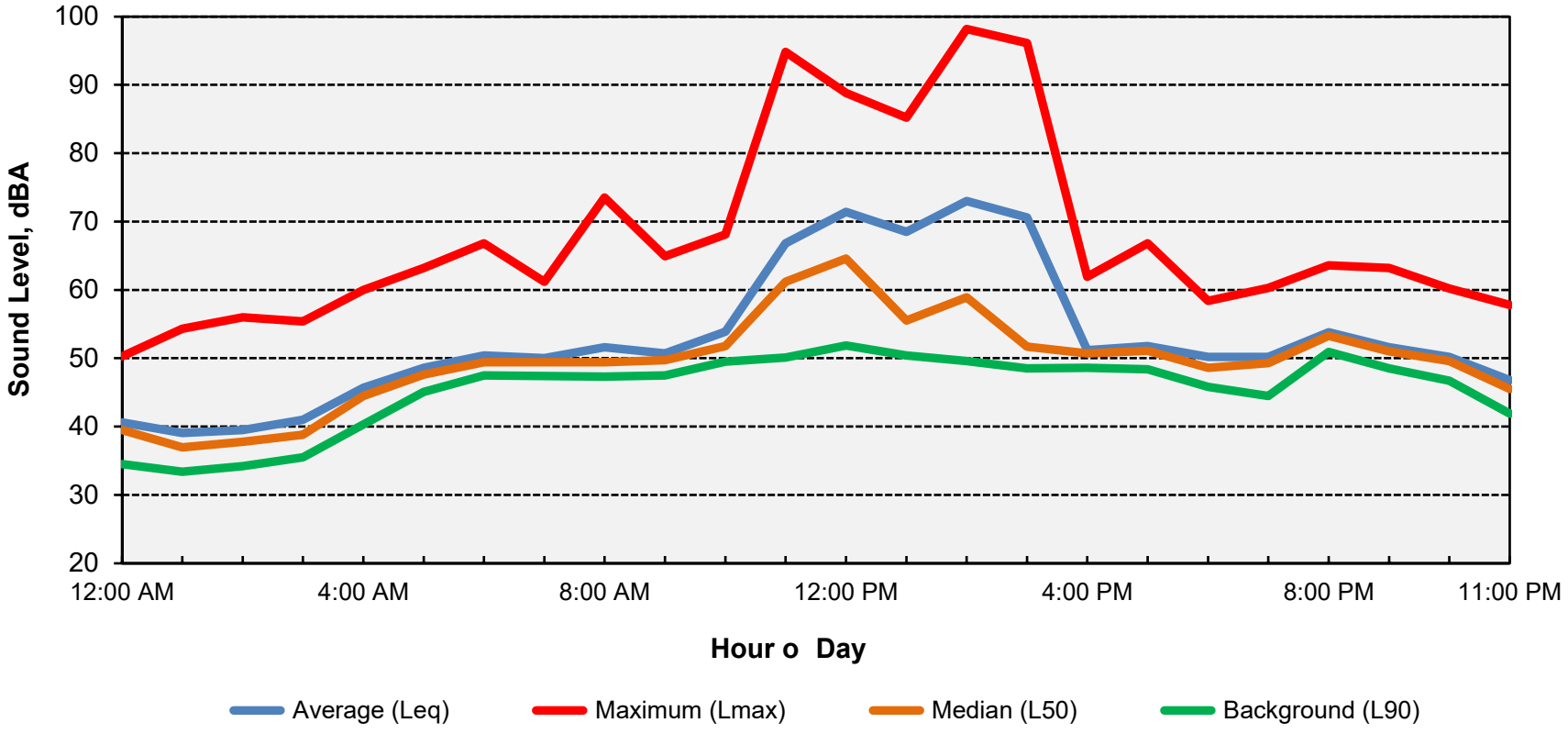


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-3
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Friday, April 2 , 2022

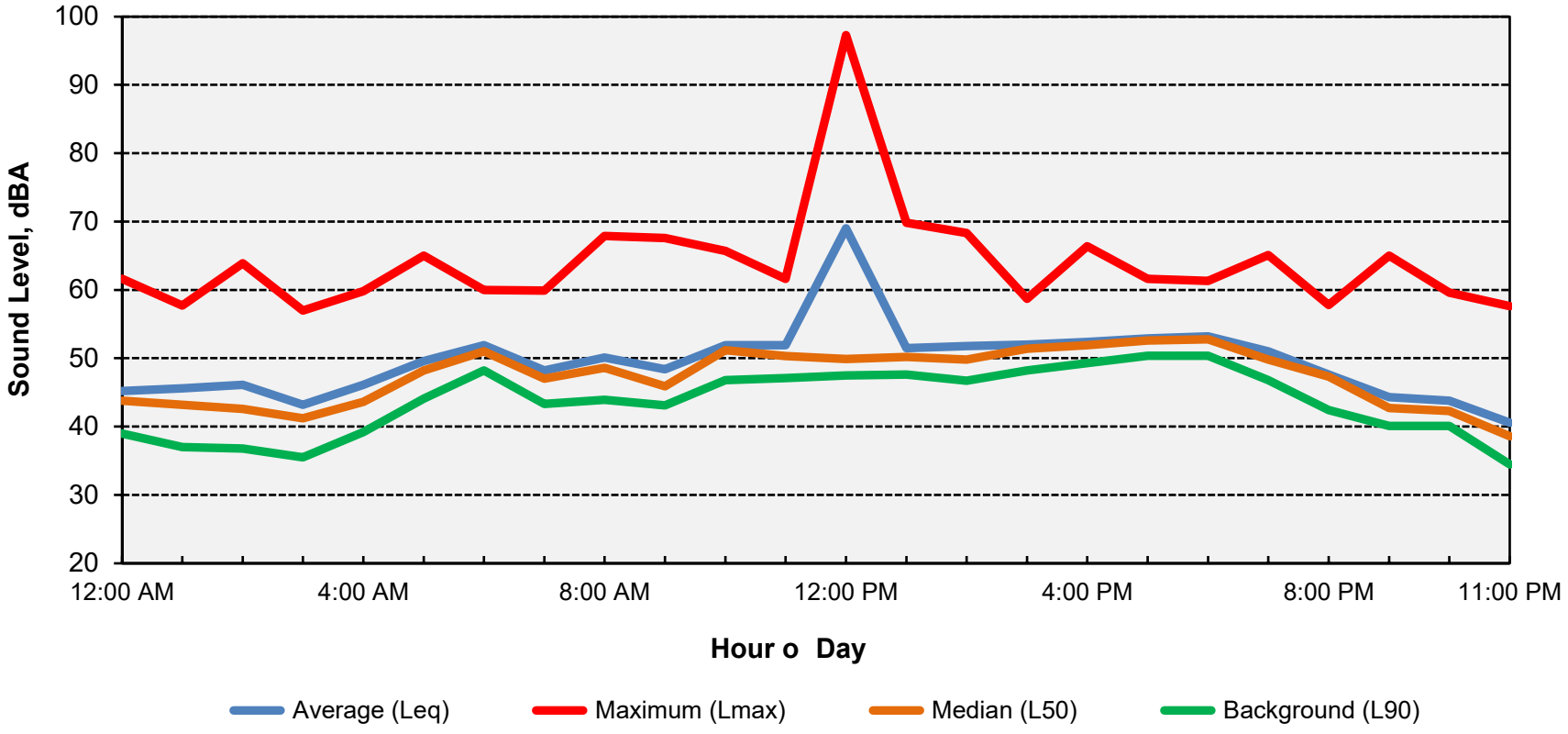


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Saturday, April 30, 2022

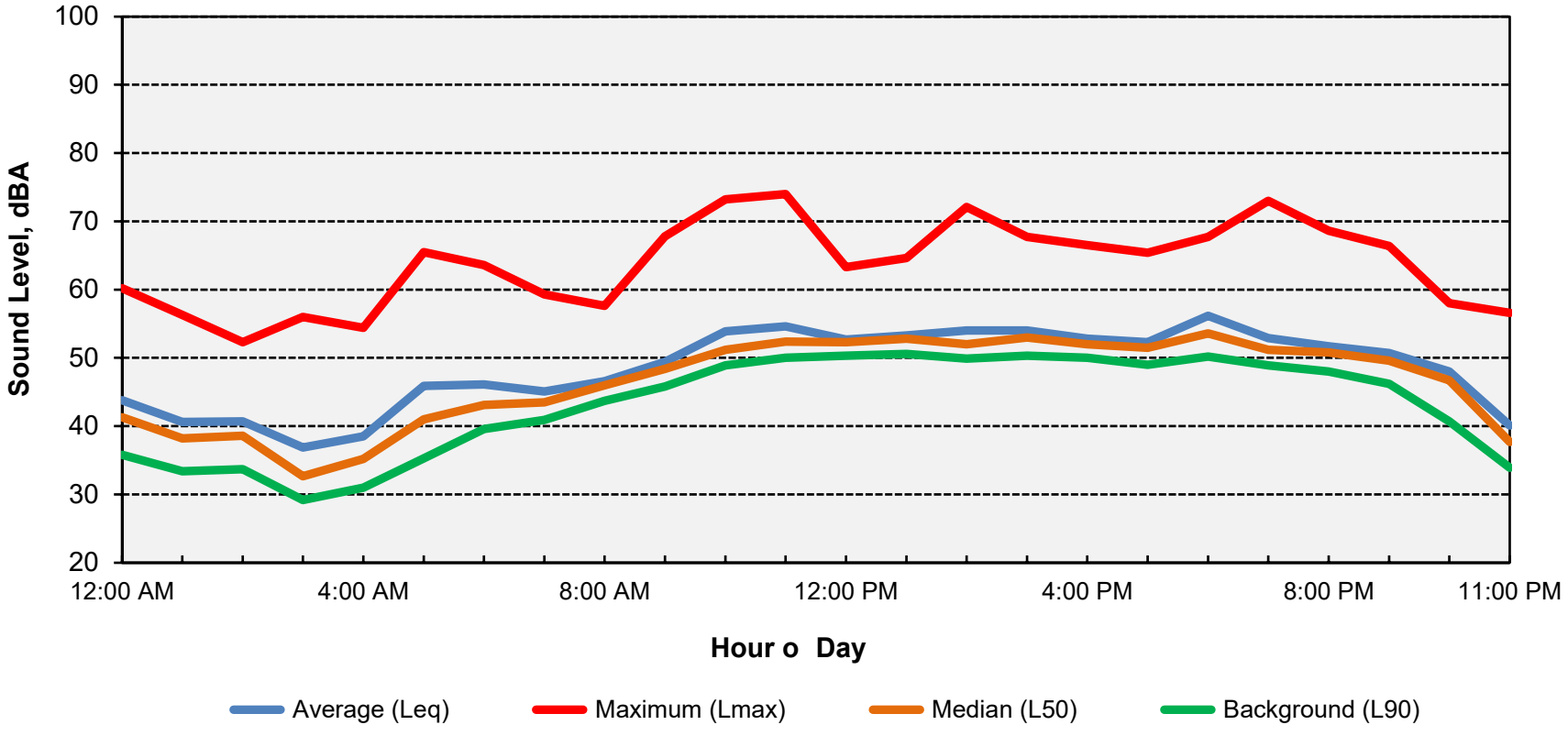


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Sunday, May 0 , 2022

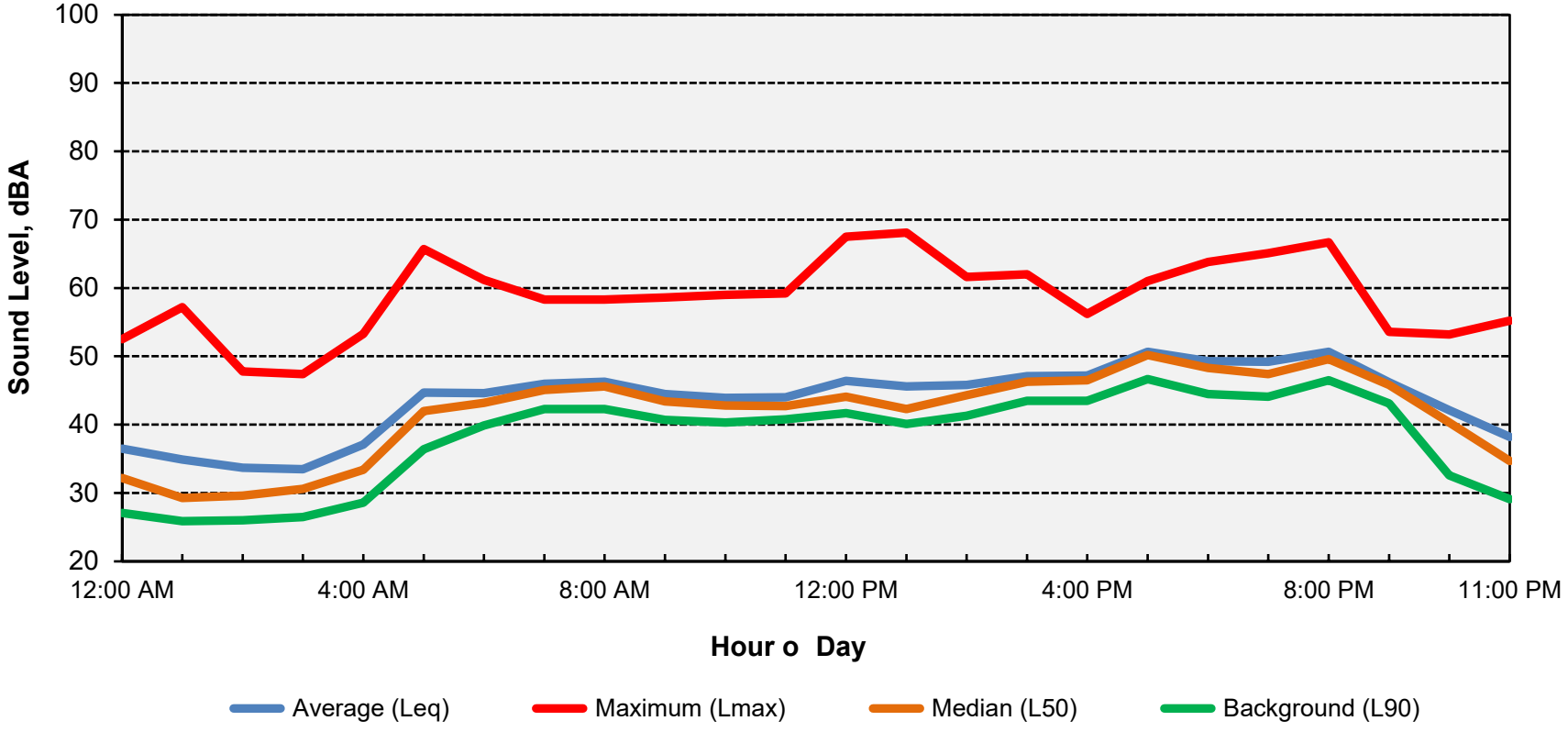


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Wednesday, April 27, 2022

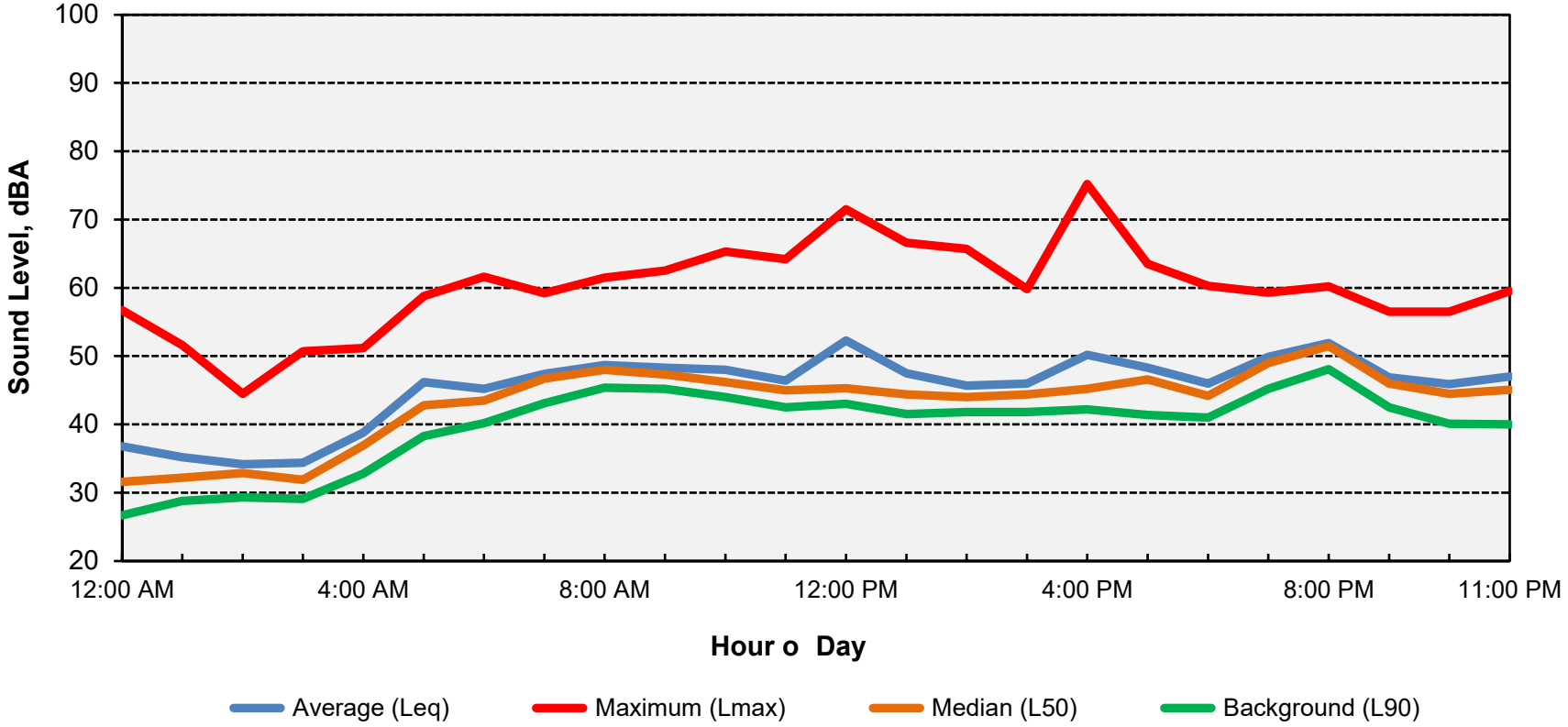


Computed CNEL: 0 dBA

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-7
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Thursday, April 2 , 2022

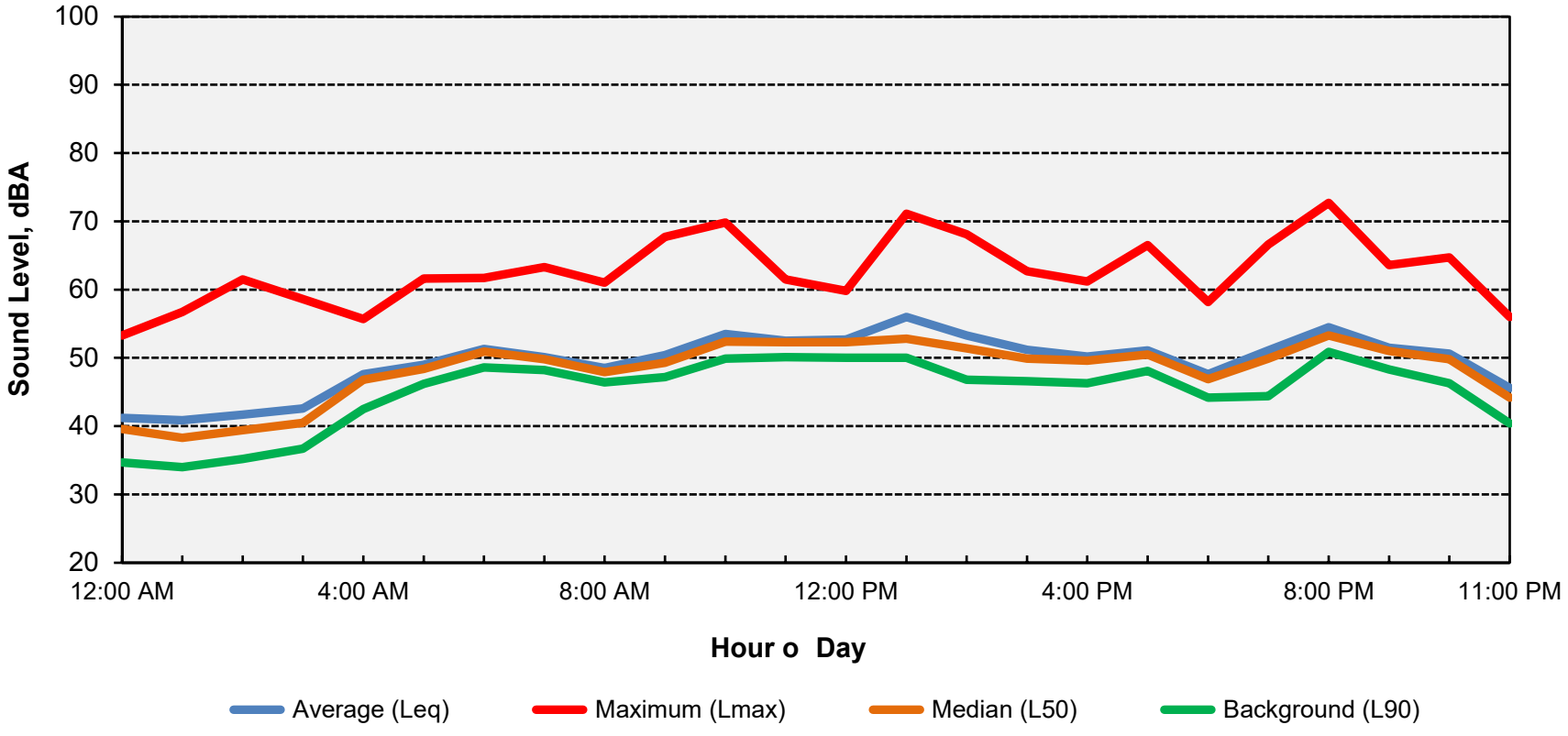


Computed CNEL: 2 dBA

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Friday, April 2 , 2022

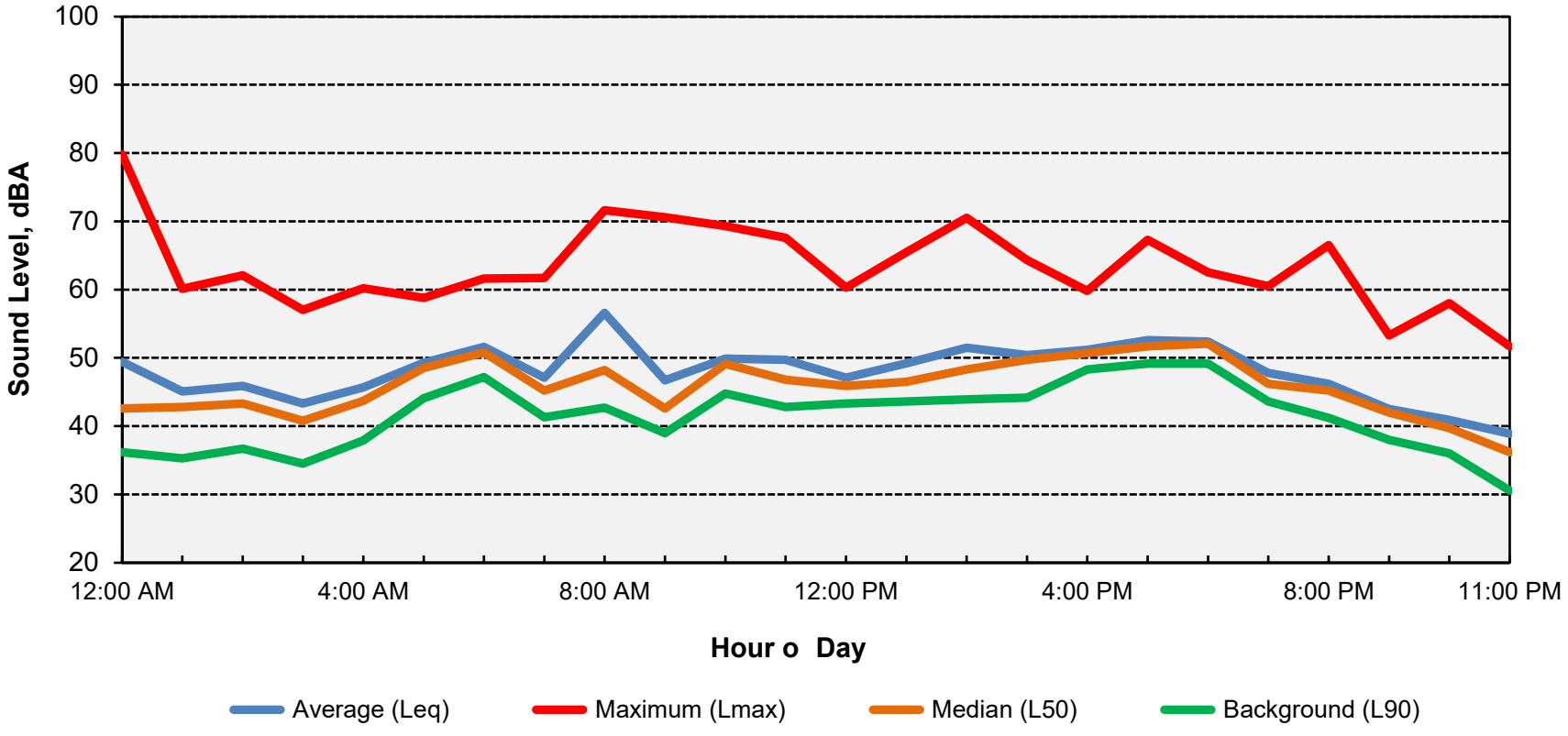


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Saturday, April 30, 2022

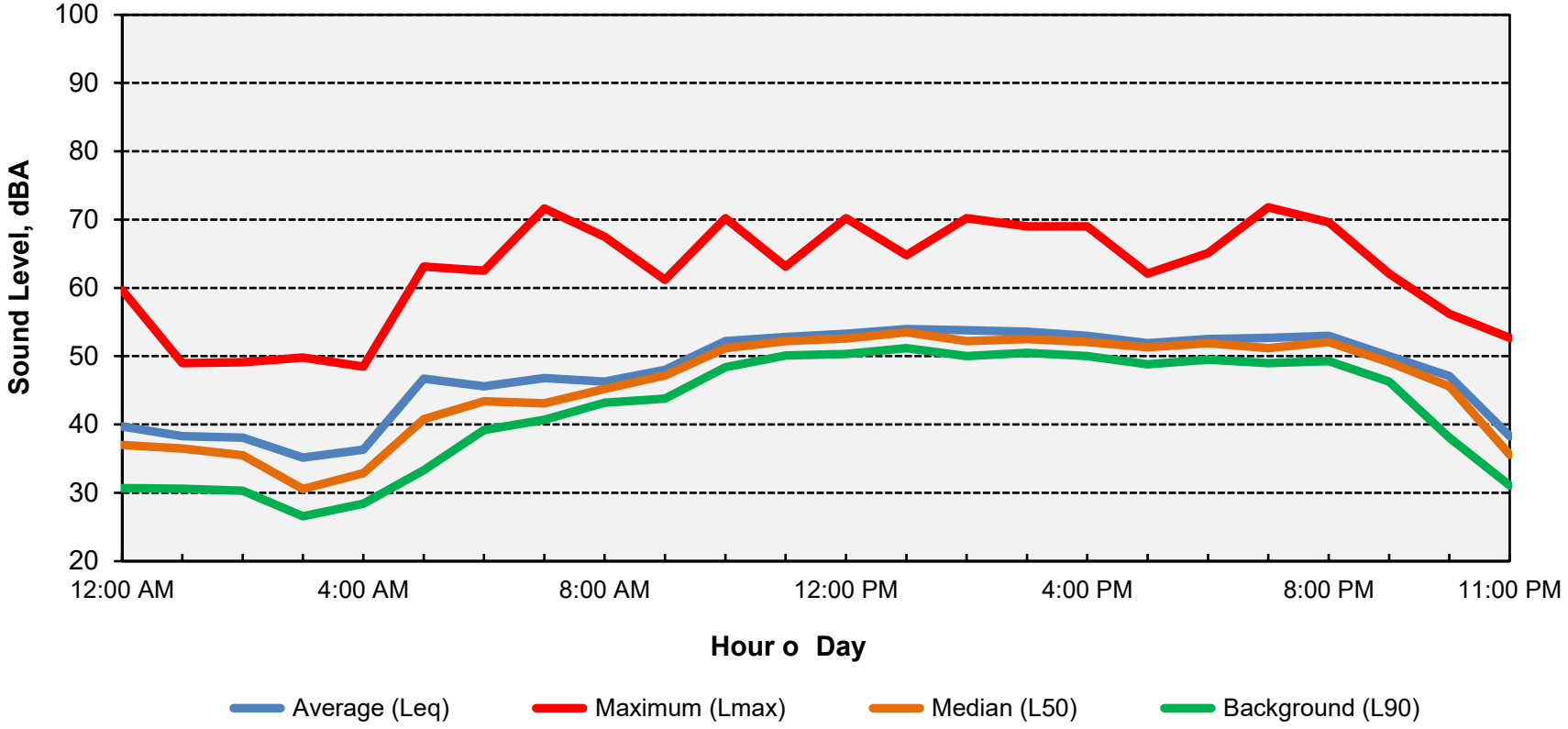


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D- 0
Long-Term Ambient Noise Monitoring Results - Site 2
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Sunday, May 0 , 2022

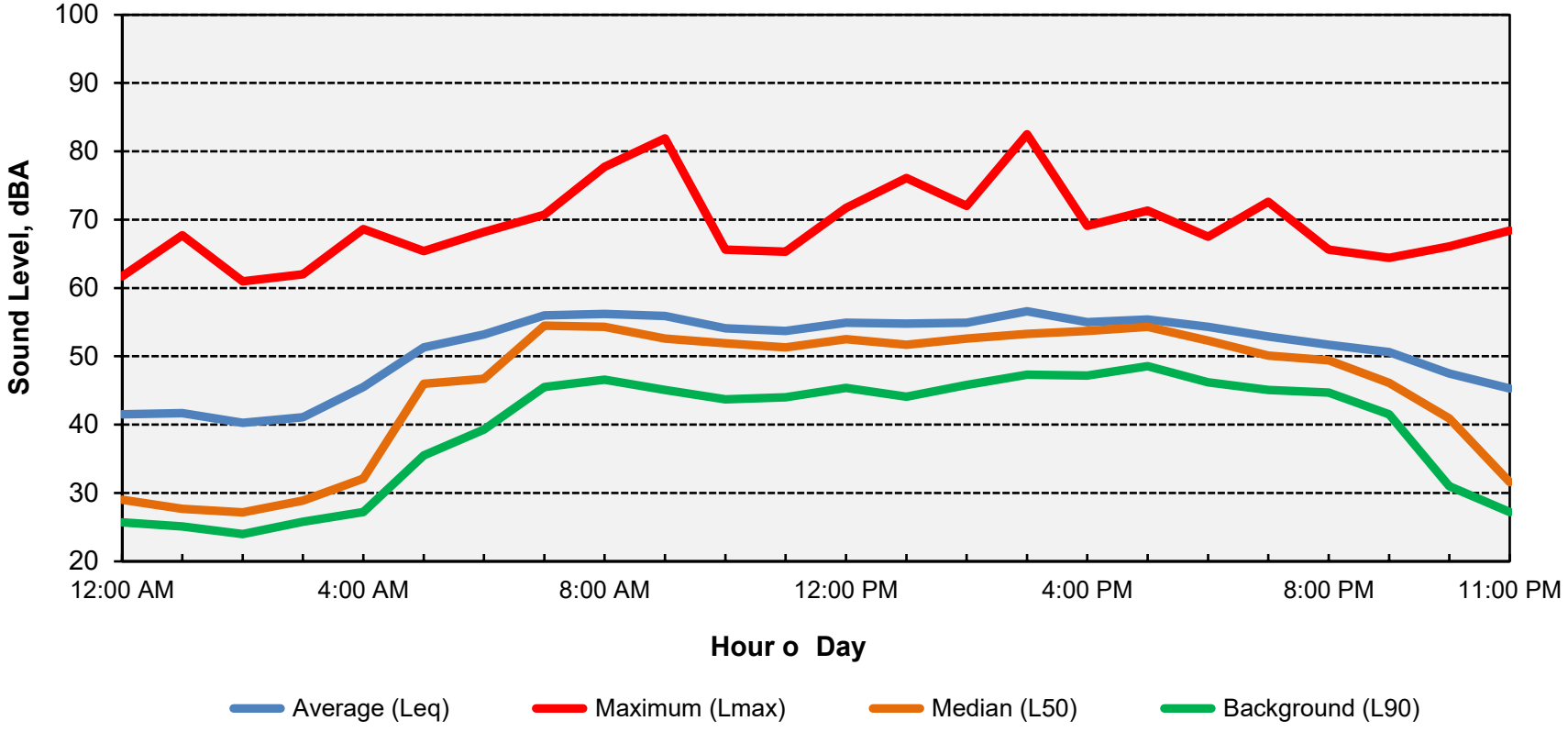


Computed CNEL: 3 dBA

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Wednesday, April 27, 2022

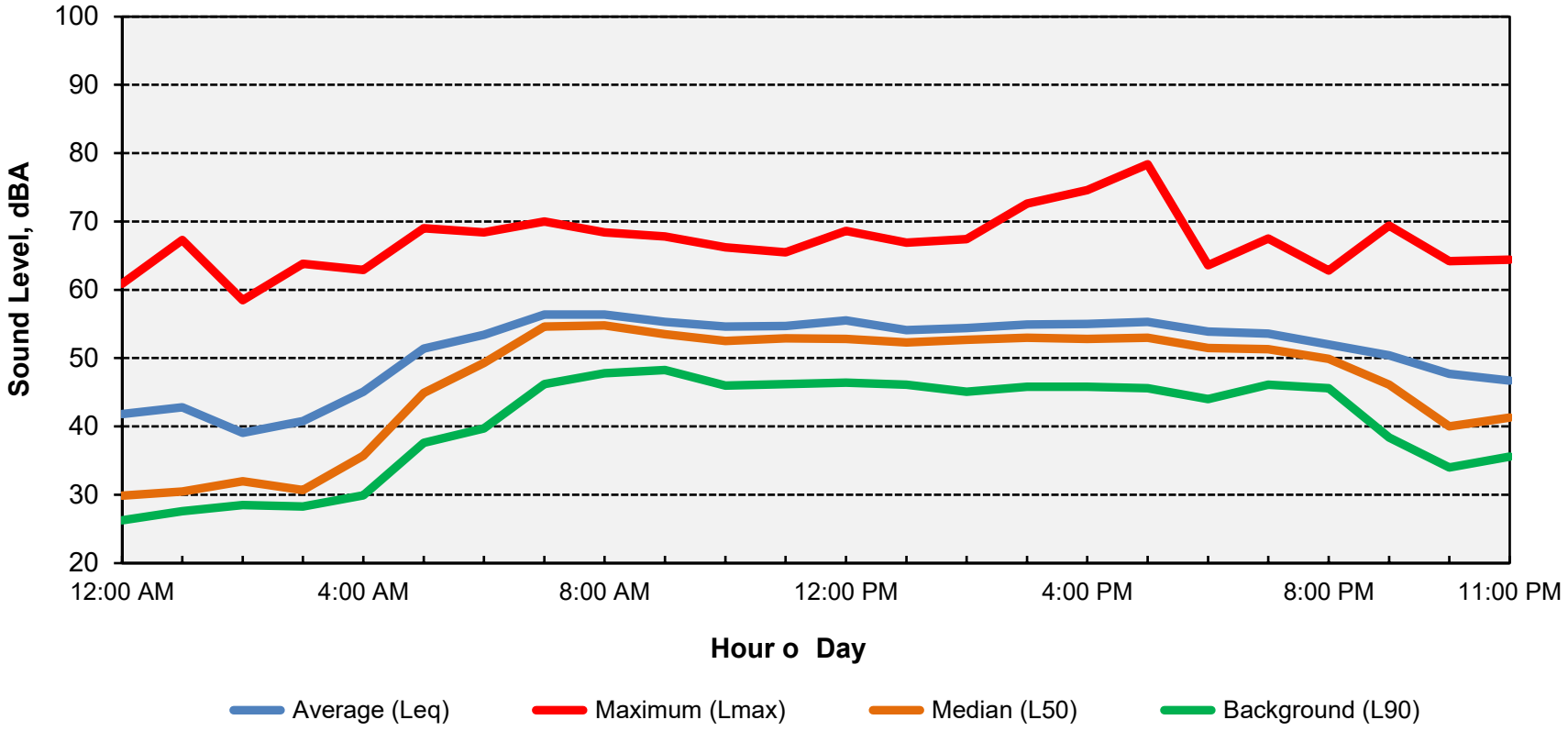


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D- 2
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Thursday, April 2 , 2022

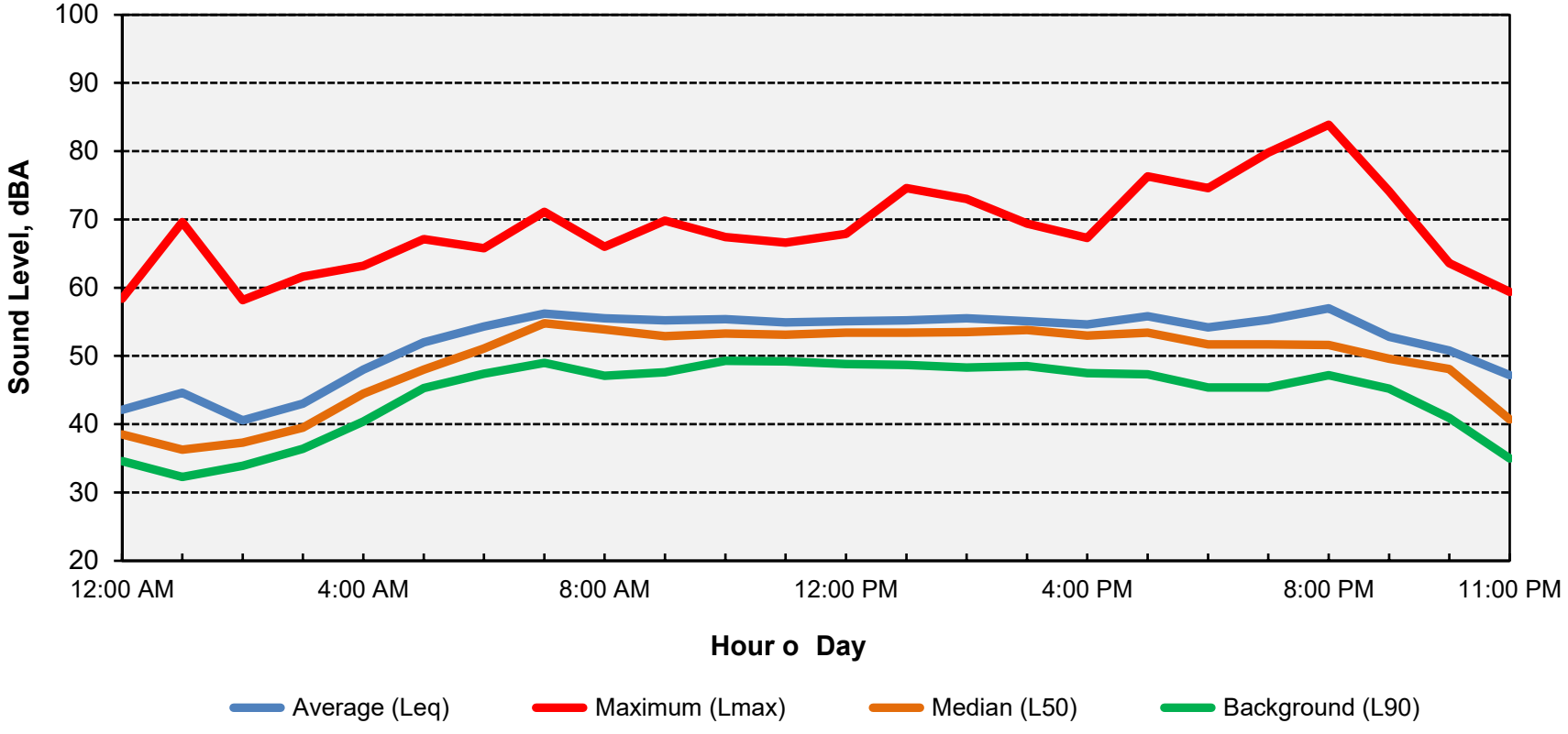


Computed CNEL: 7 dBA

BOLLARD
Acoustical Consultants

Attachment H

Appendix D- 3
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Friday, April 2 , 2022

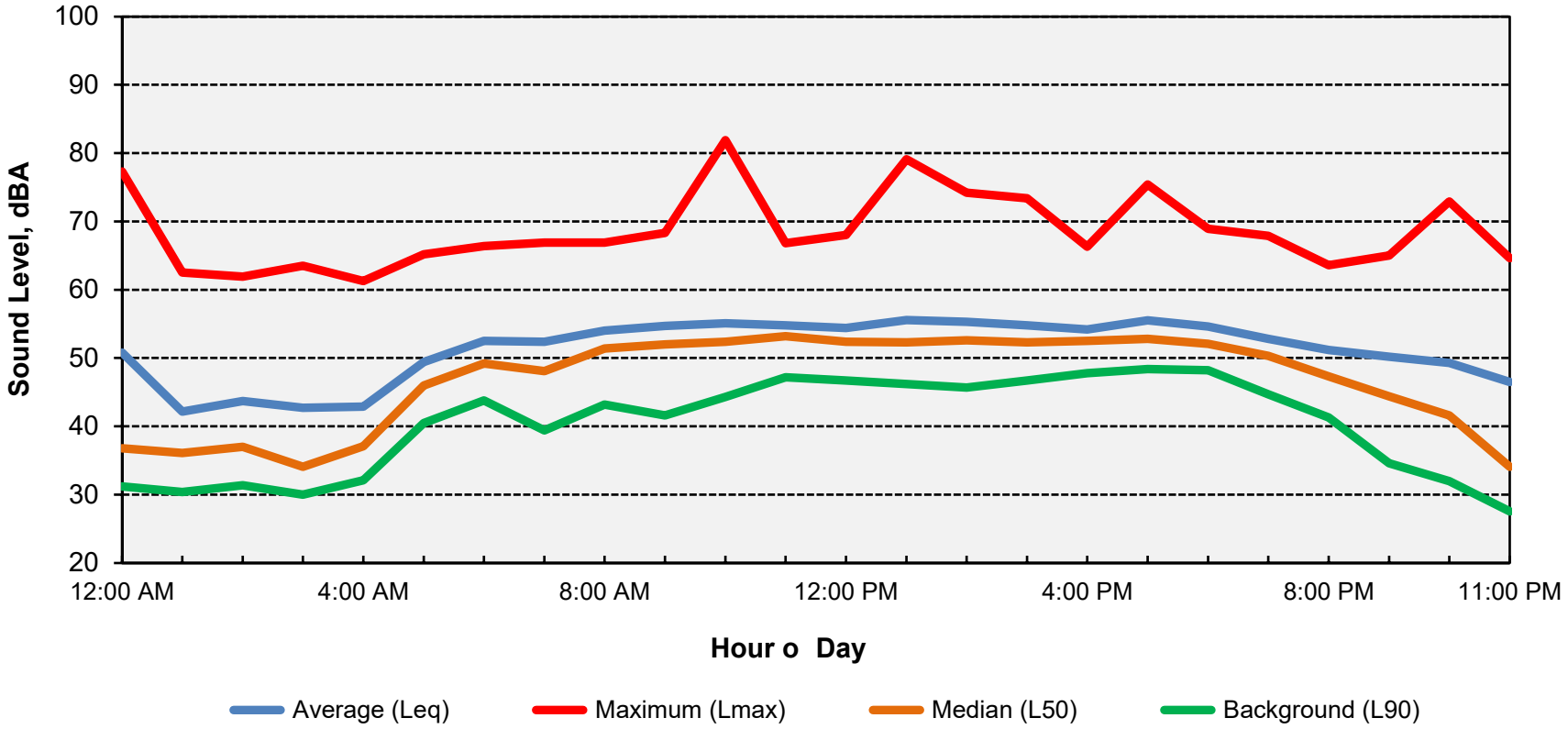


Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Saturday, April 30, 2022

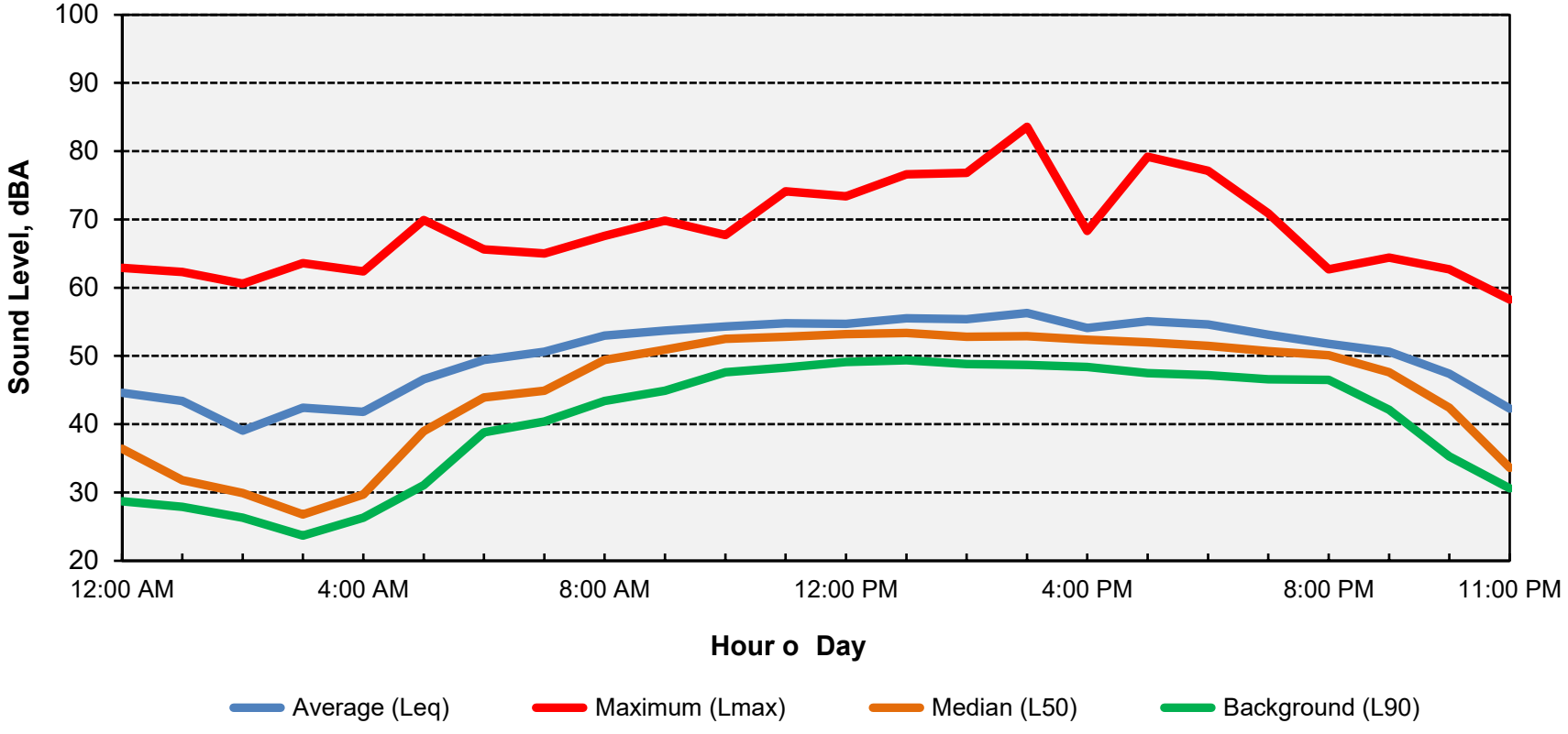


Computed CNEL: 7 dBA

BOLLARD
Acoustical Consultants

Attachment H

Appendix D-
Long-Term Ambient Noise Monitoring Results - Site 3
ARCO AM/PM Shingle Springs - El Dorado, County, CA
Sunday, May 0 , 2022



Computed CNEL: **dBA**

BOLLARD
Acoustical Consultants

Attachment H

Appendix E- o
FHWA Highway Tra ic Noise Prediction Model Inputs
ARCO AM/PM Shingle Springs
File Name: Existing
Run Date: / 2/2023

	Roadway	Description	ADT	Day	Night	Med. Trucks	Hvy. Trucks	Speed	Distance to Receptor	O set (dB)
1	Ponderosa Rd	North of Wild Chaparral Dr	8,245	85	15	2	2	40	75	0
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	14,845	85	15	2	2	40	100	0
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	15,425	85	15	2	2	40	100	0
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	8,675	85	15	2	2	40	100	0
5	S. Shingle Rd	Durock Rd to Sunset Ln	6,565	85	15	2	2	45	600	0
6	S. Shingle Rd	South of Sunset Ln	6,775	85	15	2	2	45	75	0
7	Wild Chaparral Dr	West of Ponderosa Rd	1,955	85	15	2	2	50	300	0
8	N. Shingle Rd	East of Ponderosa Rd	5,885	85	15	2	2	50	175	0
9	WB US 50 On-Ramp	West of S. Shingle Rd	3,830	85	15	2	2	50	100	0
10	EB US 50 On-Ramp	East of S. Shingle Rd	11,895	85	15	2	2	50	100	0
11	Mother Lode Dr	East of S. Shingle Rd	13,405	85	15	2	2	35	300	0
12	Durock Rd	West of S. Shingle Rd	5,105	85	15	2	2	45	300	0
13	Durock Rd	East of S. Shingle Rd	765	85	15	2	2	25	100	0
14	Sunset Ln	East of S. Shingle Rd	1,050	85	15	2	2	35	115	0

Note: Where a sensitive receptor was not identified adjcaent to a roadway segment, a default distance of 100 feet from roadway centerline was utilized in the modeling.

Attachment H

Appendix F- o
FHWA Highway Tra ic Noise Prediction Model Inputs
ARCO AM/PM Shingle Springs
File Name: Existing Pro ect
Run Date: / 2/2023

	Roadway	Description	ADT	Day	Night	Med. Trucks	Hvy. Trucks	Speed	Distance to Receptor	O set (dB)
1	Ponderosa Rd	North of Wild Chaparral Dr	8,310	85	15	2	2	40	75	0
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	14,950	85	15	2	2	40	100	0
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	15,890	85	15	2	2	40	100	0
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	9,565	85	15	2	2	40	100	0
5	S. Shingle Rd	Durock Rd to Sunset Ln	6,955	85	15	2	2	45	600	0
6	S. Shingle Rd	South of Sunset Ln	6,840	85	15	2	2	45	75	0
7	Wild Chaparral Dr	West of Ponderosa Rd	1,975	85	15	2	2	50	300	0
8	N. Shingle Rd	East of Ponderosa Rd	5,905	85	15	2	2	50	175	0
9	WB US 50 On-Ramp	West of S. Shingle Rd	3,830	85	15	2	2	50	100	0
10	EB US 50 On-Ramp	East of S. Shingle Rd	12,265	85	15	2	2	50	100	0
11	Mother Lode Dr	East of S. Shingle Rd	13,460	85	15	2	2	35	300	0
12	Durock Rd	West of S. Shingle Rd	5,605	85	15	2	2	45	300	0
13	Durock Rd	East of S. Shingle Rd	765	85	15	2	2	25	100	0
14	Sunset Ln	East of S. Shingle Rd	1,050	85	15	2	2	35	115	0
15	Project Driveway 1	West of S. Shingle Rd (on project site)	1,325	85	15	1	1	25	325	0
16	Project Driveway 2	South of Durock Rd (on project site)	1,135	50	50	1	1	25	325	0

Note: Where a sensitive receptor was not identified adjcaent to a roadway segment, a default distance of 100 feet from roadway centerline was utilized in the modeling.

Attachment H

Appendix G- o
FHWA Highway Tra ic Noise Prediction Model Inputs
ARCO AM/PM Shingle Springs
File Name: Cumulative
Run Date: / 2/2023

	Roadway	Description	ADT	Day	Night	Med. Trucks	Hvy. Trucks	Speed	Distance to Receptor	O set (dB)
1	Ponderosa Rd	North of Wild Chaparral Dr	11,810	85	15	2	2	40	75	0
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	21,245	85	15	2	2	40	100	0
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	26,260	85	15	2	2	40	100	0
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	16,065	85	15	2	2	40	100	0
5	S. Shingle Rd	Durock Rd to Sunset Ln	15,280	85	15	2	2	45	600	0
6	S. Shingle Rd	South of Sunset Ln	9,470	85	15	2	2	45	75	0
7	Wild Chaparral Dr	West of Ponderosa Rd	--	--	--	--	--	--	--	--
8	N. Shingle Rd	East of Ponderosa Rd	10,280	85	15	2	2	50	175	0
9	WB US 50 On-Ramp	West of S. Shingle Rd	5,390	85	15	2	2	50	100	0
10	EB US 50 On-Ramp	East of S. Shingle Rd	16,650	85	15	2	2	50	100	0
11	Mother Lode Dr	East of S. Shingle Rd	18,535	85	15	2	2	35	300	0
12	Durock Rd	West of S. Shingle Rd	200	85	15	2	2	45	300	0
13	Durock Rd	East of S. Shingle Rd	510	85	15	2	2	25	100	0
14	Sunset Ln	East of S. Shingle Rd	2,900	85	15	2	2	35	115	0

Notes:
-Blank cells = no data provided in traffic study.
-Where a sensitive receptor was not identified adjcaent to a roadway segment, a default distance of 100 feet from roadway centerline was utilized in the modeling.

Attachment H

Appendix H- o
FHWA Highway Tra ic Noise Prediction Model Inputs
ARCO AM/PM Shingle Springs
File Name: Cumulative Pro ect
Run Date: / 2/2023

	Roadway	Description	ADT	Day	Night	Med. Trucks	Hvy. Trucks	Speed	Distance to Receptor	O set (dB)
1	Ponderosa Rd	North of Wild Chaparral Dr	11,875	85	15	2	2	40	75	0
2	Ponderosa Rd	Wild Chaparral Dr to WB US 50 Ramps	21,330	85	15	2	2	40	100	0
3	S. Shingle Rd	WB US 50 Ramps to EB US 50 Ramps	26,735	85	15	2	2	40	100	0
4	S. Shingle Rd	EB US 50 Ramps to Durock Rd	16,955	85	15	2	2	40	100	0
5	S. Shingle Rd	Durock Rd to Sunset Ln	15,980	85	15	2	2	45	600	0
6	S. Shingle Rd	South of Sunset Ln	9,535	85	15	2	2	45	75	0
7	Wild Chaparral Dr	West of Ponderosa Rd	--	--	--	--	--	--	--	--
8	N. Shingle Rd	East of Ponderosa Rd	10,300	85	15	2	2	50	175	0
9	WB US 50 On-Ramp	West of S. Shingle Rd	5,410	85	15	2	2	50	100	0
10	EB US 50 On-Ramp	East of S. Shingle Rd	17,010	85	15	2	2	50	100	0
11	Mother Lode Dr	East of S. Shingle Rd	18,590	85	15	2	2	35	300	0
12	Durock Rd	West of S. Shingle Rd	670	85	15	2	2	45	300	0
13	Durock Rd	East of S. Shingle Rd	510	85	15	2	2	25	100	0
14	Sunset Ln	East of S. Shingle Rd	2,900	85	15	2	2	35	115	0
15	Project Driveway 1	West of S. Shingle Rd (on project site)	1,655	85	15	1	1	25	325	0
16	Project Driveway 2	South of Durock Rd (on project site)	9,940	50	50	1	1	25	325	0

Notes:

-Blank cells = no data provided in traffic study.

-Where a sensitive receptor was not identified adjcaent to a roadway segment, a default distance of 100 feet from roadway centerline was utilized in the modeling.

Appendix I

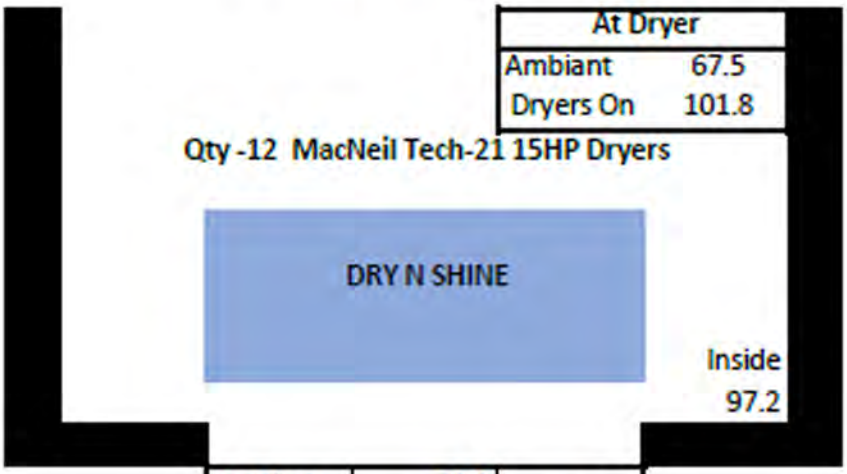
Sound Data

Scrub Bot Express Wash

3965 W. Ray Rd. Chandler Az. 85226

DRYERS

QTY-12 MACNEIL TECH 21 15HP DRYERS



Ambiant	78.9	0'
Dryers	93.1	

Ambiant	74.5	10'
Dryers	85.3	

Ambiant	70.8	20'
Dryers	79.1	

Ambiant	65.7	30'
Dryers	76	

All sound measurements below were taken with a VLIKE Model - VL6708 digital sound level meter.
Settings were as follows: 40 ~ 90 dB range, "A" weighting mode, FAST (High Speed) mode

Appendix J

February 10th, 2016

Re: Vacutech Sound Study Projections for Bella Terra Car Wash in Huntington Beach, CA

To: Chase Russell – Owner of Bella Terra Car Wash 16061 Beach Blvd. Huntington Beach, CA

The chart below shows a cumulative average of that data taken from express car washes of this type and size. It is presented in an incremental form based on the worst case scenario of the vacuum hoses being off the hook, so to speak. Based on the collective average of the 45' reading to the 85' reading and is presented in the chart below:

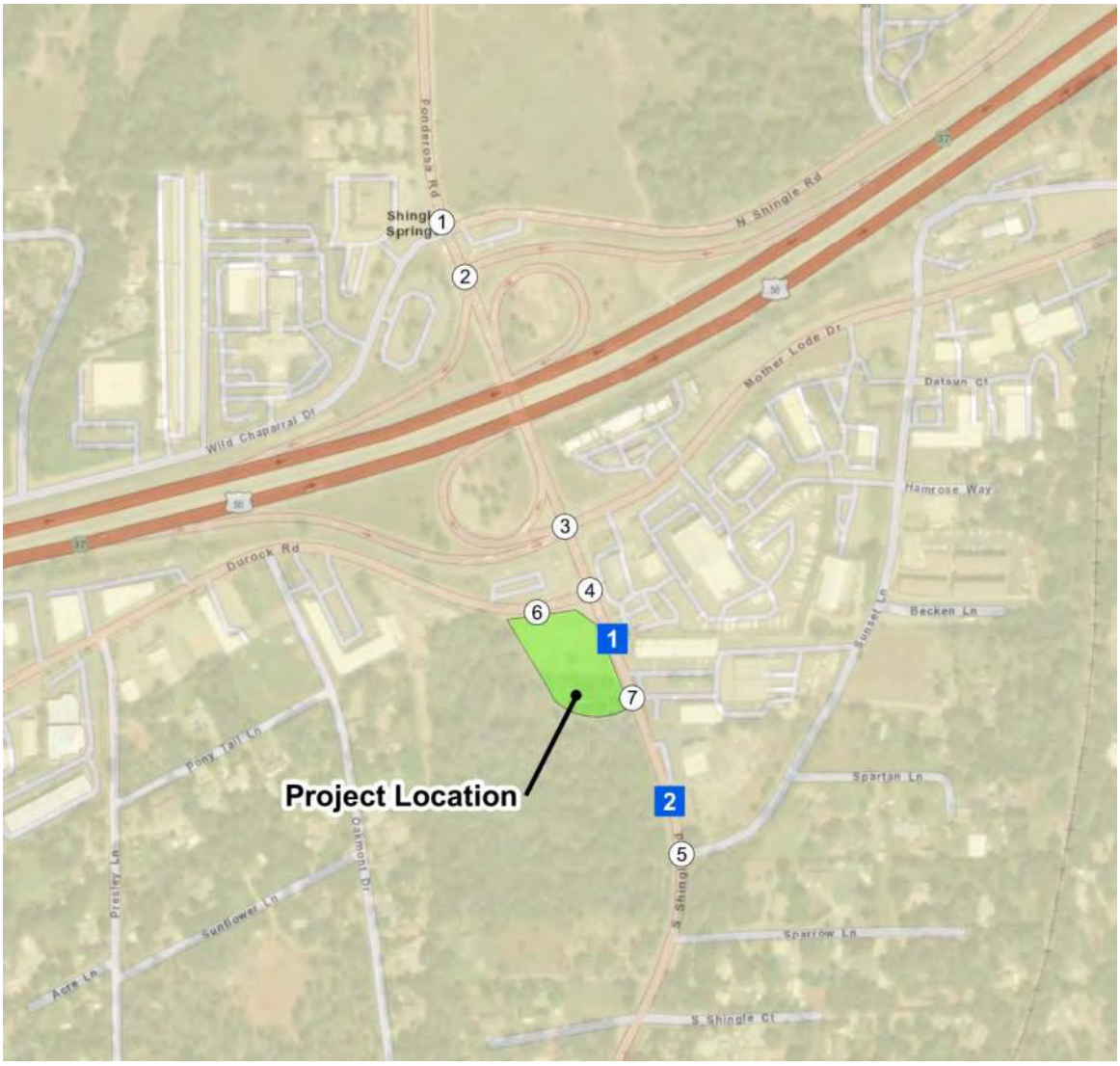
Vacutech Noise Study Projections	
Average of all 19 hoses off and in use	
Average @ 45'	52.3 db
Average @ 55'	54.6 db
Average @ 65'	52.1 db
Average @ 75'	49.2 db
Average @ 85'	49.0 db

SOUND LEVEL METER USED: SIMPSON MODEL #40003 – MSHA APPROVED. MEETS OSHA AND WALSH-HEALY REQUIREMENTS FOR NOISE CONTROL. CONFORMS TO ANSI S1.4 1983, IEC 651 SPECS FOR METER TYPE.

NOTE: Typical outside vacuum system with 1.5" x 15' vacuum nozzles (4" wide by ¾" opening) in use with customer vacuuming.

Attachment I

ARCO Shingle Springs
El Dorado County, CA
Traffic Impact Study



Draft Report

Prepared For:

El Dorado County

September 2025

Prepared By:

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Attachment I

ARCO Shingle Springs
El Dorado County, CA

TRAFFIC IMPACT STUDY

DRAFT REPORT

Prepared For:
El Dorado County

Prepared By

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

3301 C Street, Building 100-B
Sacramento, CA 95816
(916) 341-7760

September 2025

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1. INTRODUCTION 3

1.1 Project Description 3
1.2 Study Area 3
1.2.1 Intersections 3
1.2.2 Roadway Segments 4
1.3 Analysis Scenarios 7
1.4 Analysis Methods 7
1.4.1 Intersections 7
1.4.2 Roadway Segments 8
1.4.3 Signal Warrants 8
1.5 Level of Service Standards and Deficiency Criteria 8
1.5.1 Roadway and Intersection Level of Service Deficiency Criteria 8
1.5.2 Queuing Analysis Deficiency Criteria 9
1.6 Report Organization 9

2. EXISTING CONDITIONS 11

2.1 Existing Roadway Network 11
2.2 Existing Pedestrian Facilities 11
2.3 Existing Bicycle Facilities 11
2.4 Existing Transit Service 11
2.5 Existing Intersection Traffic Volumes and Lane Geometrics 12
2.7 Existing Intersection Operations 15

3. EXISTING PLUS PROJECT CONDITIONS 16

3.1 Project Site 16
3.1.1 Project Site Description 16
3.2 Project Generated Trips 16
3.2.1 Trip Generation 16
3.2.2 Trip Distribution and Assignment 17
3.3 Existing Plus Project Intersection Operations 22

4. NEAR-TERM CONDITIONS 24

4.1 Near-Term Roadway Network 24
4.1 Near-Term Volumes 24
4.2 Near-Term Intersection Operations 27

5. NEAR-TERM PLUS PROJECT CONDITIONS 28

5.1 Near-Term Plus Project Intersection Operations 28

6. CUMULATIVE CONDITIONS 35

6.1 Cumulative Roadway Network 35
6.2 Cumulative Volumes 35
6.3 Cumulative Intersection Operations 35

7. CUMULATIVE PLUS PROJECT CONDITIONS 39

7.1 Cumulative Plus Project Intersection Operations 39

8. ROADWAY SEGMENT ANALYSIS 42

9. QUEUING ANALYSIS 44

10. CALTRANS FACILITY ANALYSIS 46

10.1 Study Area Safety Evaluation 46
10.2 Off-Ramp Queueing Analysis 47

11. PROJECT-RELATED DEFICIENCIES AND IMPROVEMENTS 48

11.1 Intersections 48
11.2 Roadway Segments 48
11.3 Queueing Analysis 48
11.4 Caltrans Facilities 49

12. PROJECT SITE OPERATIONS AND ACCESS EVALUATION 49

12.1 Project Access 49
12.1.1 Sight Distance 50
12.2 Internal Circulation 51
12.2.1 Parking 51

13. ADVERSE EFFECTS ON BICYCLE, PEDESTRIAN, AND TRANSIT FACILITIES 52

13.1 Pedestrian and Bicycle Facilities 52
13.2 Transit Facilities 52

14. VEHICLE MILES TRAVELED (VMT) ANALYSIS 52

LIST OF FIGURES

Figure 1. Project Location and Study Facilities 5

Figure 2. Project Site Plan 6

Figure 3. Existing Intersection Lane Geometrics and Control 13

Figure 4. Existing Intersection Turning Movement Volumes 14

Figure 5. Existing Primary Project Trip Distribution and Assignment 18

Figure 6. Existing Pass-By Project Trips Distribution and Assignment 19

Figure 7. Existing Diverted Project Trips Distribution and Assignment 20

Figure 8. Existing Combined Project Trips Assignment 21

Figure 9. Existing Plus Project Intersection Turning Movement Volumes 23

Figure 10. Near-Term Intersection Lane Geometrics and Control 25

Figure 11. Near-Term Intersection Turning Movement Volumes 26

Figure 12. Near-Term Primary Project Trip Distribution and Assignment 30

Figure 13. Near-Term Pass-By Project Trips Distribution and Assignment 31

Figure 14. Near-Term Diverted Project Trips Distribution and Assignment 32

Figure 15. Near-Term Combined Project Trips Assignment 33

Figure 16. Near-Term Plus Project Turning Movement Volumes 34

Figure 17. Cumulative Intersection Lane Geometrics and Control 36

Figure 18. Cumulative Intersection Turning Movement Volumes 37

Figure 19. Cumulative Plus Project Intersection Turning Movement Volumes 40
Figure 20. Gas Stations Within the Project Area and Potential Project Customers 55
Figure 21. Primary & Diverted Trips Change in Length Due to Project - North O/D 56
Figure 22. Primary & Diverted Trips Change in Length Due to Project - South O/D 56
Figure 23. Primary & Diverted Trips Change in Length Due to Project - East O/D 57
Figure 24. Primary & Diverted Trips Change in Length Due to Project - West O/D 57
Figure 25. Pass-By Trips Change in Length Due to Project - NB 58
Figure 26. Pass-By Trips Change in Length Due to Project - SB 58
Figure 27. Pass-By Trips Change in Length Due to Project – EB Durock Rd 59
Figure 28. Pass-By Trips Change in Length Due to Project – WB Durock Rd 59

LIST OF TABLES

Table 1. HCM 6th Edition Based Intersection LOS Thresholds 7
Table 2. Roadway Segment LOS Thresholds 8
Table 3. Existing Intersection Operations 15
Table 4. Project Trip Generation 17
Table 5. Existing Plus Project Intersection Operations 22
Table 6. Near-Term Intersection Operations 27
Table 7. Near-Term Plus Project Intersection Operations 28
Table 8. Cumulative Intersection Operations 38
Table 9. Cumulative Plus Project Intersection Operations 41
Table 10. Existing and Existing Plus Project Roadway Operations 42
Table 11. Near-Term and Near-Term Plus Project Roadway Operations 42
Table 12. Cumulative and Cumulative Plus Project Roadway Operations 43
Table 13. Queuing Analysis Results – Existing and Existing Plus Project Conditions 44
Table 14. Queuing Analysis Results – Near-Term and Near-Term Plus Project Conditions 44
Table 15. Queuing Analysis Results – Cumulative and Cumulative Plus Project Conditions 45
Table 16. Summary of Collisions in Study Area (2017 – 2021) 46
Table 17. Summary of Collisions in Study Area (2017 – 2021) 47
Table 18. Off-Ramp Queueing 48
Table 19. Sight Distance Analysis 50
Table 20. Change in Daily VMT due to Project Primary and Diverted Trips 53
Table 21. Change in Daily VMT due to Project Pass-By Trips 53
Table 22. Net Change in Daily VMT due to the Project 54

APPENDICES

Appendix A – Traffic Count Data
Appendix B – Synchro Output Reports
Appendix C – Signal Warrant Worksheet
Appendix D – Background Projects Map
Appendix E – Existing Conditions Project Access
Appendix F – Cumulative Conditions Project Access
Appendix G – Ponderosa Interchange Improvements project – Alternative 1 Exhibit

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The proposed Project site is located on one currently undeveloped parcel located at 4100 Durock Road within the community of Shingle Springs. The County's General Plan Land Use Diagram designates the site as Commercial use. The Project would develop a gas station that consists of 12 fueling positions, a 3,400 square foot AM/PM convenience market, and a 100-foot-long drive through car wash.

Under Project opening year conditions, the Project would gain access to the surrounding roadway network via one proposed side-street stop-controlled, left-turn-out restricted driveway on South Shingle Road and one proposed side-street stop-controlled, full-access driveway on Durock Road. With Phase I (Near-Term conditions) and Phase II (Cumulative conditions) of the US-50/Ponderosa Road/South Shingle Springs Road Interchange Improvements Project (Interchange Improvements Project) in place, the second proposed driveway would connect to the Park-and-Ride lot to the north and the driveway on South Shingle Road would allow full-access with use of the new two-way left-turn lane on South Shingle Road. The Park-and-Ride lot to the north is planned to be improved under Phase I of the Interchange Improvements Project and would provide access to surrounding roadways via a single right-in right-out driveway on South Shingle Road.

PROJECT-RELATED DEFICIENCIES AND IMPROVEMENTS

Intersections

All study intersections are projected to operate at acceptable LOS (LOS "E" or better) under all scenarios analyzed.

Roadway Segments

The study roadway segments are projected to operate at acceptable LOS with and without the addition of Project trips.

Queueing Analysis

Under Existing, Existing Plus Project, Cumulative, and Cumulative Plus Project conditions, the westbound left turn queue at the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection is projected to exceed available storage length.

The Ponderosa Interchange Improvements Project would lengthen the westbound turn pocket at this intersection to 265 feet. However, the westbound left-turn queue is projected exceed storage by 91 feet under Cumulative conditions and by 89 feet under Cumulative Plus Project conditions. As shown in **Appendix G**, under future conditions, this turn pocket would have small striped island in between another westbound left turn pocket on Mother Lode Drive. The striped island could be shortened to slightly lengthen the westbound turn pocket; however, the turn pocket would not be able to be extended enough to fully accommodate projected queues.

The remaining 95th percentile queues are anticipated to be accommodated by the existing/planned available storage.

Caltrans Facilities

The addition of Project traffic is not anticipated to adversely affect safety at the interchange.

The addition of Project trips is not projected to cause the interchange off-ramp facilities to exceed available storage space nor spillback onto mainline US-50.

PROJECT ACCESS AND INTERNAL CIRCULATION

Based upon a review of the Project site, the Project driveway spacing, emergency access, and site internal circulation are considered adequate.

The Project will construct a deceleration flare at the entrance to the driveway on South Shingle Road under Existing Plus Project conditions.

Under Existing Plus Project conditions, the Project driveway on South Shingle Road would be left-turn-out restricted with delineators and signage, and the Project would restripe a portion of South Shingle Road to accommodate a northbound left-turn pocket with 50 feet of storage for vehicles turning into the Project driveway. Under Near-Term and Cumulative conditions, the Project driveway on South Shingle Road would allow full-access and vehicles would utilize the planned two-way left-turn lane on South Shingle Road to make left-turns into and out of the site. The Project Driveway should provide adequate width for the largest design vehicles that are anticipated to enter the site. A maximum 95th percentile egress queue of 46 feet is projected under Cumulative Plus Project PM peak hour conditions, which would be accommodated by the proposed Project Driveway throat depth.

Under Existing Plus Project conditions, a maximum 95th percentile egress queue of less than one vehicle is projected at the Project Driveway 2 & Durock Road intersection, which would be accommodated by the proposed Project Driveway throat depth. This driveway would also be connected to the improved Park-and-Ride lot under Near-Term Plus Project and Cumulative Plus Project conditions.

ADVERSE EFFECTS ON PEDESTRIAN AND BICYCLE FACILITIES

The Project is not anticipated to cause a notable increase in pedestrian or bicycle demand in the study area that would put existing or planned facilities over capacity. The Project would not adversely affect existing or proposed pedestrian and bicycle facilities in a way that would discourage their use.

As Project construction of frontage improvements with sidewalks and curb and gutter may be in conflict with the future Interchange Improvements Project, the Project would be conditioned to enter into a Deferred Frontage Improvement Agreement.

The Project is not anticipated to cause an increase in transit demand in the study area that would put existing or planned facilities over capacity. The Project would not adversely affect existing or proposed transit facilities in a way that would discourage their use.

VEHICLE MILES TRAVELED

In order to estimate the Project's effect on area VMT, the Project area gas station trips were evaluated before and after development of the Project. As gas stations are generally local serving and a necessity for the majority of vehicle operators, customers will typically visit gas stations that are closest to their residence or along their commute route. Additionally, since gas stations are necessities, they typically do not generate all new trips to the area, but instead reroute trips from other existing gas stations in the area.

The Project is generally projected to result in shorter gas station trips in the study area, consistent with the OPR Technical Advisory's discussion on local-serving retail projects. The Project is also projected to result in a net decrease in area VMT. Therefore, the Project would not exceed the County's no net increase threshold for retail land uses and is expected to result in a **less-than-significant** transportation impact.

1. INTRODUCTION

This report has been prepared to present the results of the Traffic Impact Study (TIS) performed by Wood Rodgers, Inc for the proposed ARCO Shingle Springs Project (Project) located in El Dorado County, California (County). The Project location is shown in **Figure 1**. The analysis has been performed to determine any deficiencies the proposed Project may cause on surrounding transportation facilities and identify potential improvement measures.

1.1 PROJECT DESCRIPTION

The proposed Project site is located on one currently undeveloped parcel located at 4100 Durock Road within the community of Shingle Springs. The parcel is located approximately 300-feet south of the intersection of South Shingle Road with the US-50 Eastbound Ramps/Mother Lode Drive, on the western side of South Shingle Road. The County's General Plan Land Use Diagram designates the site as Commercial use. The Project would develop a gas station that consists of 12 fueling positions, a 3,400 square foot AM/PM convenience market, and a 100-foot-long drive-through car wash. The Project is planned to be constructed before completion of Phase I of the planned US-50/Ponderosa Road/South Shingle Springs Road Interchange Improvements Project (Interchange Improvements Project), which includes realignment of Durock Road.

Under Project opening year conditions, the Project would gain access to the surrounding roadway network via one (1) proposed side-street stop-controlled, left-turn-out restricted driveway on South Shingle Road and one (1) proposed side-street stop-controlled, full-access driveway on Durock Road. Once Phase I of the Interchange Improvements Project is in place under Near-Term conditions, the proposed driveway on Durock Road would be modified to connect to the Park-and-Ride lot to the north and the driveway on South Shingle Road would allow full-access with use of the new two-way left-turn lane on South Shingle Road. The Park-and-Ride lot to the north is planned to be improved under Phase I of the Interchange Improvements Project and would provide access to surrounding roadways via a single right-in right-out driveway on South Shingle Road. The Project site plan is depicted in in **Figure 2**. Additional exhibits illustrating Project access under Existing conditions and Near-Term (Phase I) conditions are shown in **Appendix E** and **F**, respectively.

1.2 STUDY AREA

Study facilities include the intersections and roadway segments described below.

1.2.1 Intersections

Study intersections were selected based on where 10 or more peak hour Project trips were projected to be added. The following seven (7) existing and proposed study intersections were analyzed in this TIS under Existing and Existing Plus Project conditions:

1. Ponderosa Road & North Shingle Road/Wild Chaparral Drive
2. Ponderosa Road & Westbound US-50 Ramps
3. South Shingle Road & Mother Lode Drive/Eastbound US-50 Ramps
4. South Shingle Road & Durock Road
5. South Shingle Road & Sunset Lane
6. Durock Road & Project Driveway 2 (proposed)
7. South Shingle Road & Project Driveway 1 (proposed)

The following seven (7) existing and proposed study intersections were analyzed in this TIS under Near-Term, Near-Term Plus Project, Cumulative, and Cumulative Plus Project conditions:

1. Ponderosa Road & North Shingle Road (realigned)
2. Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)
3. South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive

4. South Shingle Road & Park-and-Ride Driveway (proposed)
5. South Shingle Road & Durock Road (realigned)/Sunset Lane
6. Intersection No Longer Exists (due to Durock Road Realignment)
7. South Shingle Road & Project Driveway 1 (proposed)

Note that the study intersections change in the future due to the planned Interchange Improvements Project. The planned Interchange Improvements Project is discussed in detail in Section 4 Near-Term Conditions and Section 6 Cumulative Conditions.

1.2.2 Roadway Segments

The following two (2) roadway segments were analyzed in this TIS:

1. South Shingle Road, between Mother Lode Drive and Project Driveway 1 (proposed)
2. South Shingle Road, between Project Driveway 1 (proposed) and Sunset Lane

The locations of the Existing conditions study facilities are shown in **Figure 1**.

Attachment I



Legend

- Study Intersection
- Study Roadway Segment
- Future Roadway Segment

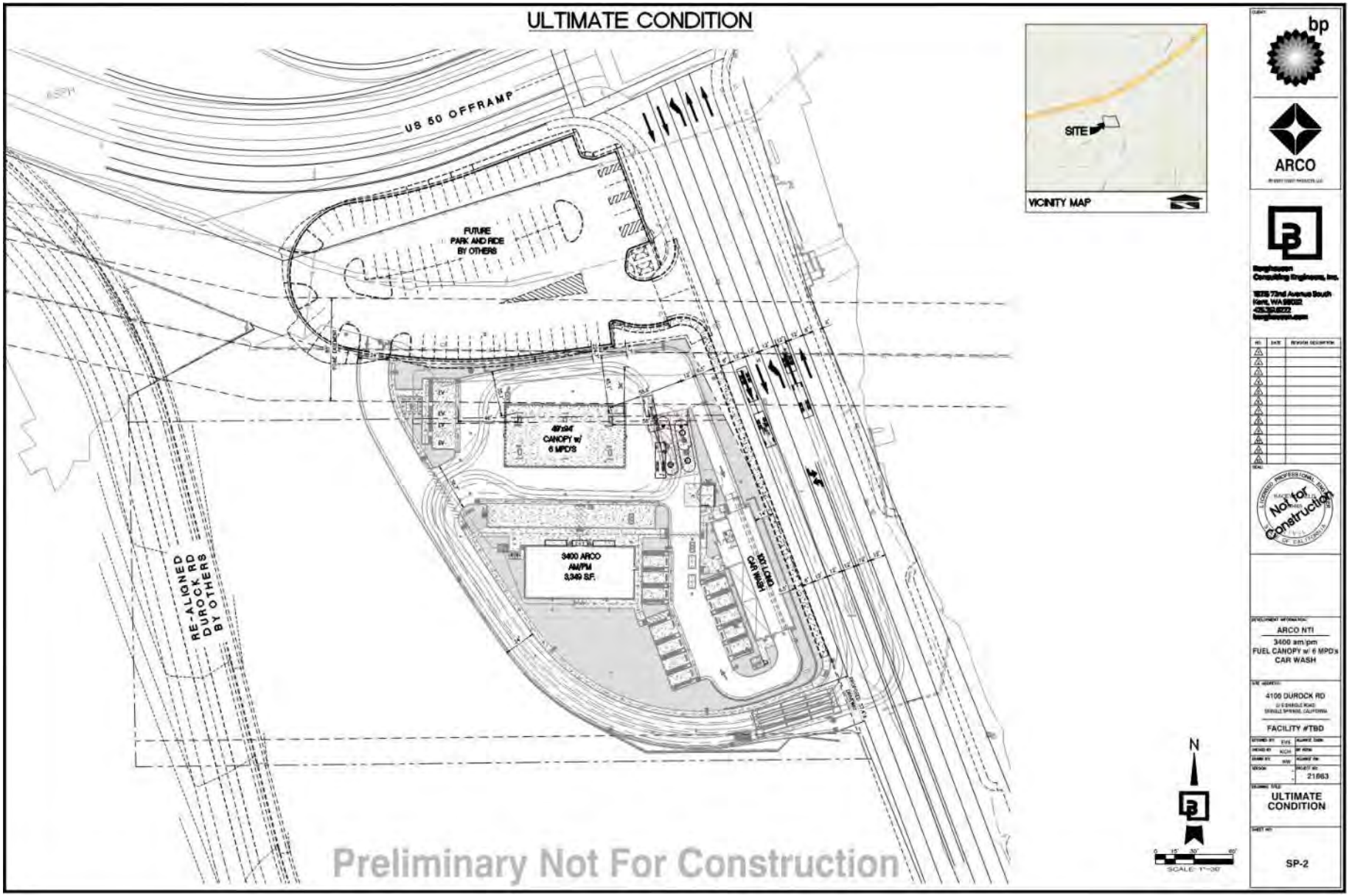
Project Location and Study Facilities
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 1

WOOD RODGERS

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\GIS\Tasks\Fig_1_Location_and_Facilities_Map.mxd 12/30/2025

Figure 2. Project Site Plan



1.3 Analysis Scenarios

The seven study intersections were evaluated under weekday AM and PM peak hour conditions for the following scenarios:

- **Existing Conditions:** Existing traffic volumes from collected traffic counts. Existing conditions assume current lane geometry and traffic control.
- **Existing Plus Project Conditions:** Existing traffic volumes plus traffic projected to be generated by the proposed Project. An exhibit illustrating the proposed Project access under Existing conditions is contained in **Appendix E**.
- **Near-Term Conditions:** Represents a future condition in which Phase I of the Interchange Improvements Project is in place. Existing traffic volumes from collected traffic counts were rerouted to account for changes in the roadway network due to Phase I of the Interchange Improvements Project.
- **Near-Term Plus Project Conditions:** Near-Term traffic volumes plus traffic projected to be generated by the proposed Project.
- **Cumulative Conditions:** Future (2040) traffic volumes developed using the Furness Method with future volumes from the El Dorado Travel Demand Model (TDM), consistent with the *El Dorado County Transportation Impact Study Guidelines* (County TIS Guidelines) (November 2014). Cumulative conditions assume buildout of Phase I and II of the Interchange Improvement Project.
- **Cumulative plus Project Conditions:** Cumulative traffic volumes plus traffic projected to be generated by the proposed Project. An exhibit illustrating the proposed Project access under Cumulative conditions is contained in **Appendix F**.

1.4 Analysis Methods

Traffic operations in this TIS have been quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. LOS “A” represents free-flow conditions with little to no delays, while LOS “F” represents jammed or grid-lock conditions.

1.4.1 Intersections

Intersection LOS has been calculated for all intersection control types using methods documented in the Transportation Research Board Publication *Highway Capacity Manual, 6th Edition* (*HCM 6*) (Transportation Research Board, 2016). The calculated intersection delays correspond to the LOS designations shown in **Table 1**, which were derived from Exhibits 19-8 and 20-2 of *Highway Capacity Manual, 6th Edition* (HCM 6th Edition).

Table 1. HCM 6th Edition Based Intersection LOS Thresholds

Level of Service	Description	Intersection Control Delay (seconds/vehicle)	
		Unsignalized	Signalized
A	Free-flow conditions with negligible to minimal delays.	delay ≤ 10.0	delay ≤ 10.0
B	Good progression with slight delays.	10.0 < delay ≤ 15.0	10.0 < delay ≤ 20.0
C	Relatively higher delays.	15.0 < delay ≤ 25.0	20.0 < delay ≤ 35.0
D	Somewhat congested conditions with longer but tolerable delays.	25.0 < delay ≤ 35.0	35.0 < delay ≤ 55.0
E	Congested conditions with significant delays.	35.0 < delay ≤ 50.0	55.0 < delay ≤ 80.0
F	Jammed or grid-lock type operating conditions.	delay > 50.0	delay > 80.0

Source: HCM 6th Edition Exhibit 19-8 and 20-2.

HCM 6th Edition reports were generated to determine the delay and LOS at the study intersections in Synchro software.

1.4.2 Roadway Segments

Study roadway segment LOS was analyzed based on Existing and proposed future roadway classifications as shown in Figure TC-1 of the General Plan Transportation and Circulation Element. South Shingle Road is classified as a Major 2-Lane Road under Existing conditions and would be classified as a 4-Lane Undivided Road under Cumulative Conditions. Peak hour capacity-based LOS for roadway segments is defined in the County TIS Guidelines is shown in **Table 2**.

Table 2. Roadway Segment LOS Thresholds

Code	Functional Class Codes	Maximum Peak Hour Volumes (two directions unless noted)				
		A	B	C	D	E
2A	2-Lane Arterial	-	-	850	1,540	1,650
4AU	4-Lane Arterial, Undivided	-	-	1,760	3,070	3,130
4AD	4-Lane Arterial, Divided	-	-	1,850	3,220	3,290
6AD	6-Lane Arterial, Divided	-	-	2,760	4,680	4,710
4M	4-Lane Multi-Highway (Two Dir.)	-	2,240	3,230	4,250	4,970
2F	2 Freeway Lanes (One Dir.)	-	2,070	2,880	3,590	4,150
2FA	2 Freeway Lanes + Aux. Lane (One Dir.)	-	2,610	3,660	4,520	5,230
3F	3 Freeway Lanes (One Dir.)	-	3,100	4,320	5,380	6,230
3FA	3 Freeway Lanes + Aux. Lane (One Dir.)	-	3,640	5,070	6,320	7,310
4F	4 Freeway Lanes (One Dir.)	-	4,140	5,760	7,180	8,310

Source: Table 1 of the El Dorado County Transportation Impact Study Guidelines

1.4.3 Signal Warrants

California Manual on Uniform Traffic Control Devices (CA MUTCD) (revised March 30, 2021) Figure 4C-4, Peak Hour Signal Warrant #3 (70% Factor – Community Less Than 10,000 population or Above 40 miles per hour (mph) on Major Street) was used to determine if a traffic signal is warranted at the unsignalized study intersections.

1.5 Level of Service Standards and Deficiency Criteria

1.5.1 Roadway and Intersection Level of Service Deficiency Criteria

General Plan Policy TC-Xd of the *El Dorado County General Plan (amended August 2019)* states that the Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS "E" in the Community Regions or LOS "D" in the Rural Centers and Rural Regions except as specified in Table TC-2. According to General Plan Policy 2.1.1.1, Shingle Springs is identified as a Community Region, thus the minimum LOS standard for all County study facilities is LOS "E".

Per the *El Dorado County Transportation Impact Study Guidelines (adopted November 2014)*, the following thresholds were used to determine if the proposed Project would create deficiencies related to intersection or study segments:

- If a project causes the peak hour LOS or volume/capacity ratio on a county road or state highway that would otherwise meet the County standards (without the project) to deteriorate to an unacceptable LOS.
- If any county road or state highway fails to meet the above listed County standards for peak hour LOS or volume/capacity ratios without the proposed project, and the project will worsen conditions on the road or highway, then the effect shall be considered a Project-related deficiency. The term worsen is defined for the purpose of this paragraph according to General Plan Policy TC-Xe as follows:

    A. A two (2) percent increase in traffic during the a.m. peak hour, p.m. peak hour, or daily, or

    B. The addition of 100 or more daily trips, or

    C. The addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour

The study intersections of Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned) and South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive are Caltrans facilities. Caltrans published the *Guide for the Preparation of Traffic Impact Studies* (December 2002) which states the following:

> "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS"

Based on the above, and to be consistent with County LOS Criteria, the minimum LOS standard for all Caltrans facilities for all scenarios was assumed to be LOS "E".

1.5.2 Queuing Analysis Deficiency Criteria

Per the *El Dorado County Transportation Impact Study Guidelines (adopted November 2014)*, the analysis must consider the existing and potential effects of upstream/downstream queuing at nearby intersections, and queue overflow interference with intersection operations (such as left turn pocket overflows). If the proposed Project causes a queue overflow interference with intersection operations, the interference may be considered a deficiency. This study analyzes 95th percentile queueing at movements with turn pockets where the Project adds at least one (1) trip.

1.6 Report Organization

The remainder of this report is divided into the following chapters:

- **Chapter 2: Existing Conditions** – Describes existing conditions and operations of the study area intersections, transit system, pedestrian facilities, and bicycle facilities.
- **Chapter 3: Existing Plus Project Conditions** – Describes the methods used to estimate and distribute Project generated traffic and the resulting study intersection operations under Existing Plus Project conditions.
- **Chapter 4: Near-Term Conditions –** Describes Near-Term conditions and operations of the study area intersections, transit system, pedestrian facilities, and bicycle facilities.
- **Chapter 5: Near-Term Plus Project Conditions:** – Describes the methods used to estimate and distribute Project generated traffic and the resulting study intersection operations under Near-Term Plus Project conditions
- **Chapter 6: Cumulative Conditions** – Describes projected conditions and operations of study intersections under Cumulative future year 2040 conditions.

- **Chapter 7: Cumulative Plus Project Conditions** – Describes projected conditions and operations of study intersections under Cumulative Plus Project conditions.
- **Chapter 8: Roadway Segment Analysis** – Describes the study roadway segment operations under all analysis scenarios.
- **Chapter 9: Queueing Analysis** – Describes the projected queues at the study area facilities for all analysis scenarios.
- **Chapter 10: Caltrans Facility Analysis** – Describes the projected queueing operations for US-50 Off-Ramp facilities and safety evaluation of the study area.
- **Chapter 11: Project-Related Deficiencies and Improvements** – Describes the projected Project-related deficiencies at study area facilities and presents potential improvements.
- **Chapter 12: Project Site Operations and Access Evaluation** – Describes site access, on-site circulation, parking, and sight distance considerations for the Project site.
- **Chapter 13: Adverse Effects on Bicycle, Pedestrian, and Transit Facilities** – Describes potential effects the proposed Project will have on pedestrian and bicycle facilities and summarizes planned improvements in the study area.
- **Chapter 14: Vehicle Miles Traveled (VMT) Analysis** – Describes Project impact on VMT in the context of County and California Environmental Quality Act (CEQA) requirements.

2. EXISTING CONDITIONS

This chapter describes the Existing roadway network, transit services, pedestrian facilities, and bicycle facilities within the study area. It also presents Existing traffic volumes at study facilities and traffic operations under Existing weekday AM and PM peak hour conditions.

2.1 EXISTING ROADWAY NETWORK

This section provides descriptions of the study area roadways.

Ponderosa Road is a two-lane north-south roadway with a posted speed limit of 40 mph that provides connectivity throughout the community of Shingle Springs. Ponderosa Road transitions to South Shingle Road south of the US-50 Westbound Ramps.

Wild Chaparral Drive is a two-lane east-west local roadway with an assumed speed limit of 25 mph.

North Shingle Road is a two-lane east-west roadway with a posted speed limit of 50 mph.

South Shingle Road is generally a two-lane north-south roadway with a posted speed limit of 45 mph that provides connectivity between the communities of Shingle Springs and Latrobe. South Shingle Road has two lanes northbound between the US-50 Westbound Ramps and Durock Road. South Shingle Road transitions to Ponderosa Road north of the US-50 Westbound Ramps. The existing Average Daily Traffic (ADT) of South Shingle Road just south of the proposed Park-and-Ride Lot Driveway is 8,040.

Mother Lode Drive is an east-west two-lane roadway with a two-way left-turn lane and a posted speed limit of 35 mph. Mother Lode Drive provides connectivity between the comminutes of Shingle Springs and Perks Corner.

Durock Road is a two-lane east-west roadway with a posted speed limit of 45 mph. Durock Road provides connectivity between the communities of Shingle Springs and Cameron Park.

Sunset Lane is a two-lane east-west local roadway with an assumed speed limit of 25 mph.

2.2 EXISTING PEDESTRIAN FACILITIES

There are currently no sidewalks present along study area roadways except for along the 76 Gas Station frontage at the southeast corner of the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection, and along the west side of South Shingle Road on the US 50 overcrossing bridge. Crosswalks are present on the southbound, eastbound, and westbound approaches of the Ponderosa Road & North Shingle Road/Wild Chaparral Drive intersection; the northbound, eastbound, and westbound approaches of the South Shingle Road & Mother Lode Drive/Eastbound US-50 Ramps intersection; and the northbound, eastbound, and westbound approaches of the South Shingle Road & Durock Road intersection.

2.3 EXISTING BICYCLE FACILITIES

Within the study area, Class II bicycle lanes are provided on the south side of Mother Lode Drive. The other study facilities do not have existing bicycle facilities.

2.4 EXISTING TRANSIT SERVICE

The Project vicinity is served by El Dorado Transit bus service. There are four bus stops within the Project area, located at Durock Road and Presley Lane, Mother Lode Drive just east of South Shingle Road, Sunset Lane and Becken Lane, and the Park-and-Ride lot within the southwest corner of the Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps intersection. All four stops serve Route 40, which provides service between Shingle Springs and Cameron Park on an on-call basis. The Park-and-Ride stop also serves the Sac Commuter routes, which provide 11 trips in the morning from

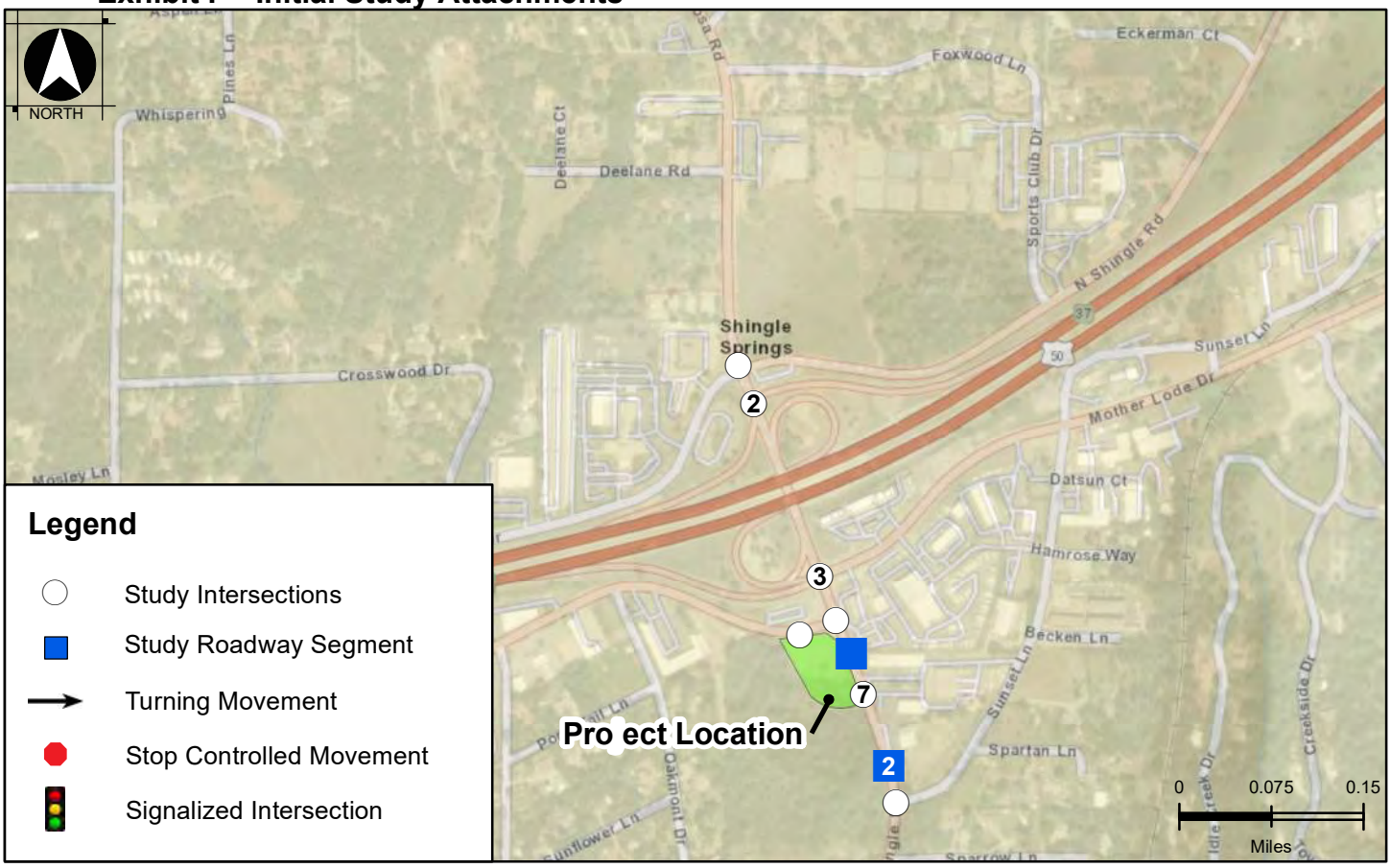
Park-and-Ride locations in Western El Dorado County to downtown Sacramento and 11 return trips in the afternoons, Monday through Friday, as well as Reverse Commuter trips twice daily.

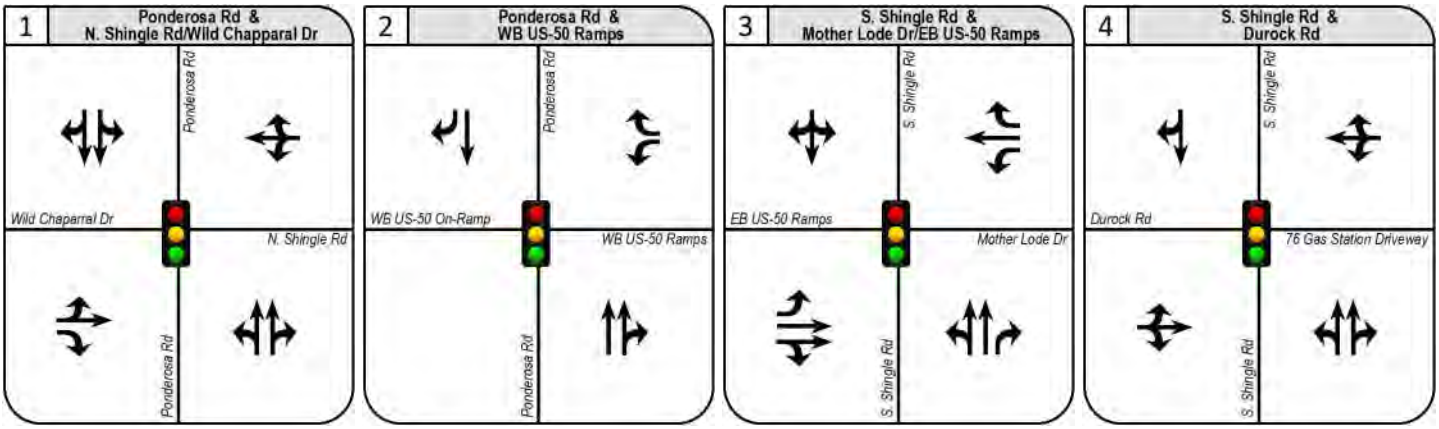
2.5 Existing Intersection Traffic Volumes and Lane Geometrics

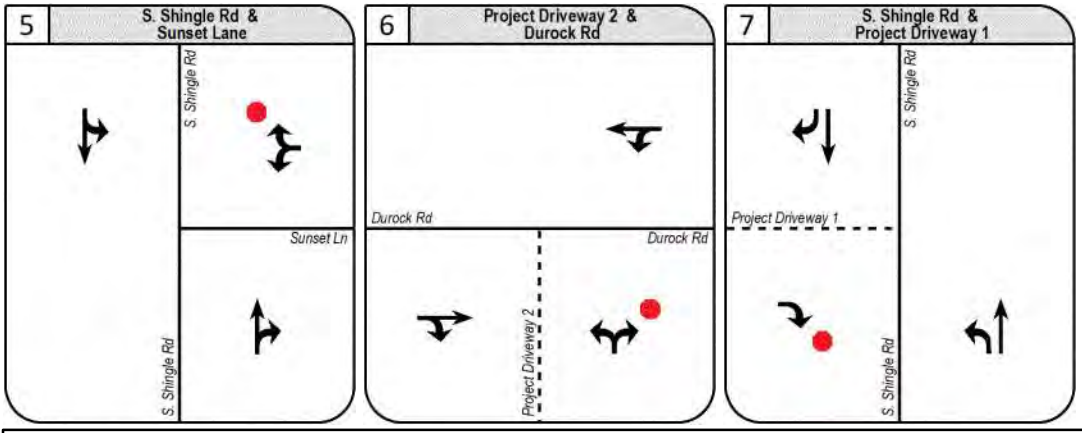
Intersection traffic operations were evaluated for the weekday AM and PM peak hours. The AM peak hour is defined as the highest one hour of traffic flow counted between 7:00 AM and 9:00 AM on a typical weekday. The PM peak hour is defined as the highest one hour of traffic flow counted between 4:00 PM and 6:00 PM on a typical weekday. AM and PM peak hour traffic counts for the five (5) existing study intersections were collected on Wednesday, May 18, 2022. Peak hour traffic counts were balanced between study intersections. Traffic count data is provided in **Appendix A**.

Figure 3 illustrates Existing intersection lane geometrics and control for the study area intersections. **Figure 4** depicts Existing conditions turning movements volumes for AM and PM weekday peak hours.

Attachment I







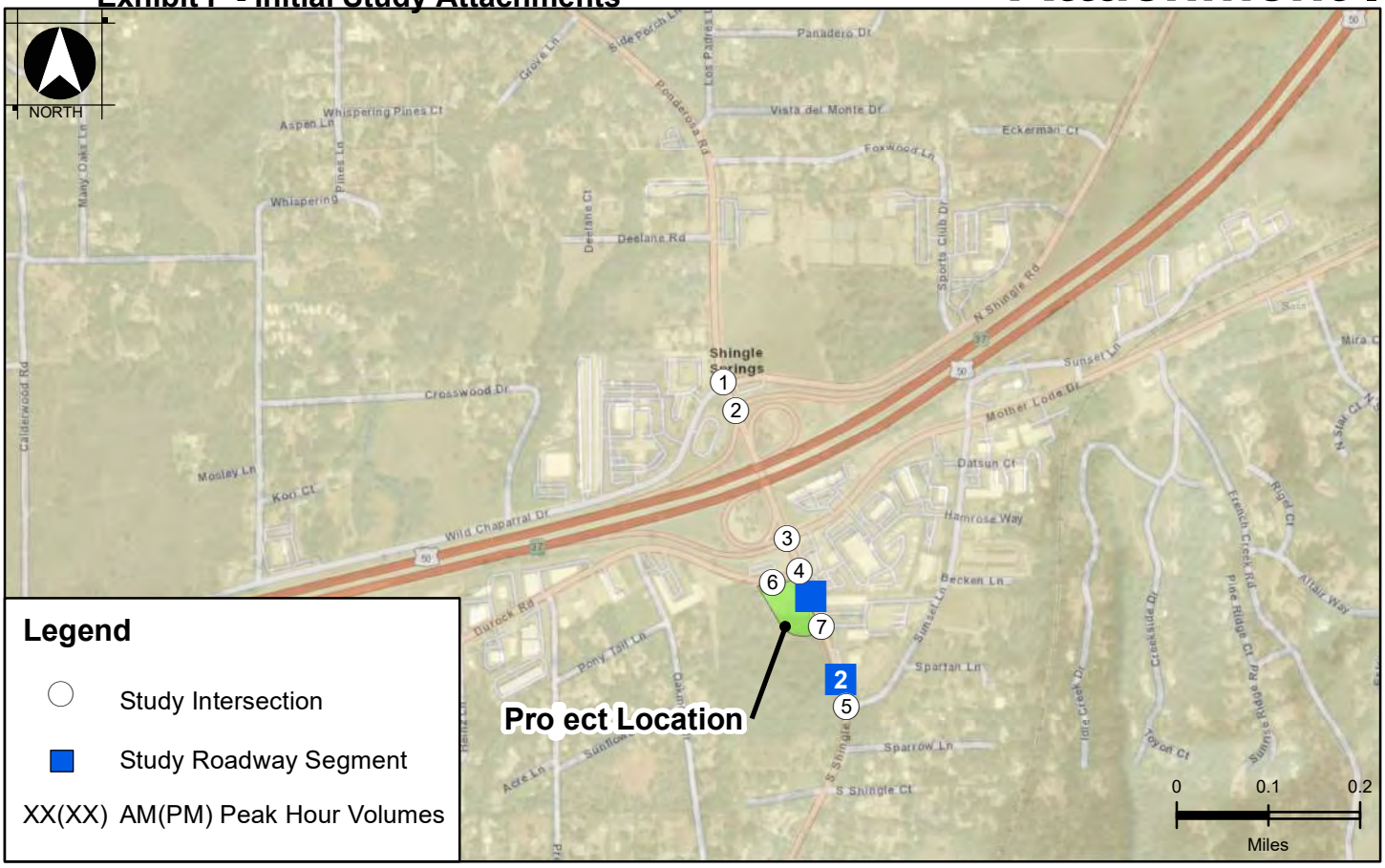
Existing Plus Project Intersection Lane Geometrics and Control
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

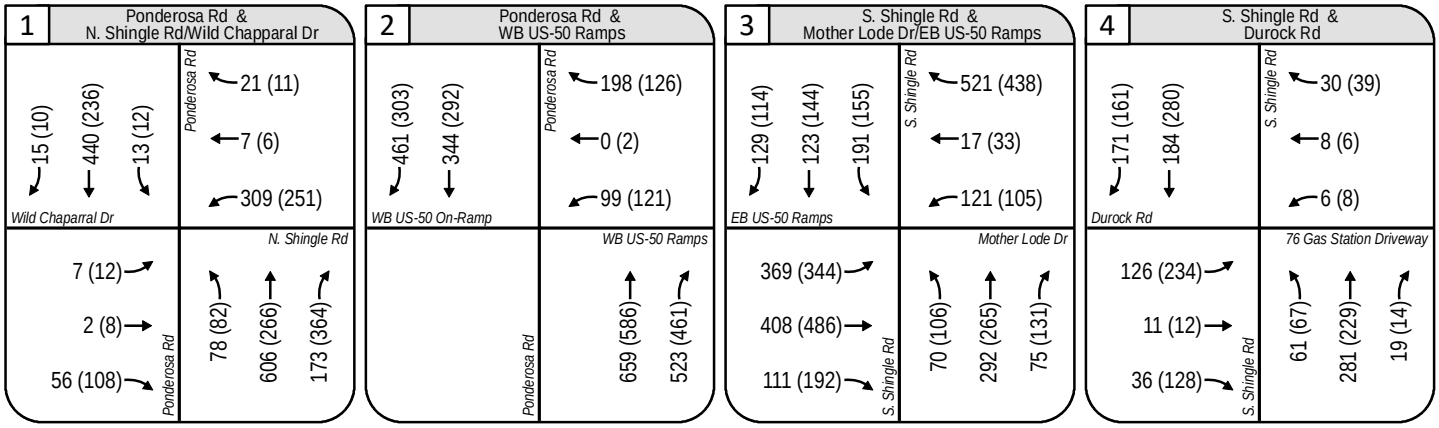
Figure 3

WOOD RODGERS

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\GIS\Tasks\LaneGeometrics\Fig_LaneGeom_LaneGeom.mxd

Attachment I





Existing Intersection Turning Movement Volumes
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 4

WOOD RODGERS

2.7 Existing Intersection Operations

Table 3 presents Existing study intersection traffic operations under Existing intersection lane geometrics and control (illustrated in **Figure 3**) and Existing traffic volumes (illustrated in **Figure 4**). All study intersection traffic operations were calculated using Synchro 11 software.

Table 3. Existing Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions		
					Delay (sec)[2]	LOS[2]	Warrant Met?[3]
1	Ponderosa Road & North Shingle Road/Wild Chaparral Drive	Signal	E	AM	60.8	E	-
				PM	53.5	D	-
2	Ponderosa Road & Westbound US-50 Ramps	Signal	E	AM	16.2	B	-
				PM	8.5	A	-
3	South Shingle Road & Mother Lode Drive /Eastbound US-50 Ramps	Signal	E	AM	45.3	D	-
				PM	47.9	D	-
4	South Shingle Road & Durock Road	Signal	E	AM	38.1	D	-
				PM	47.4	D	-
5	South Shingle Road & Sunset Lane	OWSC[1]	E	AM	14.1	B	No
				PM	15.4	C	No
6	Durock Road & Project Driveway 2 (proposed)	OWSC[1]	E	AM	Future Intersection		
				PM			
7	South Shingle Road & Project Driveway 1 (proposed)	OWSC[1]	E	AM	Future Intersection		
				PM			

Notes:
[1] OWSC = One-Way Stop-Controlled
[2] For signalized intersections, the average delay is reported. For OWSC, the worst-case approach/movement delay and LOS is reported.
[3] CA MUTCD Peak Hour Signal Warrant #3

As shown in **Table 3**, all study intersections operate at acceptable LOS conditions under Existing conditions during the weekday AM and PM peak hours. Unsignalized study intersections do not currently meet CA MUTCD Peak Hour Signal Warrant #3. Synchro software intersection LOS output reports are included in **Appendix B**. The signal warrant worksheet is provided in **Appendix C**.

Note that study intersections #1 and #2 operate under a single, combined signal timing plan under existing conditions. However, those intersections were modeled as operating under two coordinated but separate signal timing plans in the Synchro model so that the intersections would remain compatible with HCM 6th Edition methodologies. The two separate signal timing plans were set up so as to approximate operations under a single, combined timing plan to maintain consistent delay and LOS.

3. EXISTING PLUS PROJECT CONDITIONS

This chapter provides a description of the proposed Project, a discussion of the trip generation and distribution/assignment methods used to come up with Project trips at study intersections, and an analysis of projected traffic operations under Existing Plus Project conditions.

3.1 PROJECT SITE

3.1.1 Project Site Description

The Project site consists of a gas station with 12 fueling positions, a 3,400 square foot AM/PM convenience market, and a 100-foot-long drive-through car wash on a currently undeveloped parcel at 4100 Durock Road. The County's General Plan Land Use Diagram designates the site as Commercial use. The Project site plan is provided in **Figure 2.**

The Project would gain access to the roadway network via a proposed side-street stop-controlled, left-turn-out restricted driveway on South Shingle Road. Left turns out of the driveway on South Shingle Road would be restricted with delineators and signage, as shown in **Appendix E**. The Project would restripe a portion of South Shingle Road to accommodate a northbound left-turn pocket with 50 feet of storage for vehicles turning into the Project driveway. A second proposed side-street stop-controlled, full-access driveway would be located on Durock Road. Under Near-Term and Cumulative conditions, the second Project Driveway would connect to the Park-and-Ride lot to the north, which is planned to be improved under Phase I of the Interchange Improvements Project. Under Near-Term and Cumulative conditions, the driveway on South Shingle Road would allow full-access with use of the new two-way left-turn lane on South Shingle Road which is planned to be constructed under Phase I of the Interchange Improvements Project. The improved Park-and-Ride lot would provide access to surrounding roadways via a single right-in right-out driveway on South Shingle Road under Near-Term and Cumulative conditions.

3.2 PROJECT GENERATED TRIPS

3.2.1 Trip Generation

The trip generation data contained in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition* was used to approximate the number of trips generated by the Project. The ITE land use categories of Convenience Store/Gas Station (ITE Code 945) and Automated Car Wash (ITE Code 948) were used to represent the Project. An internal capture rate of 50% was assumed for vehicles using both the gas station and car wash. Pass-by trips were assumed to occur at the Project driveways on South Shingle Road and Durock Road. Pass-by trips are trips to the Project site made by vehicles that are already on the adjacent roadway network. It was also assumed there would be diverted trips to the Project originating from US-50. Diverted trips are trips that are already on the roadway network and would make a short diversion to the project site. **Table 4** shows the Project trip generation, including primary (new) Project trips, pass-by trips, and diverted trips.

As shown in **Table 4**, the proposed Project is estimated to generate a total of 761 primary daily trips with 39 AM peak-hour weekday primary trips and 33 PM peak-hour weekday primary trips.

Table 4. Project Trip Generation

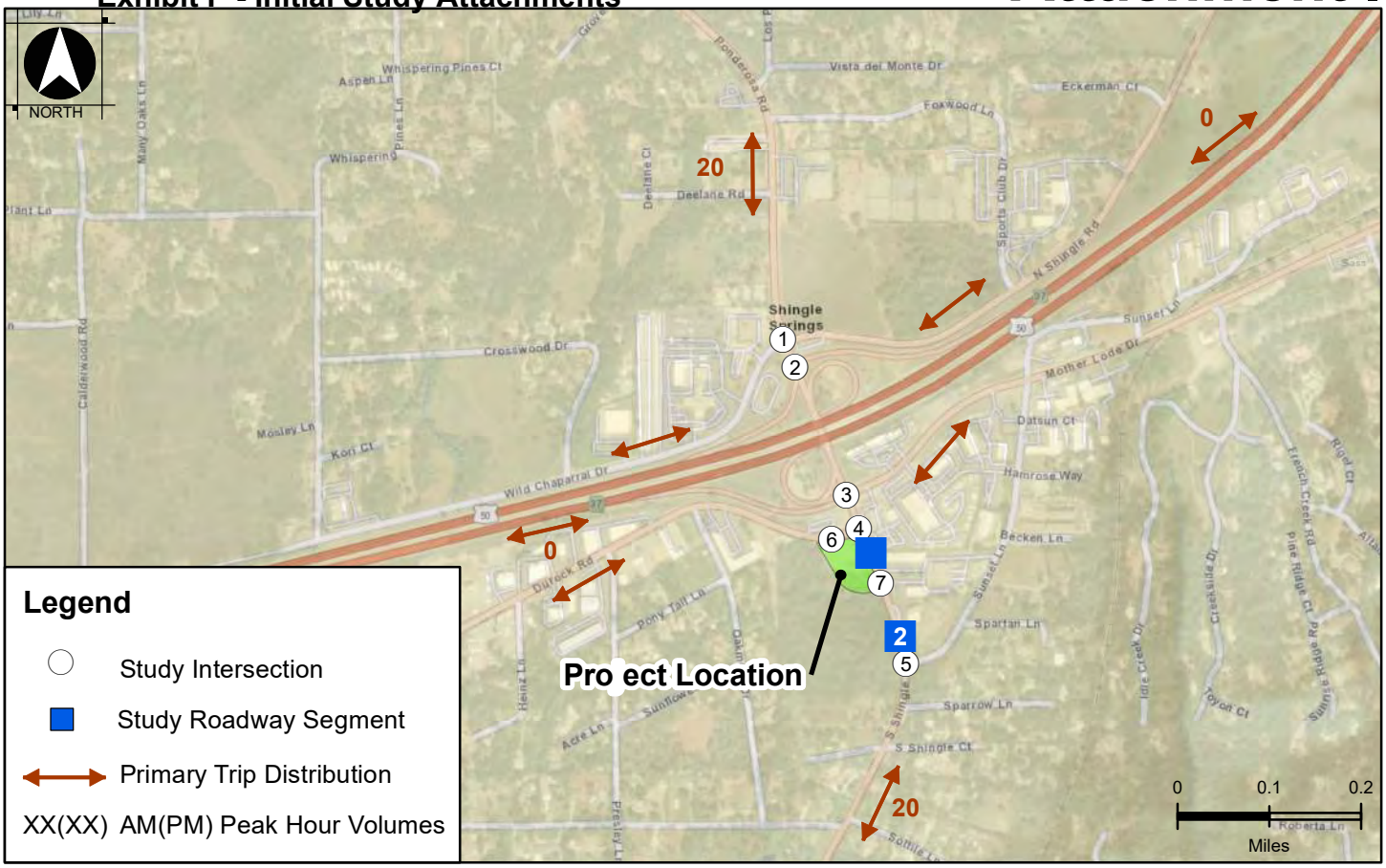
ITE Code	Land Use Category	Quantity	Units	Daily Trips[1]	AM Peak Hour[1]			PM Peak Hour[1]		
					Total	In	Out	Total	In	Out
945	Convenience Store/Gas Station (GFA 2-4k)[3]	12	FP[4]	2,750	193	97	96	221	111	110
948	Automated Car Wash[2]	1	Car Wash Tunnels	1,116	78	39	39	78	39	39
Internal Capture between Gas Station and Car Wash (50% of Car Wash Trips)				*-558*	-39	-20	-19	-39	-20	-19
Net Total Gas Station and Car Wash Trips				3,308	232	116	116	260	130	130
Gas Station and Car Wash Pass-By Trips[5]: AM = 62%, PM & Daily = 56%				*1,852*	*144*	*72*	*72*	*146*	*73*	*73*
Gas Station and Car Wash Diverted Trips[5]: AM & Daily = 21%, PM = 31%				*695*	*49*	*25*	*24*	*81*	*41*	*40*
Net Total Primary Trips				***761***	***39***	***19***	***20***	***33***	***16***	***17***

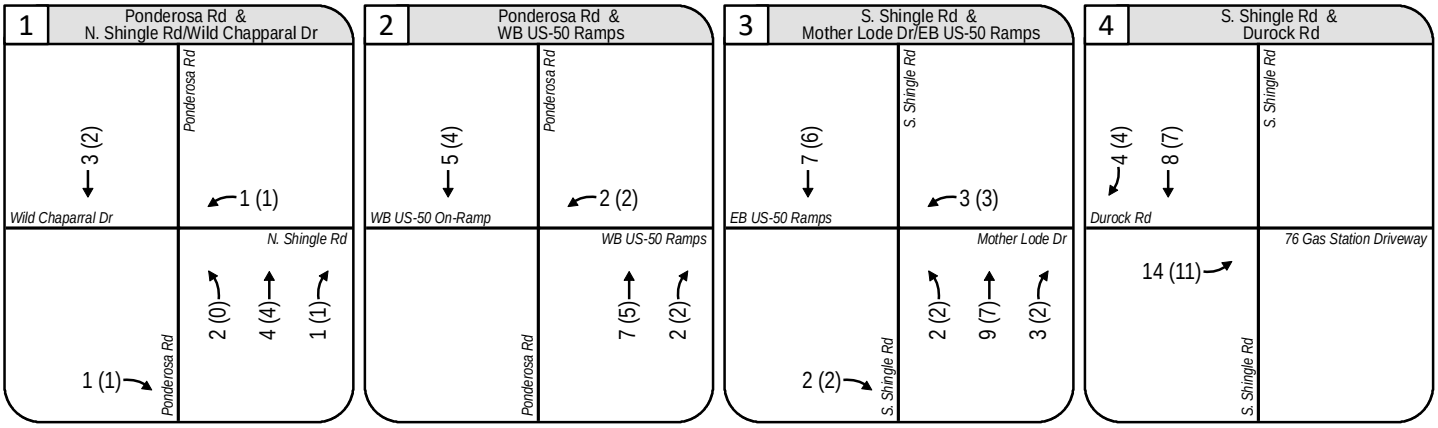
Notes:
[1] The daily trip rate is based on the fitted curve equation and peak hour trips rates are based on the average rates for the proposed land use consistent with information contained in the ITE Trip Generation Manual, 11th Edition
[2] Daily and AM peak hour trip rates are not provided for Automated Car Wash use. The daily trip rate was estimated by dividing the PM peak hour Automated Car Wash rate by the ratio of the average rates for Daily and PM peak hour trip generation for Convenience Store/Gas Station (ITE 945) use (calculated to be ~0.07). The AM peak hour rate is assumed to be the same as the PM peak hour rate for Automated Car Wash.
[3] GFA = Gross Floor Area
[4] FP = Fueling Positions
[5] Based on data contained in the ITE Trip Generation Handbook, 3rd Edition. The Car Wash was assumed to have the same pass-by and diverted trip rates as the Convenience Store/Gas Station since they would be operating as a single facility.

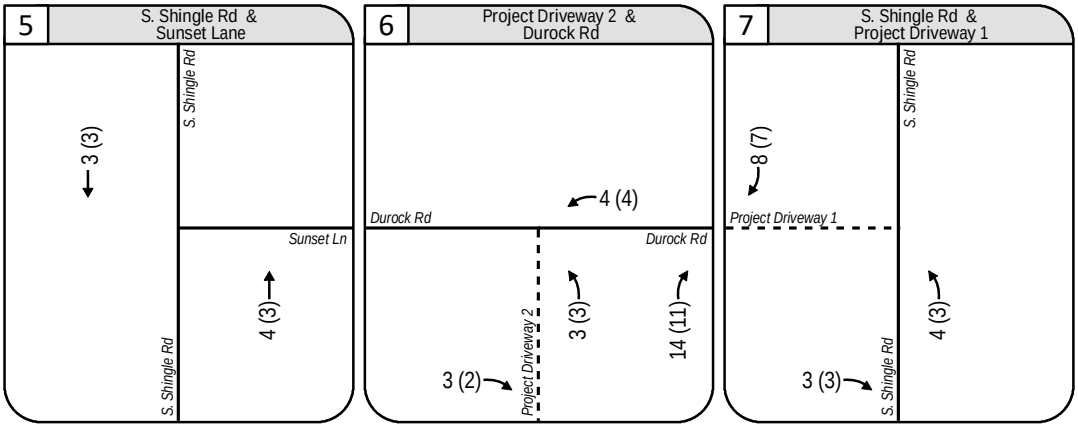
3.2.2 Trip Distribution and Assignment

The Project trip distribution was determined based on existing traffic counts and travel patterns, knowledge of the area, and engineering judgement. Separate trip distributions and assignments were prepared for the primary trips, pass-by trips, and diverted trips and are shown in **Figure 5**, **Figure 6**, and **Figure 7,** respectively. Primary trips are defined as new trips on the local roadway network generated by the Project. **Figure 8** provides the final Combined Project Trips which represent a summation of all Project primary, pass-by, and diverted trips.

Attachment I





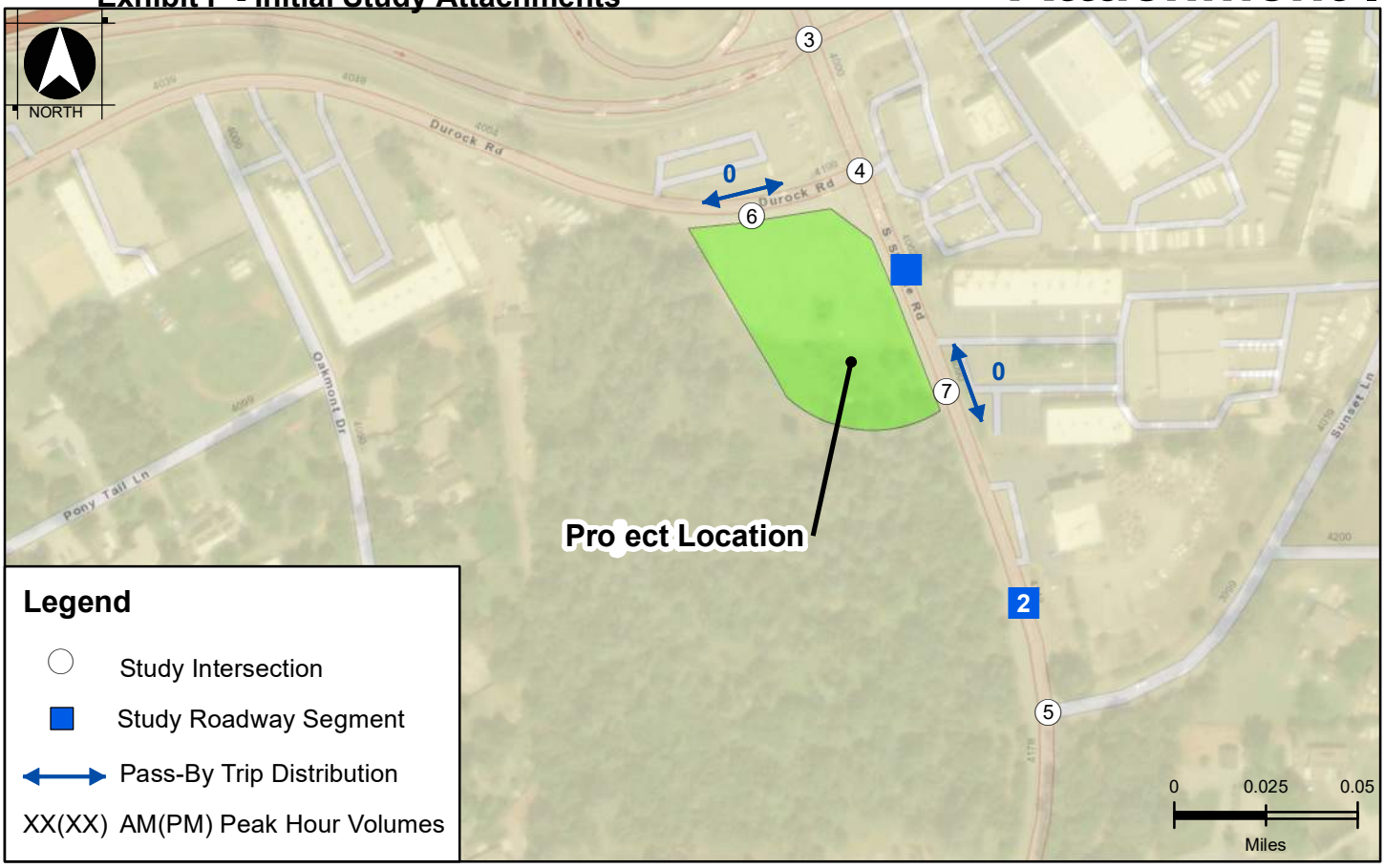


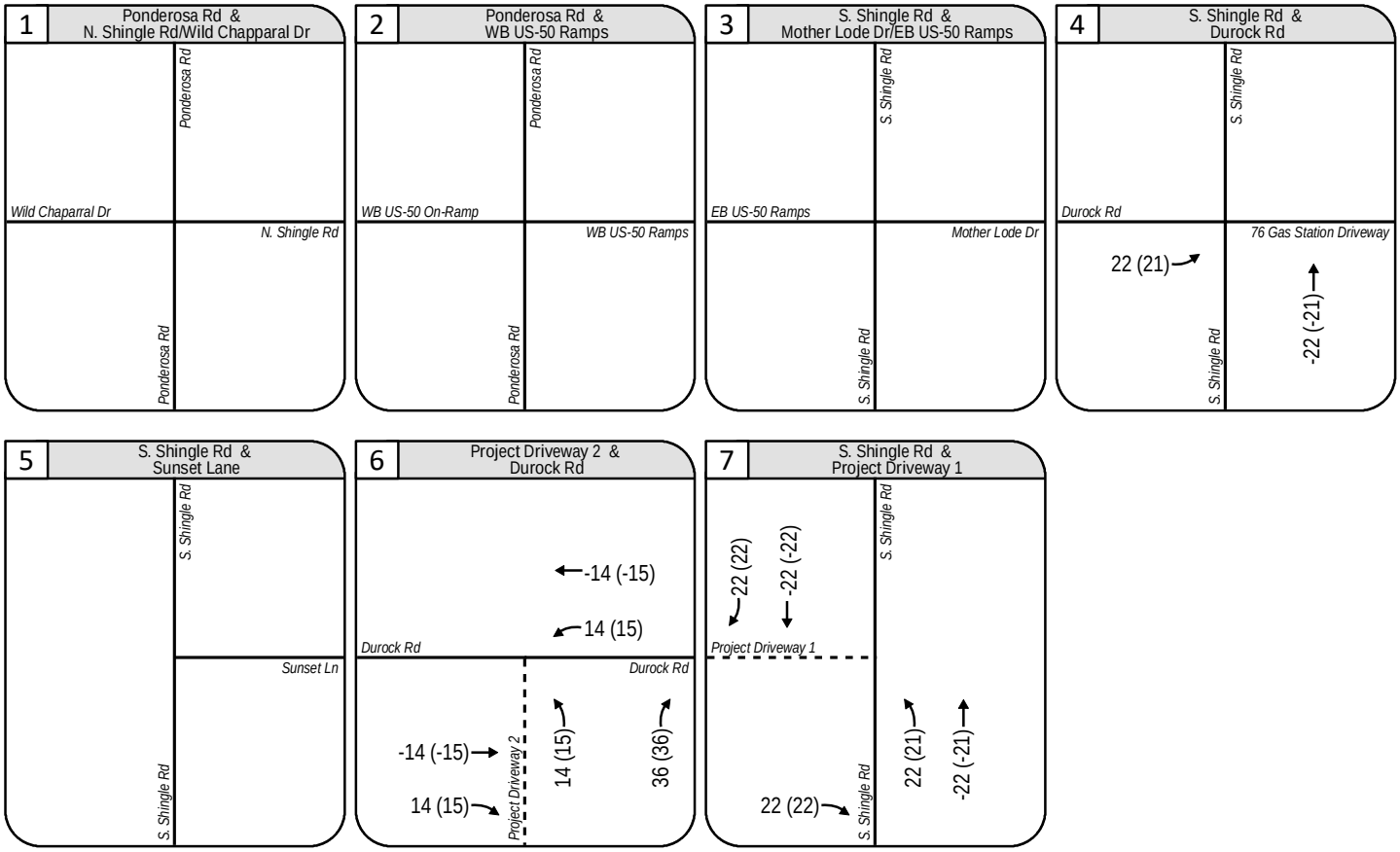
Existing Primary Project Trip Distribution and Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 5

WOOD RODGERS

Attachment I





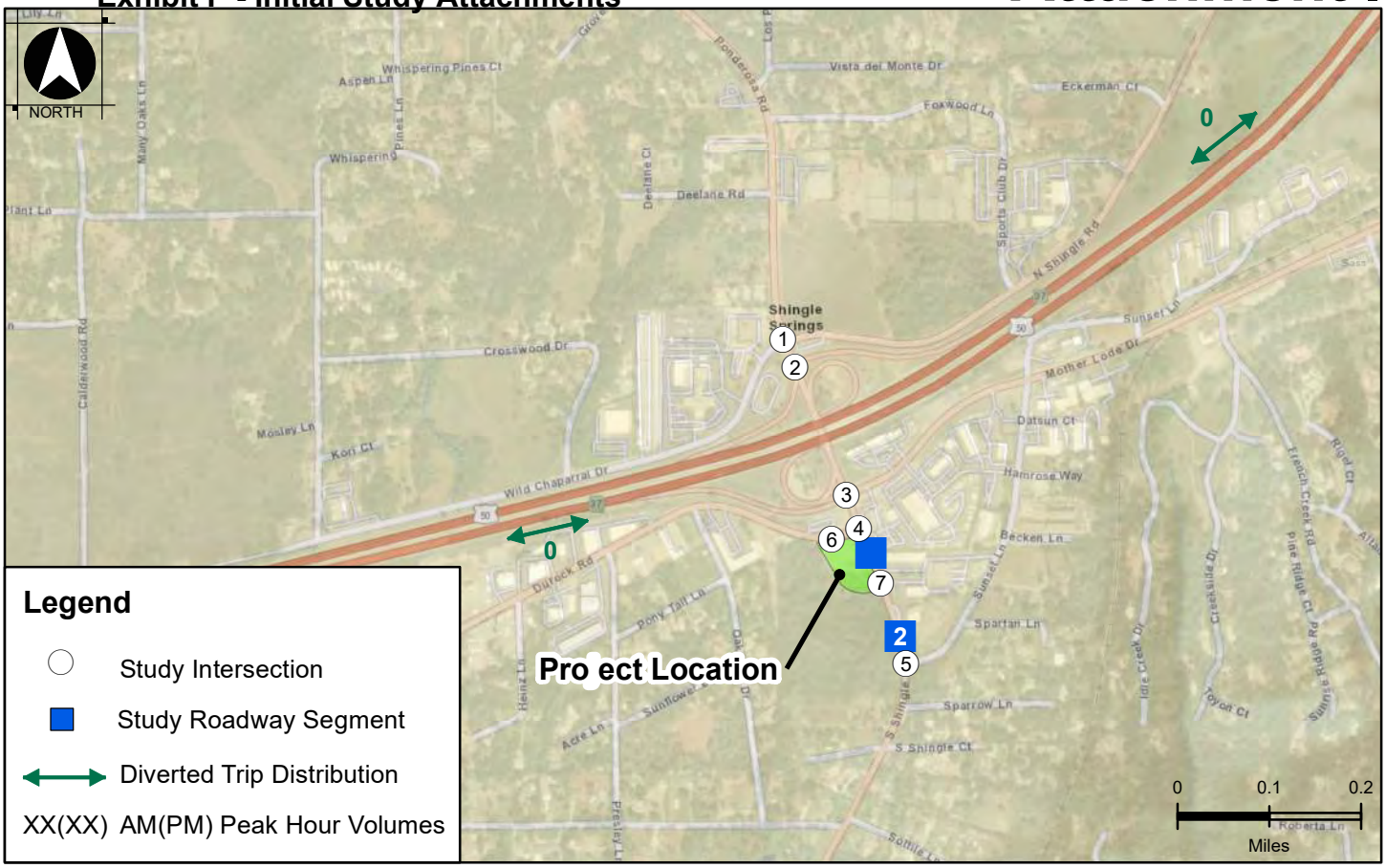
Existing Pass-By Project Trips Distribution and Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

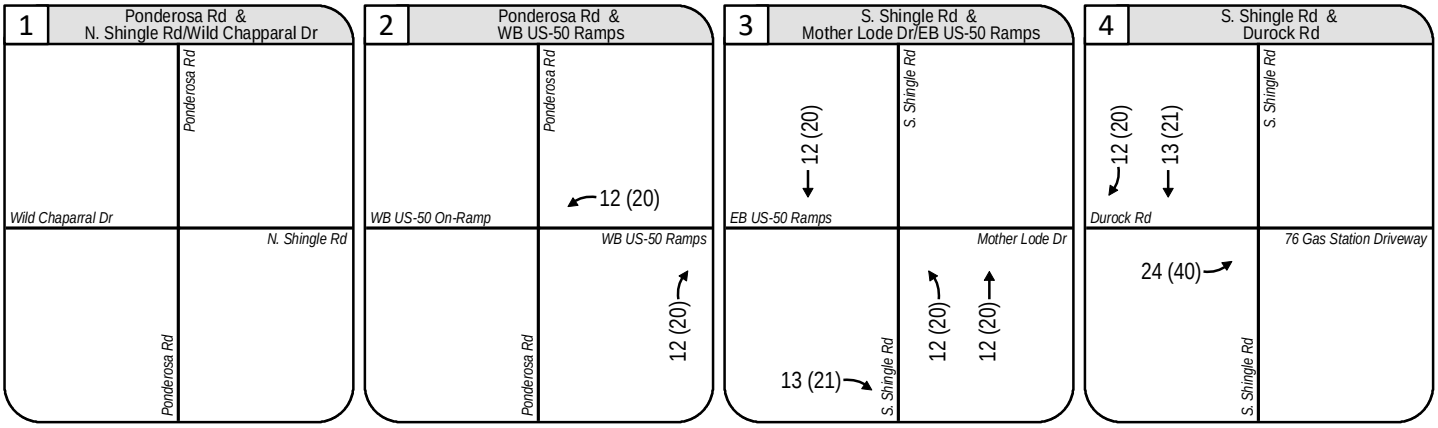
Figure 6

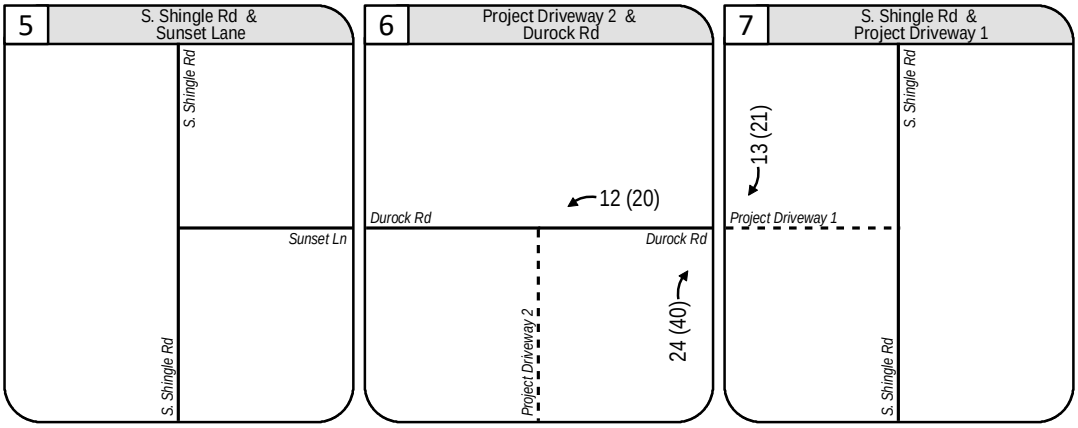
WOOD RODGERS

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\GIS\Tasks\TurningMovements\2022_PO-Pass-By.mxd 5/24/2022 3:55:55 PM

Attachment I







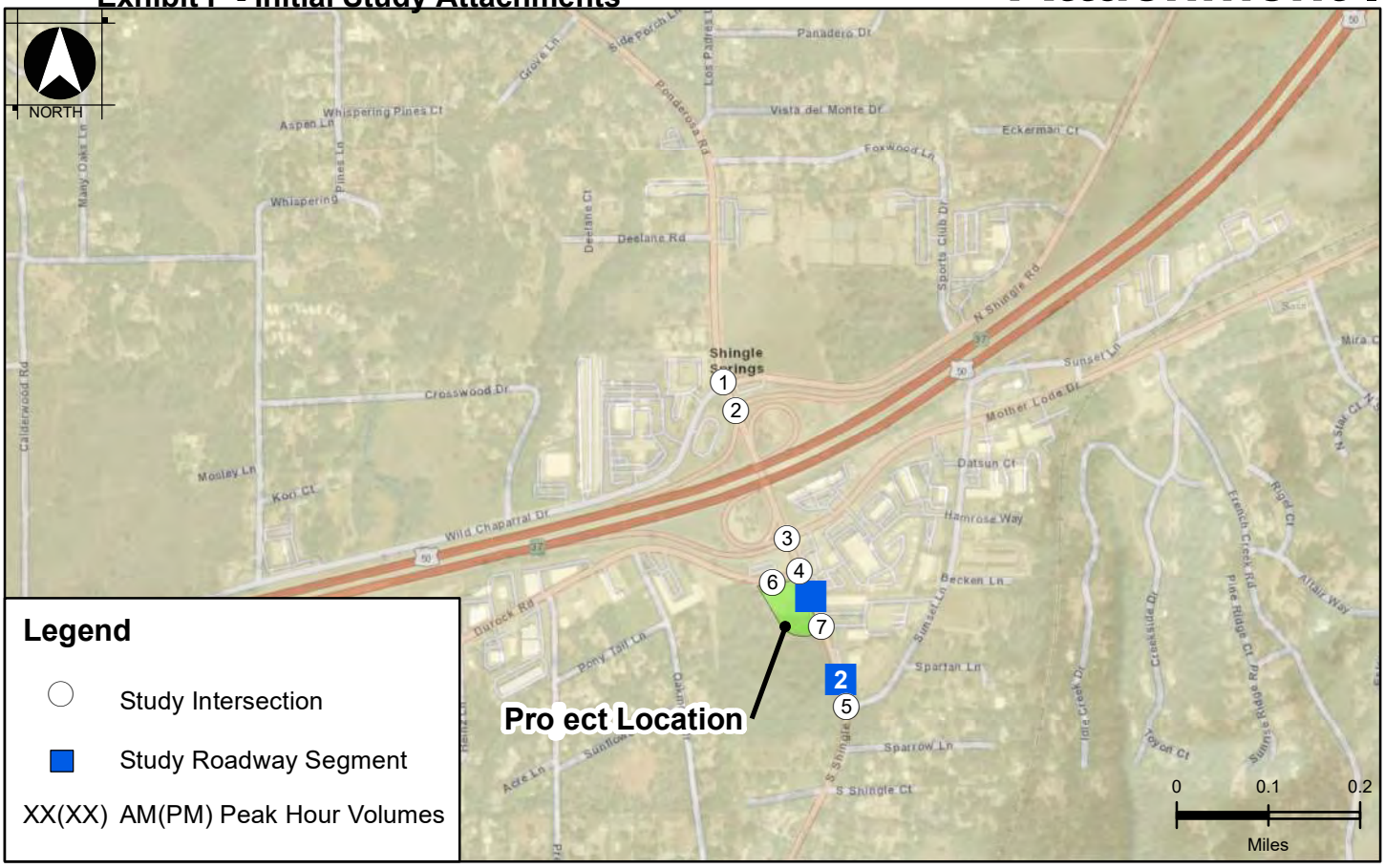
Existing Diverted Project Trips Distribution and Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

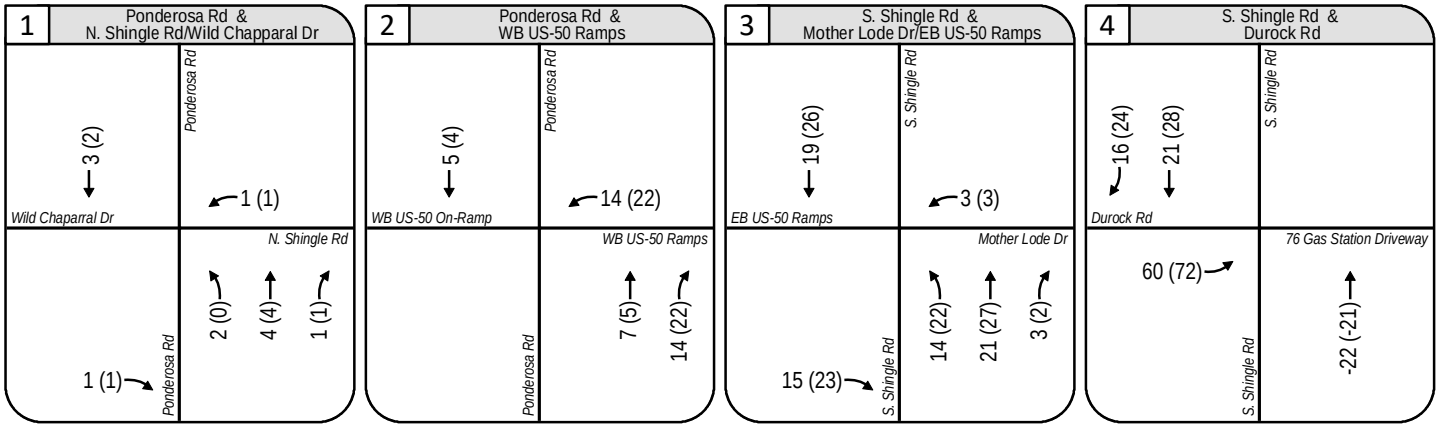
Figure 7

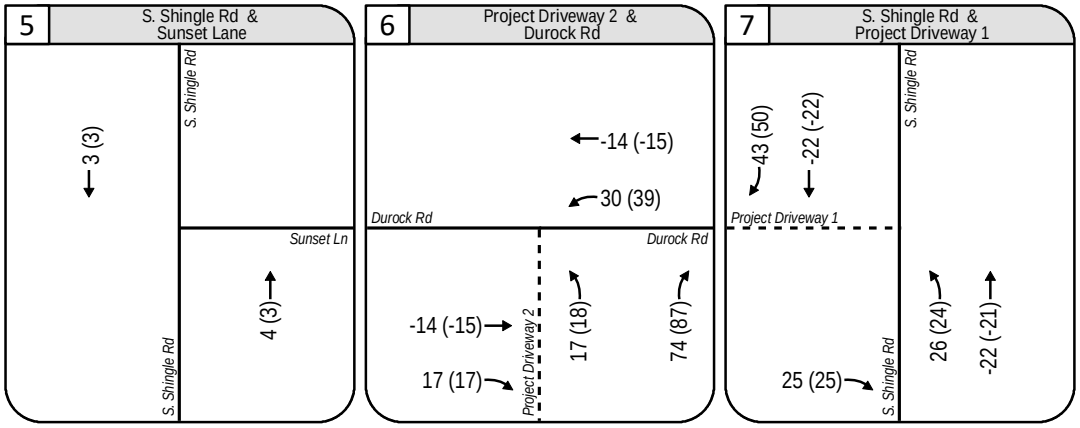
WOOD RODGERS

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\GIS\Tasks\TurningMovements\2022_PO-Div.mxd 5/23/2

Attachment I







Existing Combined Project Trips Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 8

WOOD RODGERS

3.3 Existing Plus Project Intersection Operations

The Project trips were added to Existing turning movement volumes at the study intersections to develop Existing Plus Project turning movement volumes. **Table 5** presents Existing Plus Project study intersection traffic operations under Existing intersection lane geometrics and control (illustrated in **Figure 3**) and Existing Plus Project traffic volumes (illustrated in **Figure 9**). **Table 5** also contains Existing conditions intersection delays and LOS for comparison purposes. All study intersection traffic operations were calculated using Synchro 11 software.

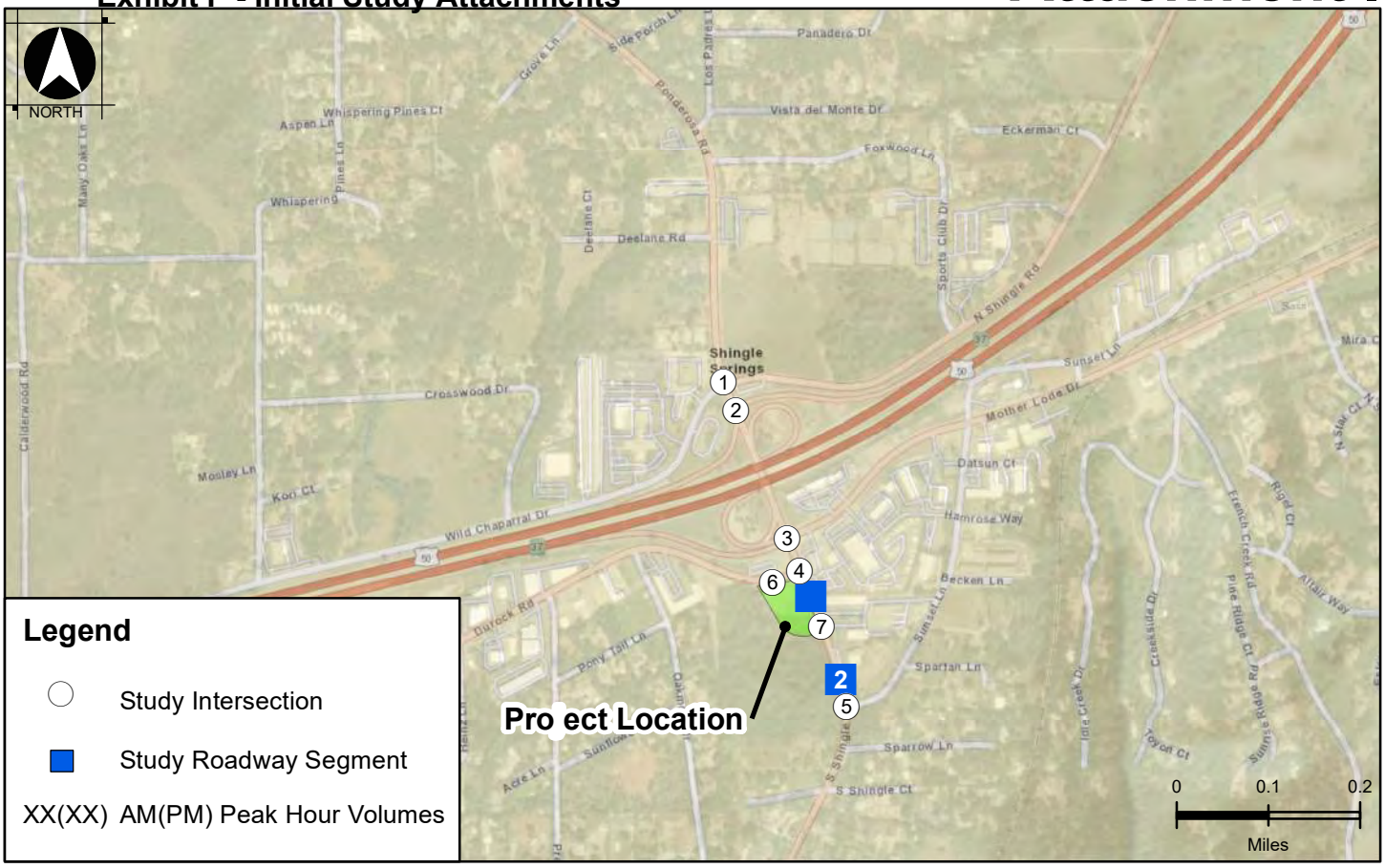
Table 5. Existing Plus Project Intersection Operations

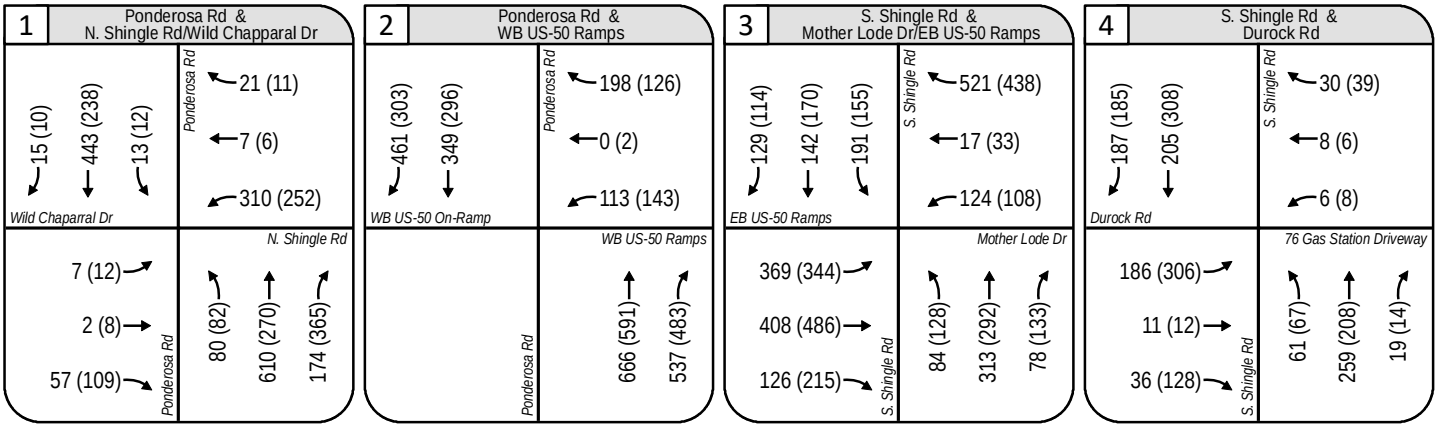
#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing			Existing Plus Project		
					Delay (sec/ veh)[2]	LOS[2]	Warrant Met?[3]	Delay (sec/ veh)[2]	LOS[2]	Warrant Met?[3]
1	Ponderosa Road & North Shingle Road/Wild Chaparral Drive	Signal	E	AM	60.8	E	-	61.8	E	-
				PM	53.5	D	-	53.7	D	-
2	Ponderosa Road & Westbound US-50 Ramps	Signal	E	AM	16.2	B	-	16.4	B	-
				PM	14.4	B	-	9.3	A	-
3	South Shingle Road & Mother Lode Drive /Eastbound US-50 Ramps	Signal	E	AM	47.6	D	-	46.2	D	-
				PM	52.0	D	-	47.7	D	-
4	South Shingle Road & Durock Road	OWSC[1]	E	AM	13.1	B	No	40.9	D	No
				PM	20.4	C	No	54.4	D	No
5	South Shingle Road & Sunset Lane	Signal	E	AM	14.1	B	-	14.2	B	-
				PM	15.4	C	-	15.6	C	-
6	Durock Road & Project Driveway 2 (proposed)	OWSC[1]	E	AM	Future Intersection			10.4	B	No
				PM				12.5	B	No
7	South Shingle Road & Project Driveway 1 (proposed)	OWSC[1]	E	AM	Future Intersection			9.6	A	No
				PM				10.9	B	No

Notes:
[1] OWSC = One-Way Stop-Controlled
[2] For signalized intersections, the average delay is reported. For OWSC, the worst-case approach/movement delay and LOS is reported.
[3] CA MUTCD Peak Hour Signal Warrant #3

As shown in **Table 5**, all study intersections operate at acceptable LOS under Existing Plus Project conditions during the weekday AM and PM peak hours. Unsignalized study intersections are not projected to meet CA MUTCD Peak Hour Signal Warrant #3 under Existing Plus Project conditions. Synchro software intersection LOS output reports are included in **Appendix B**. The signal warrant worksheet is provided in **Appendix C.**

Attachment I





Existing Plus Project Intersection Turning Movement Volumes
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 9

WOOD RODGERS

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\GIS\Tasks\TurningMovements\2022_Exst+P.mxd 5/23/2

4. NEAR-TERM CONDITIONS

This chapter describes the Near-Term conditions roadway network, traffic volumes, and traffic operations at study facilities.

4.1 NEAR-TERM ROADWAY NETWORK

Near-Term conditions represent future completion of Phase I of the Interchange Improvements Project. As such, existing traffic counts have been rerouted accordingly to account for realigned and reconfigured intersections. The following Phase I improvements are assumed to be in place under Existing conditions:

- Realignment of North Shingle Road to approximately 500 feet north of Wild Chaparral Drive
- Realignment of the Westbound US-50 Off-Ramps to be located across from Wild Chaparral Drive
- Widening of Off-Ramps to ultimate width
- Updated signal phasing at the South Shingle Road & & Mother Lode Drive/Eastbound US-50 Ramps to include protected eastbound and westbound left-turns
- Realignment of Durock Road to be located across from Sunset Lane and signalization of the South Shingle Road & Durock Road (realigned)/Sunset Lane intersection
- Conversion of the South Shingle Road & Park-and-Ride Driveway and South Shingle Road & 76 Gas Station Driveway intersections to right-in/right-out control.
- Addition of a two-way left-turn lane on South Shingle Road between the Park-and-Ride Driveway and Durock Road (realigned)/Sunset Lane
- Assumed all Project study signals would be updated with new, coordinated timings using CA MUTCD defaults

Near-Term condition intersection lane geometrics are shown in **Figure 10**.

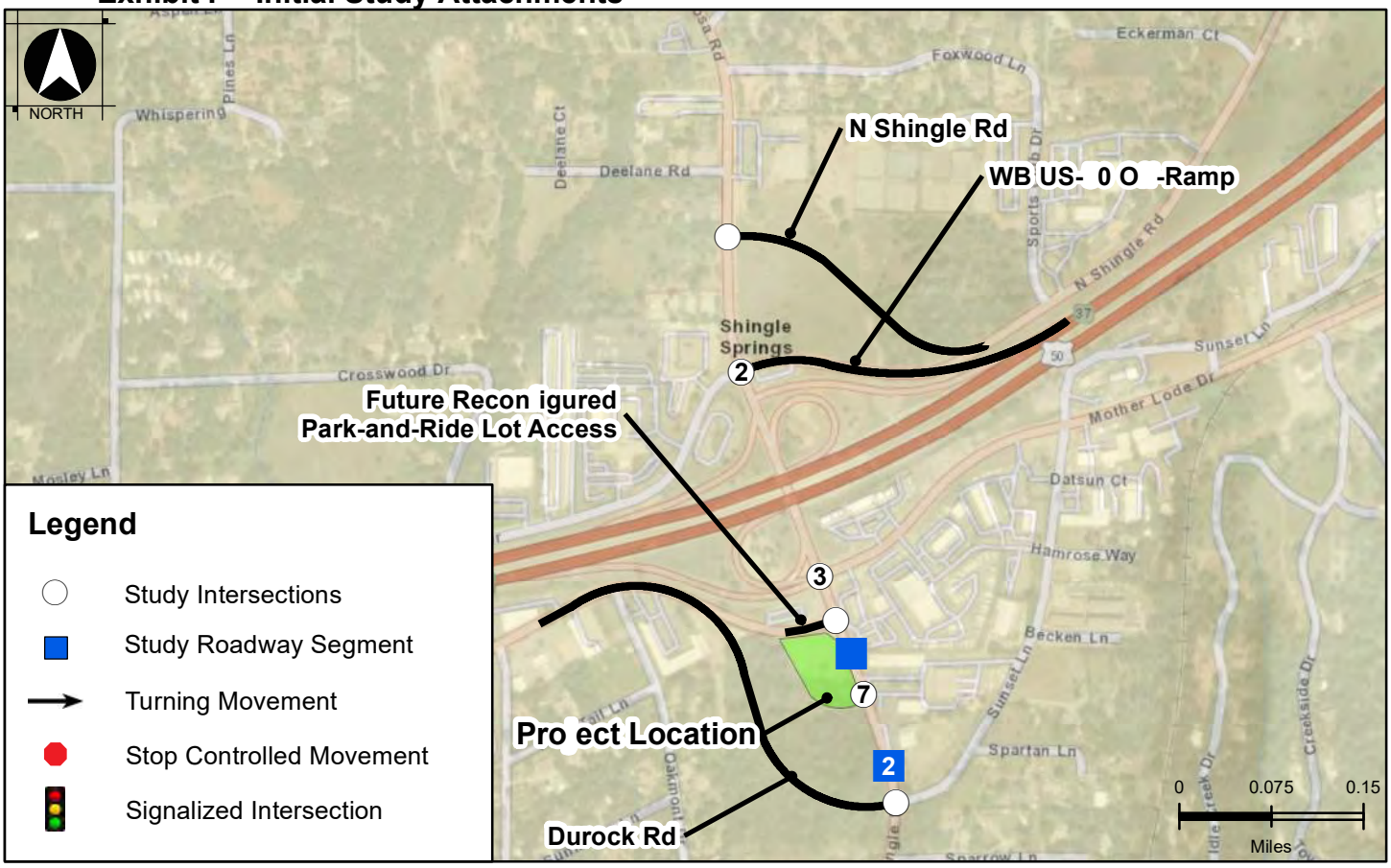
Under Phase I conditions, there are planned crosswalks on the east leg of the Ponderosa Road & North Shingle Road intersection; the north, east, and west legs of the Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps intersection; all legs of the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection; and the north leg of the South Shingle Road & Durock Road/Sunset Lane intersection.

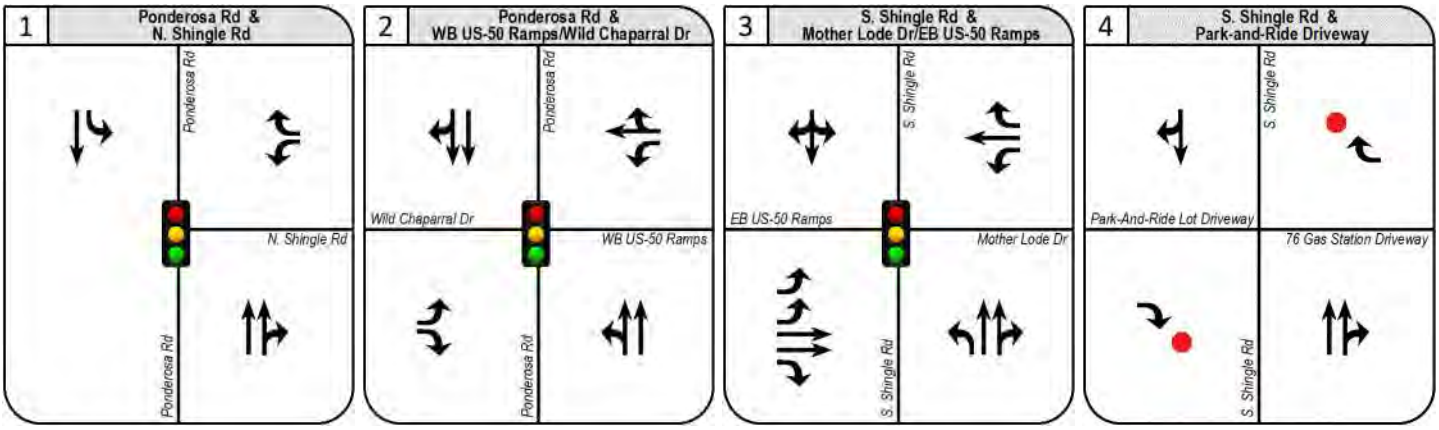
4.1 NEAR-TERM VOLUMES

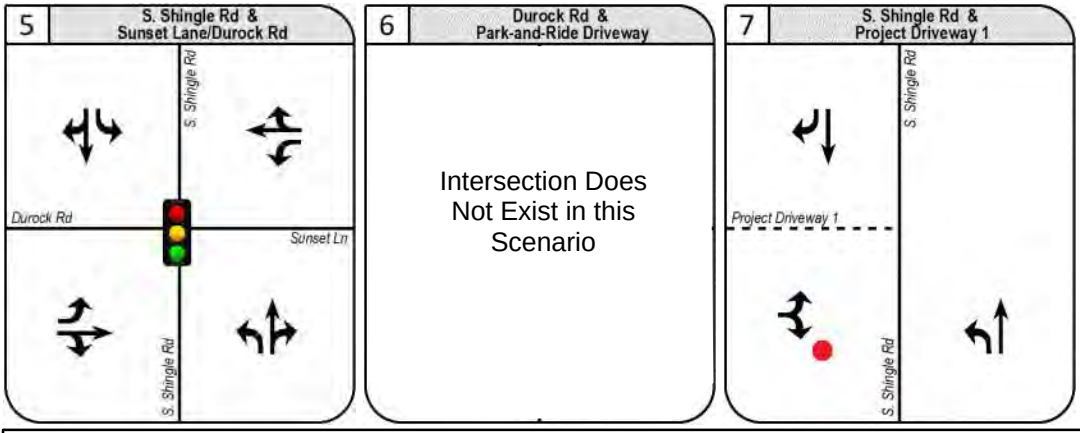
As mentioned above, Near-Term conditions represent completion of Phase I of the Interchange Improvements Project. As a result, existing traffic counts have been rerouted accordingly to account for realigned and reconfigured intersections to represent Near-Term traffic conditions. **Figure 11** illustrates Near-Term intersection turning movement volumes for the study area intersections.

Note that under Near-Term (no Project) conditions, vehicles would not be able to make a northbound left-turn into the Park-and-Ride from South Shingle Road. Northbound vehicles wishing to enter the Park-and-Ride would be required to re-route to Mother Lode Drive via Sunset Lane or the 76 Gas Station Driveway and then make a westbound left-turn onto South Shingle Road to access the Park-and-Ride (or take a similar detour route). Similarly, vehicles would not be able to make an eastbound left-turn from the Park-and-Ride to northbound South Shingle Road. Vehicles wishing to exit the Park-and-Ride and travel northbound would be required to turn right onto South Shingle Road and make a U-turn utilizing one of the driveways on the east side of South Shingle Road to travel north (or take a similar detour route). The rerouted Park-and-Ride vehicles would be able to use the Project driveway for more direct access once the Project is built.

Attachment I





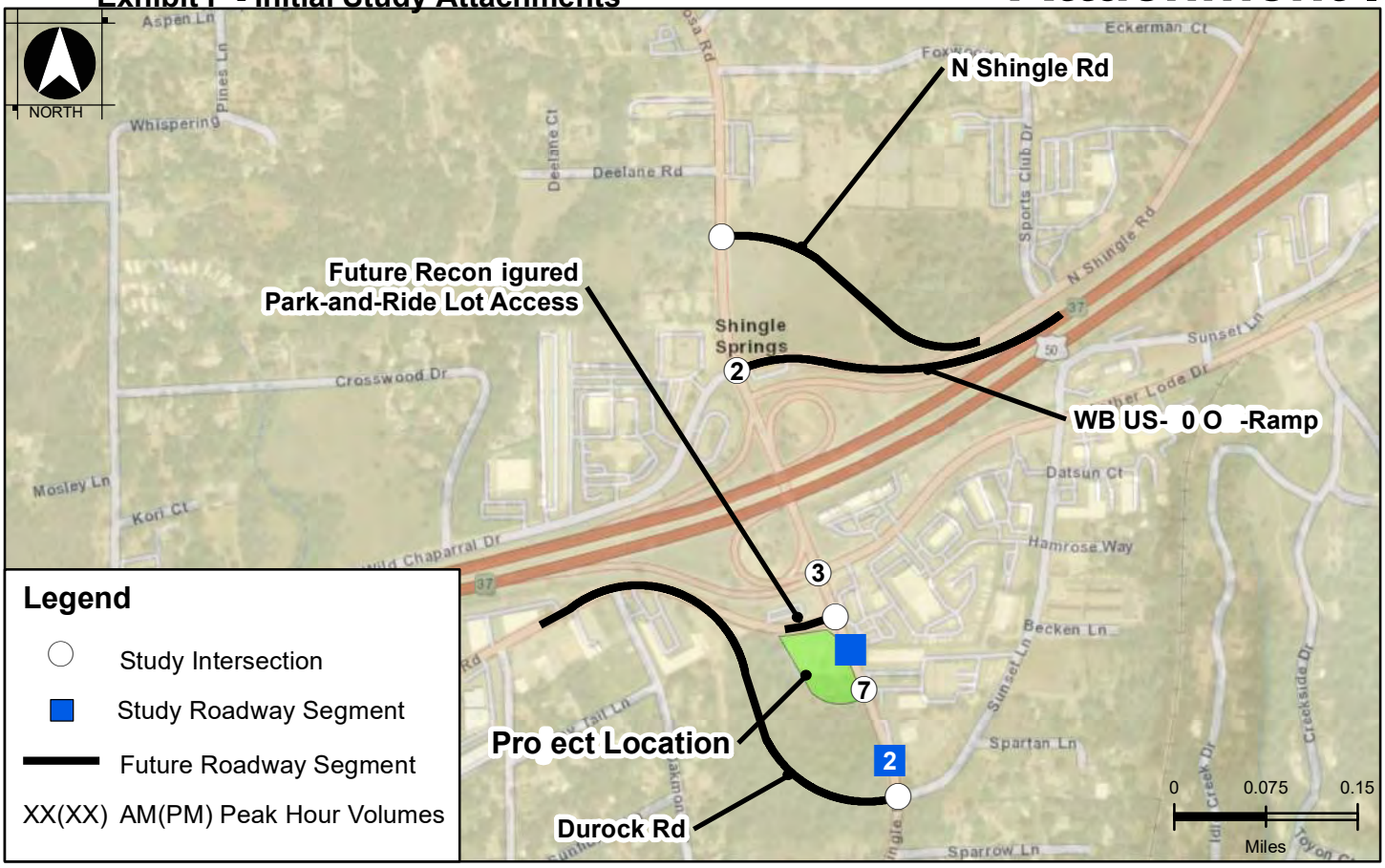


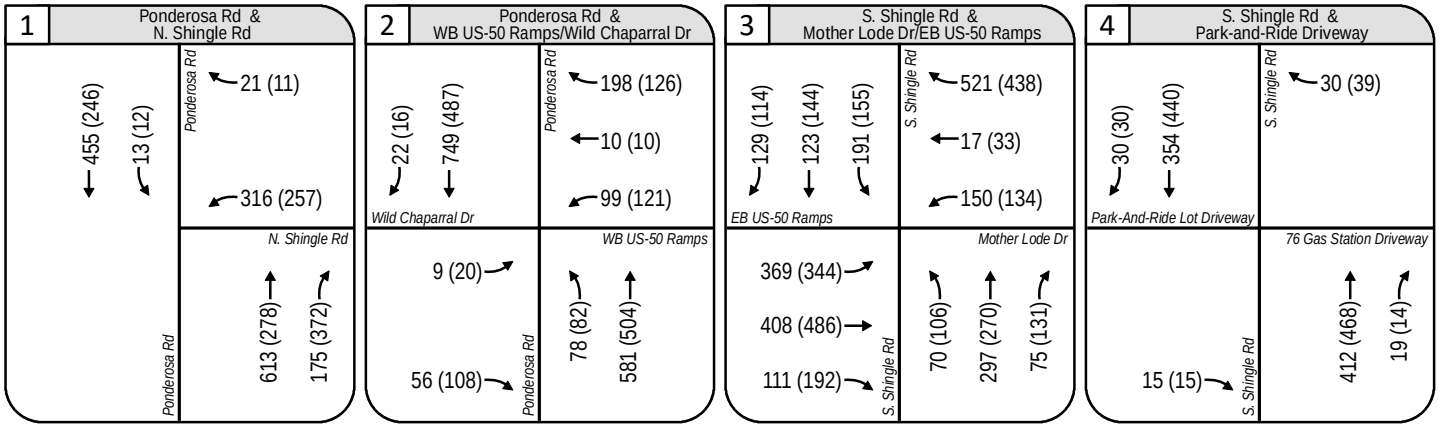
Near-Term Intersection Lane Geometrics and Control
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

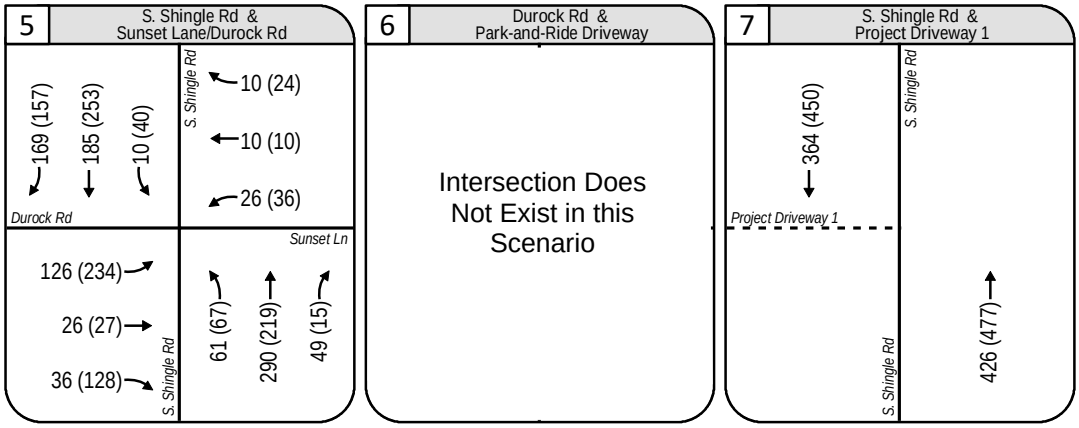
Figure 10

WOOD RODGERS

Attachment I







Near-Term Intersection Turning Movement Volumes
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 11

WOOD RODGERS

4.2 Near-Term Intersection Operations

Near-Term intersection operations were quantified under Near-Term traffic volumes (shown in **Figure 11**) and Near-Term intersection lane geometrics and control (shown in **Figure 10**) illustrates the resulting Near-Term intersection LOS operations. All study intersection traffic operations were calculated using Synchro 11 software.

Table 6. Near-Term Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Near-Term Conditions		
					Delay (sec)[2]	LOS[2]	Warrant Met?[3]
1	Ponderosa Road & North Shingle Road (realigned)	Signal	E	AM	12.4	B	-
				PM	29.3	C	-
2	Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)	Signal	E	AM	54.9	D	-
				PM	40.5	D	-
3	South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	Signal	E	AM	68.6	E	-
				PM	47.8	D	-
4	South Shingle Road & Park-and-Ride Driveway (proposed)	OWSC[1]	E	AM	10.8	B	No
				PM	11.6	B	No
5	South Shingle Road & Durock Road (realigned)/Sunset Lane	Signal	E	AM	21.6	C	-
				PM	38.0	D	-
6	Durock Road & Project Driveway 2 (proposed)	OWSC[1]	E	AM	Intersection does not exist under this scenario		
				PM			
7	South Shingle Road & Project Driveway 1	OWSC[1]	E	AM	Future Intersection		
				PM			

Notes:
[1] OWSC = One-Way Stop-Controlled
[2] For signalized intersections, the average delay is reported. For OWSC, the worst-case approach/movement delay and LOS is reported.
[3] CA MUTCD Peak Hou Signal Warrant #3

As shown in **Table 6**, all study intersections are projected to operate at acceptable LOS under Near-Term conditions during the weekday AM and PM peak hours. Unsignalized study intersections are not projected to meet CA MUTCD Peak Hour Signal Warrant #3 under Near-Term conditions. Synchro software intersection LOS output reports are included in **Appendix B**. The signal warrant worksheet is provided in **Appendix C**.

5. NEAR-TERM PLUS PROJECT CONDITIONS

This chapter provides a description of analysis of projected traffic operations under Near-Term Plus Project conditions.

5.1 NEAR-TERM PLUS PROJECT INTERSECTION OPERATIONS

As discussed previously, Near-Term conditions represent completion of Phase I of the Interchange Improvements Project. Accordingly, Project trips have been rerouted to account for realigned and reconfigured intersections. Under Near-Term and Cumulative conditions, the second Project Driveway would connect to the Park-and-Ride lot to the north, which is planned to be improved under Phase I of the Interchange Improvements Project. The improved Park-and-Ride lot would have a single right-in right-out driveway on South Shingle Road. An exhibit illustrating the proposed Project access under Near-Term conditions is contained in **Appendix F**.

Separate trip distributions and assignments were prepared for the primary trips, pass-by trips, and diverted trips and are shown in **Figure 12**, **Figure 13**, and **Figure 14**. **Figure 15** provides the final Combined Project Trips which represent a summation of all Near-Term Project primary, pass-by, and diverted trips. **Figure 16** provides the Near-Term Plus Project volumes. Note that Near-Term Plus Project volumes also include rerouted Park-and-Ride vehicles that would use the Project driveway.

Near-Term Plus Project intersection operations were evaluated under Near-Term intersection lane geometrics and traffic control (illustrated in **Figure 10**) and Near-Term Plus Project traffic volumes. **Table 7** illustrates the resulting Near-Term Plus Project intersection LOS operations. **Table 7** also contains Near-Term conditions intersection delays and LOS for comparison purposes. All study intersection traffic operations were calculated using Synchro 11 software.

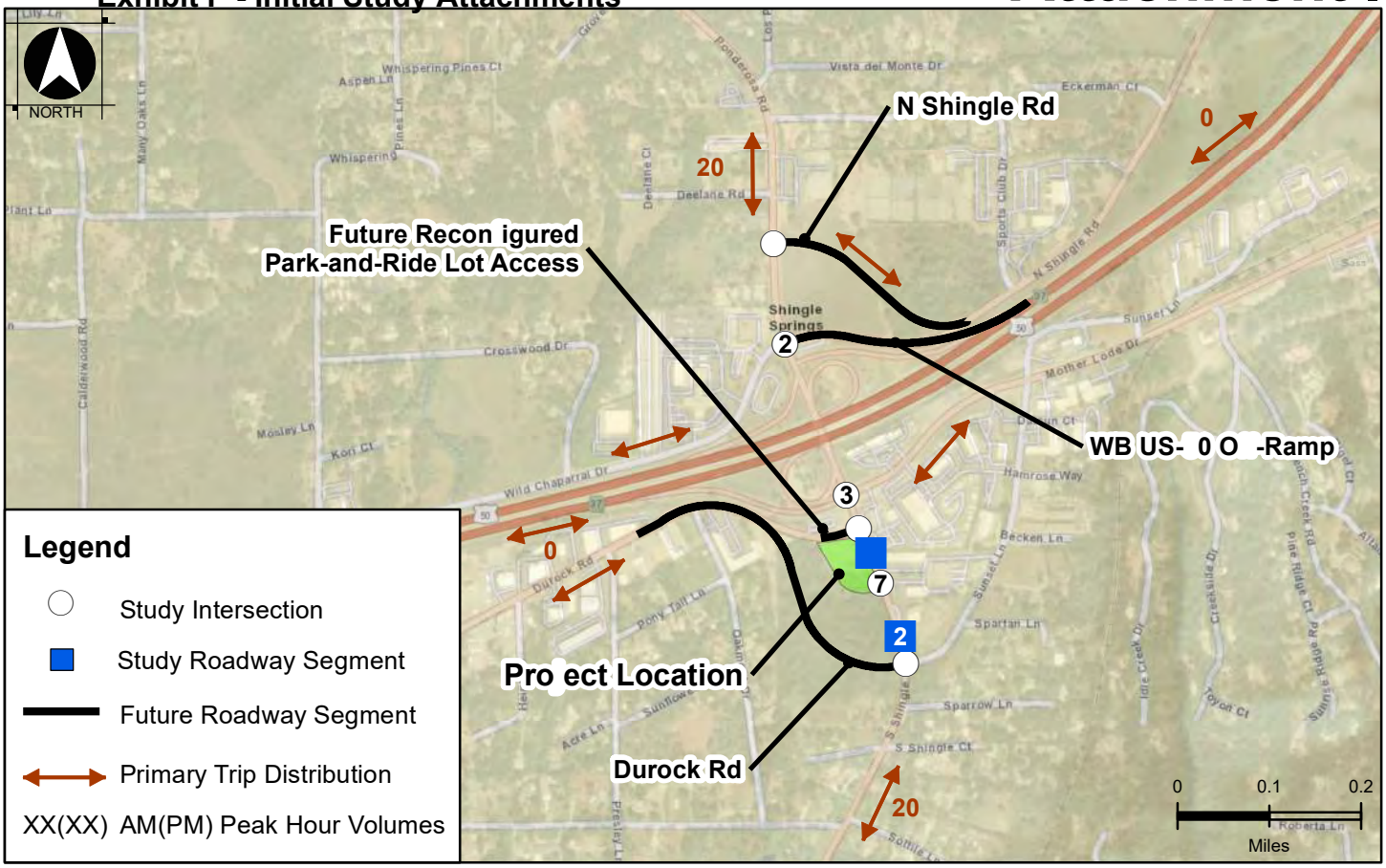
Table 7. Near-Term Plus Project Intersection Operations

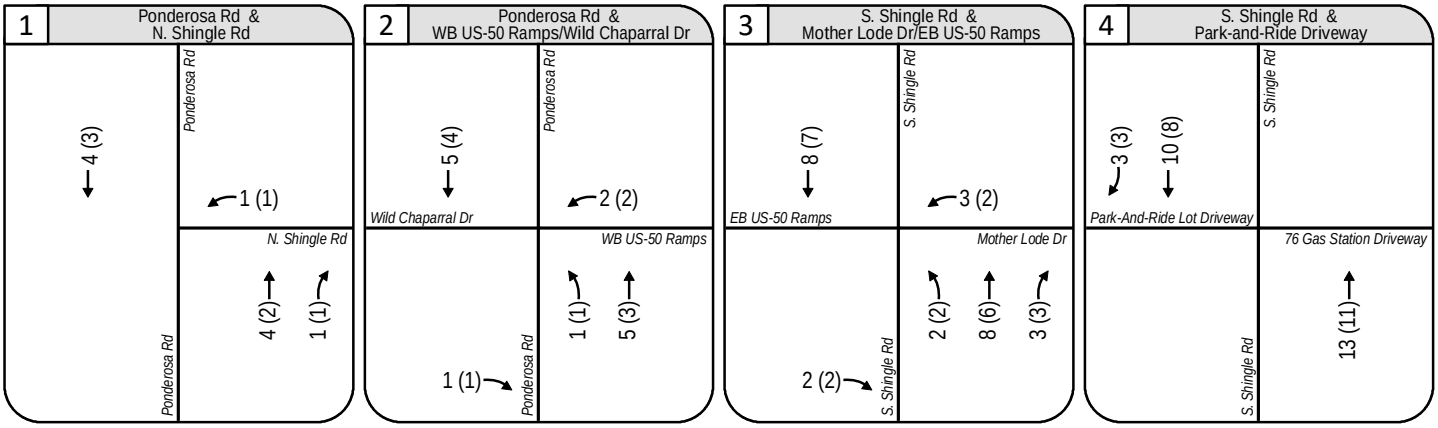
#	Intersection	Control Type	LOS Criteria	Peak Hour	Near-Term			Near-Term Plus Project		
					Delay (sec/ veh)[2]	LOS[2]	Warrant Met?[3]	Delay (sec/ veh)[2]	LOS[2]	Warrant Met?[3]
1	Ponderosa Road & North Shingle Road (realigned)	Signal	E	AM	12.4	B	-	12.4	B	-
				PM	29.3	C	-	29.0	C	-
2	Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)	Signal	E	AM	54.9	D	-	54.8	D	-
				PM	40.5	D	-	40.5	D	-
3	South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	Signal	E	AM	68.6	E	-	63.0	E	-
				PM	47.8	D	-	46.2	D	-
4	South Shingle Road & Park-and-Ride Driveway (proposed)	OWSC[1]	E	AM	10.8	B	No	11.1	B	No
				PM	11.6	B	No	12.0	B	No
5	South Shingle Road & Durock Road (realigned)/Sunset Lane	Signal	E	AM	21.6	C	-	21.8	C	-
				PM	38.0	D	-	38.6	D	-
6	Durock Road & Project Driveway 2 (proposed)	OWSC[1]	E	AM	Intersection does not exist under this scenario					
				PM						
7	South Shingle Road & Project Driveway 1	OWSC[1]	E	AM	Future Intersection			14.9	B	No
				PM				17.4	C	No

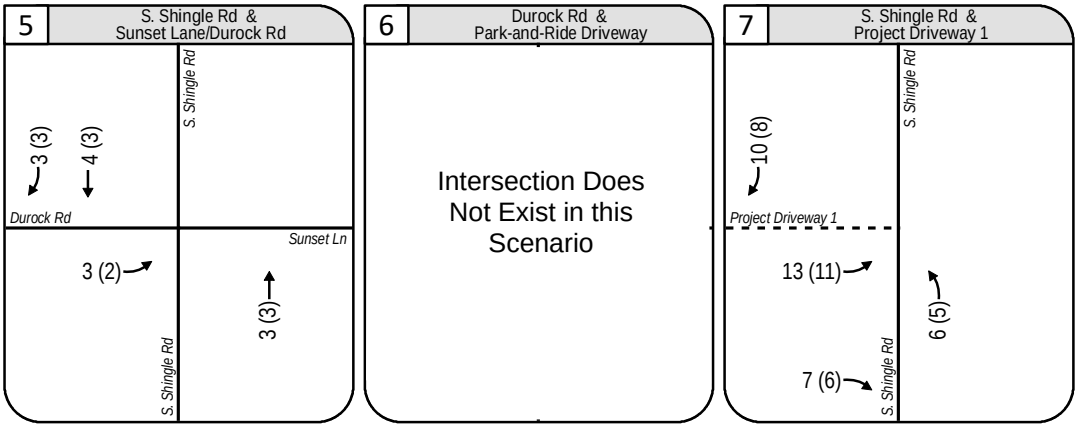
Notes: [1] OWSC = One-Way Stop-Controlled
[2] For signalized intersections, the average delay is reported. For OWSC, the worst-case approach/movement delay and LOS is reported.
[3] CA MUTCD Peak Hou Signal Warrant #3

As shown in **Table 7**, all study intersections are projected to operate at acceptable LOS under Near-Term Plus Project conditions during the weekday AM and PM peak hours. All unsignalized study intersections are not projected to meet CA MUTCD Peak Hour Signal Warrant #3 under Near-Term Plus Project conditions. Synchro software intersection LOS output reports are included in **Appendix B**. The signal warrant worksheet is provided in **Appendix C**.

Attachment I

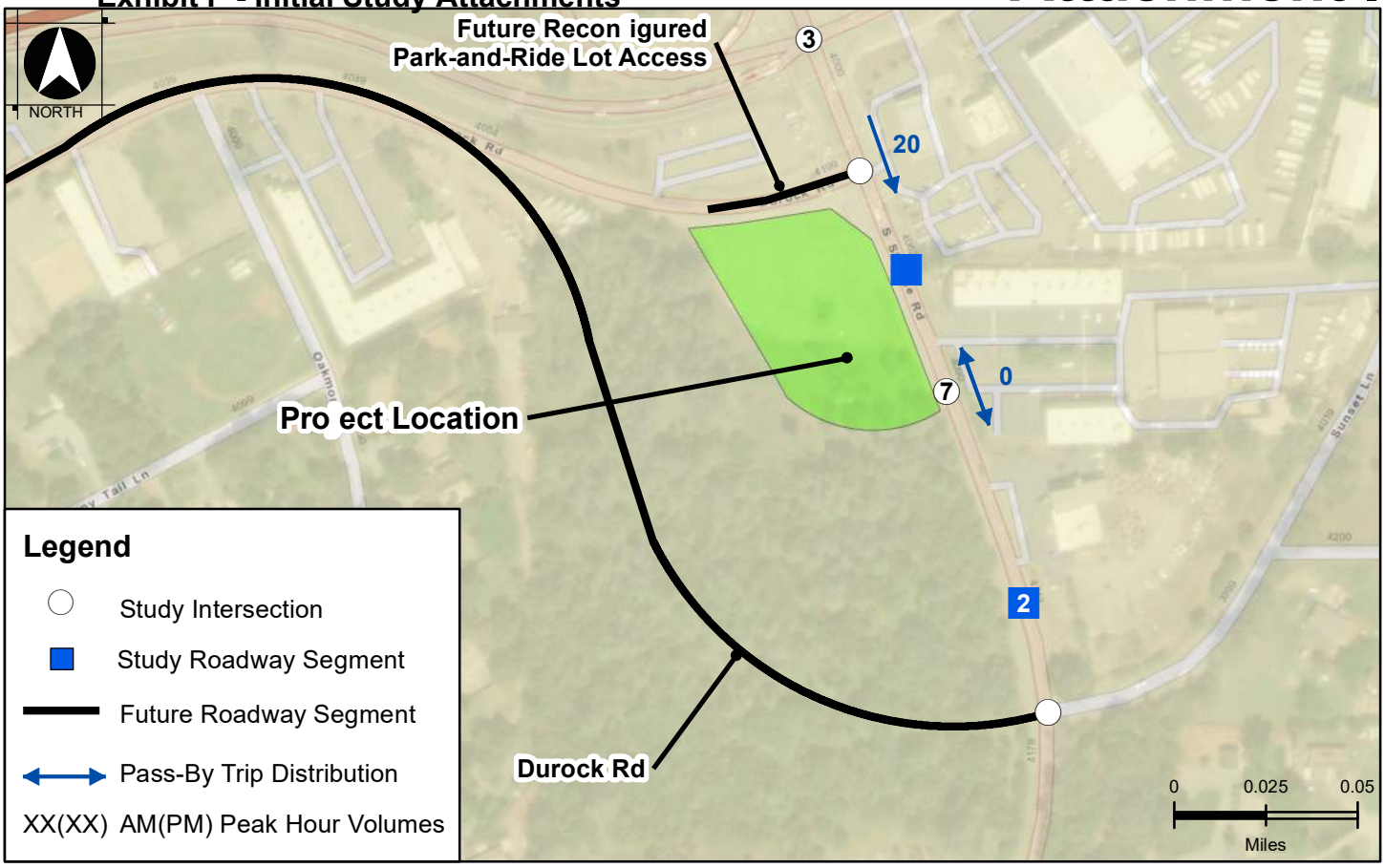


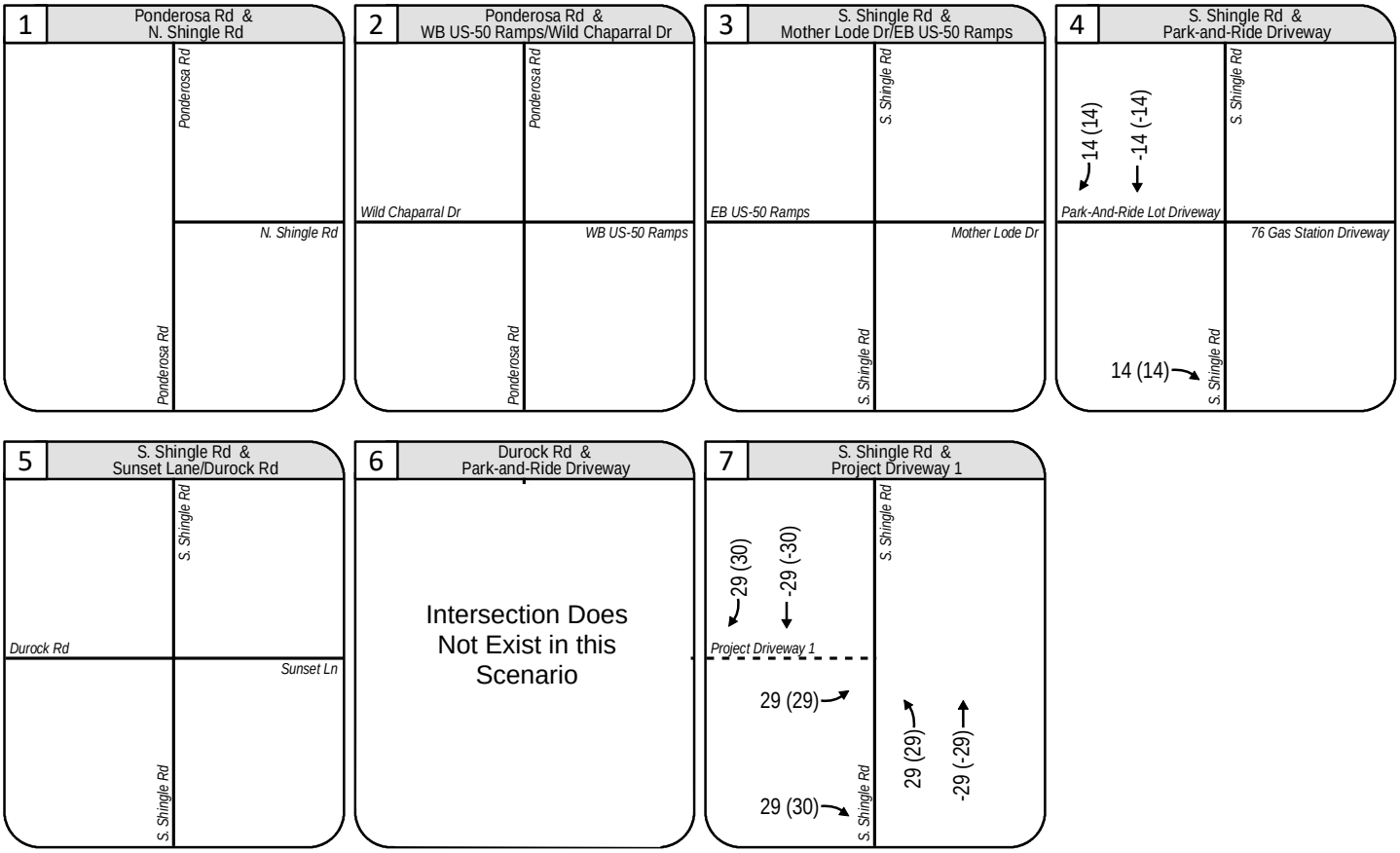




Near-Term Primary Project Trip Distribution and Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 12



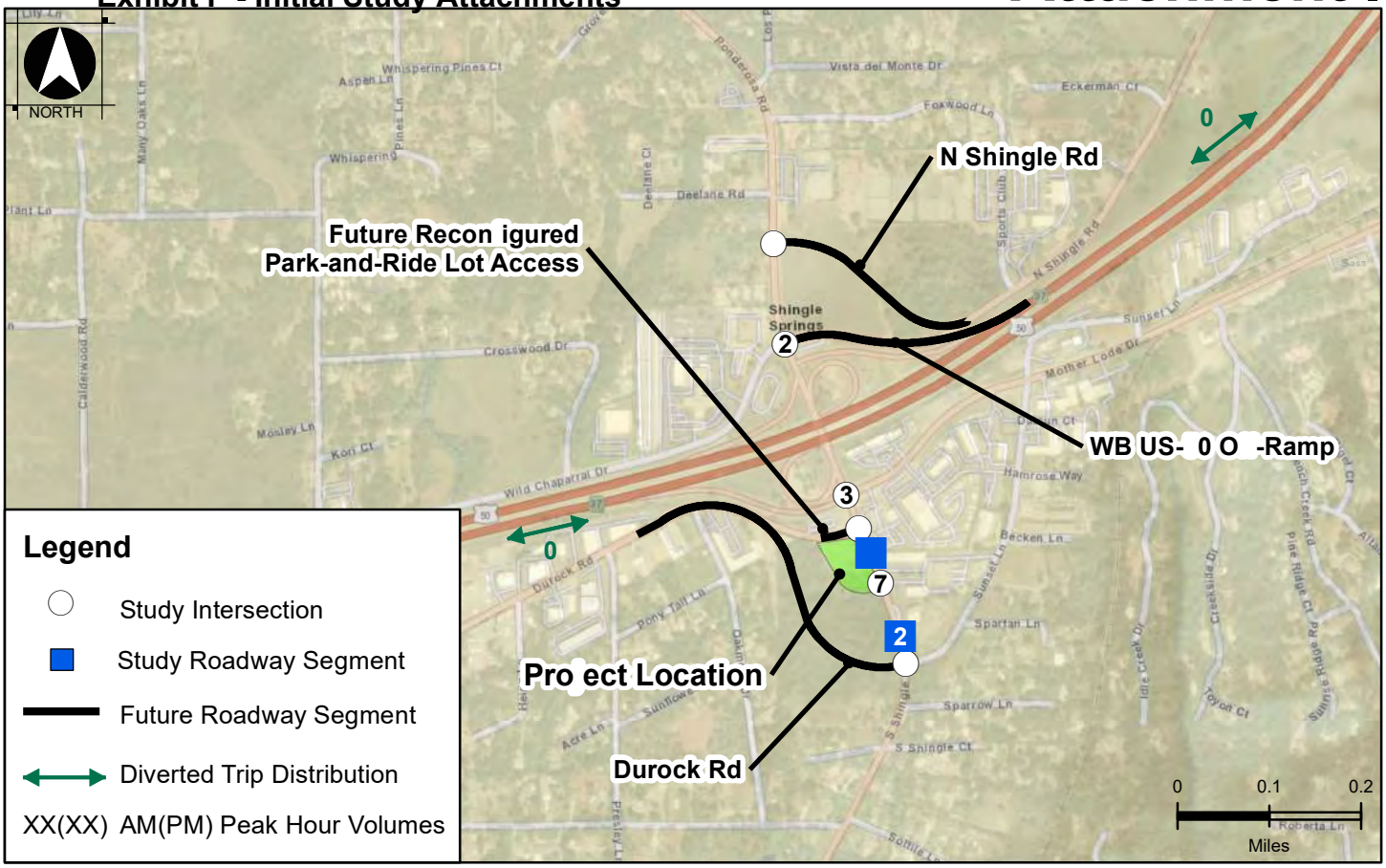


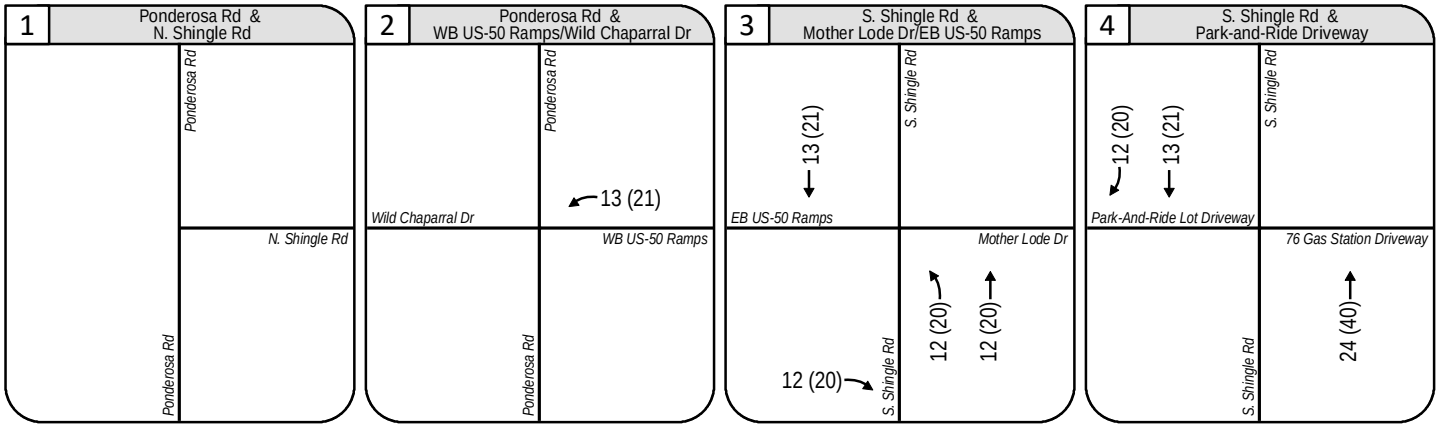
Near-Term Pass-By Project Trips Distribution and Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

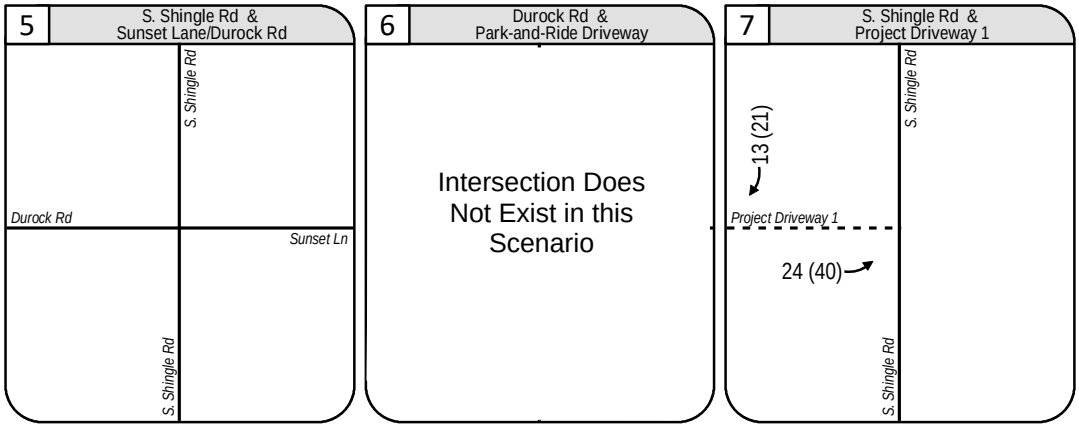
Figure 13

WOOD RODGERS

Attachment I



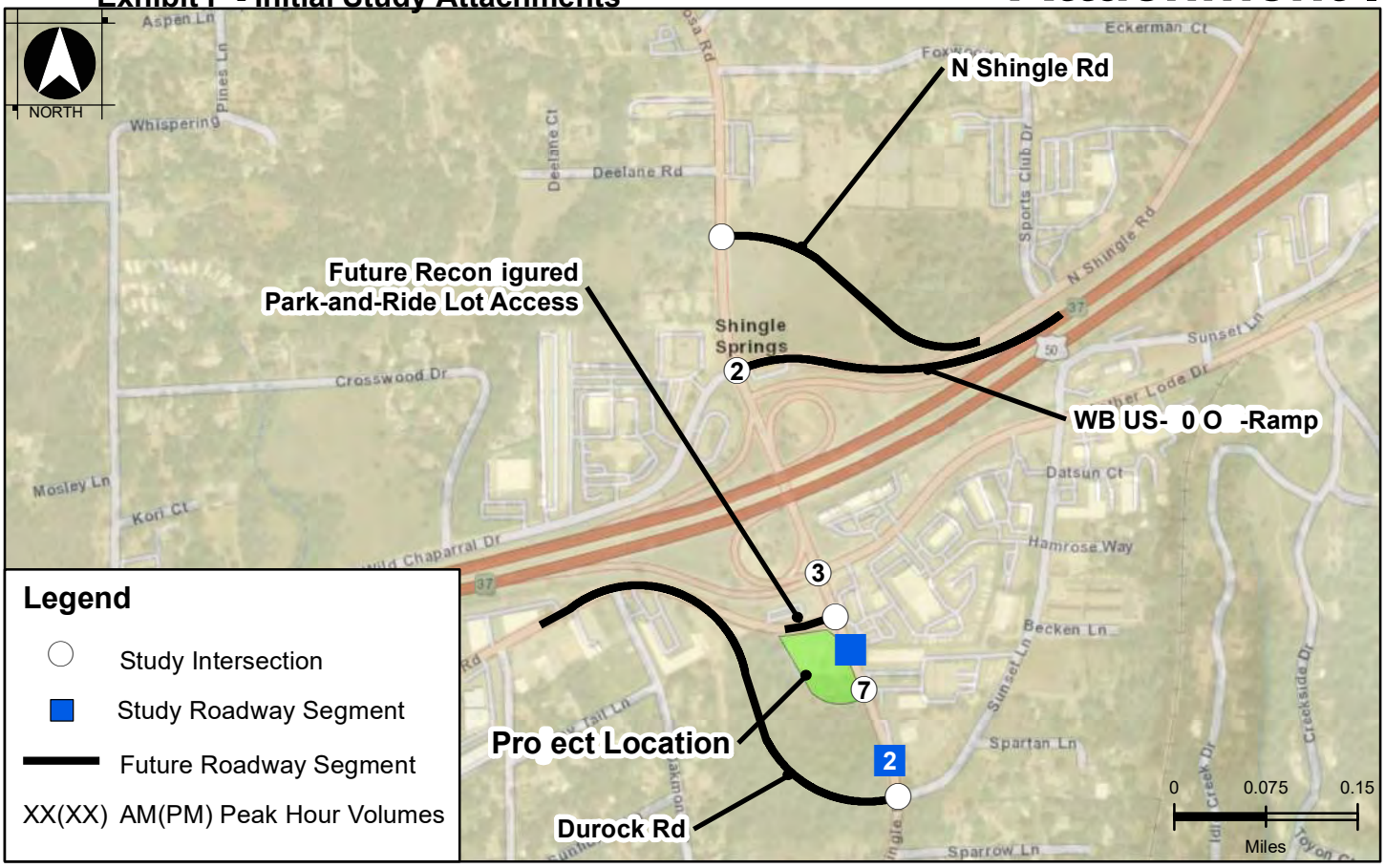


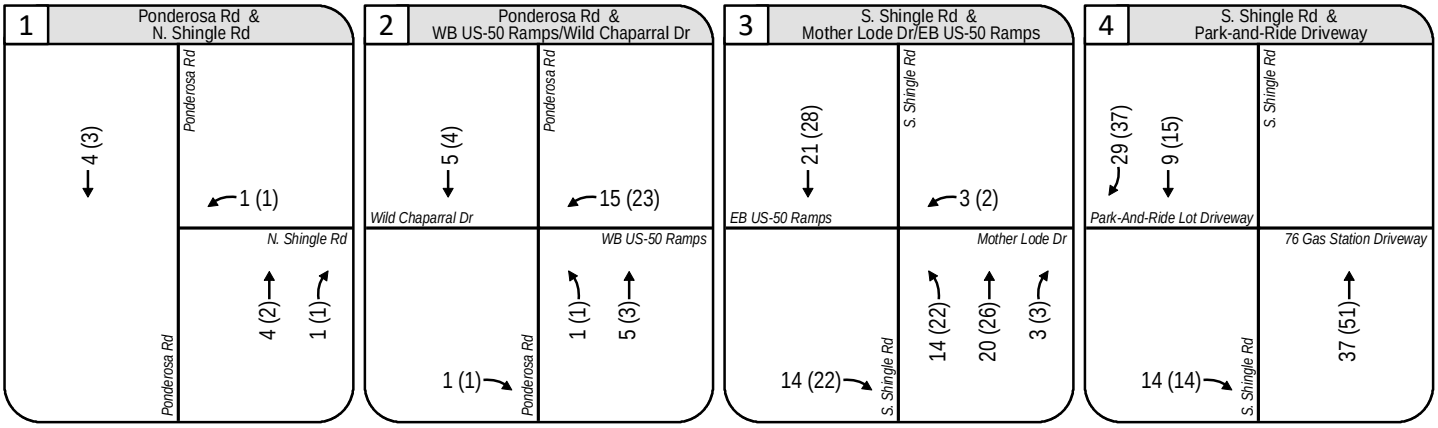


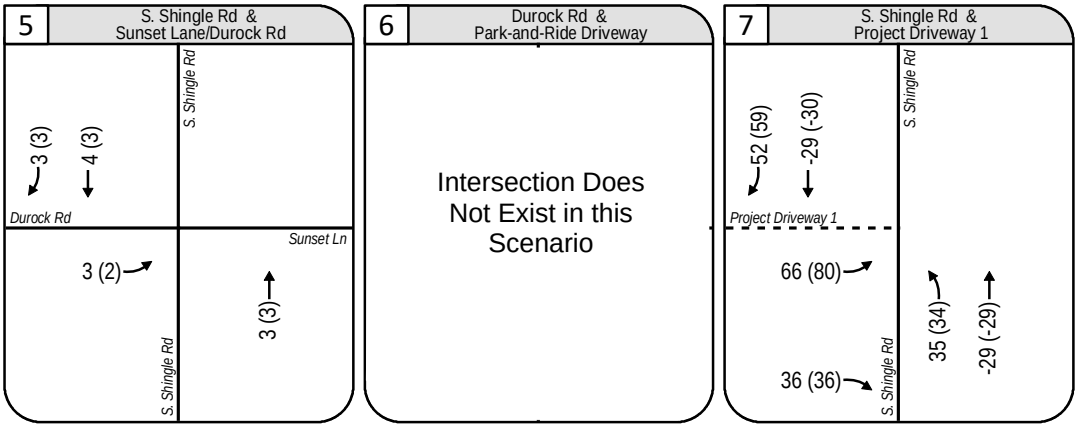
Near-Term Diverted Project Trips Distribution and Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 14

Attachment I





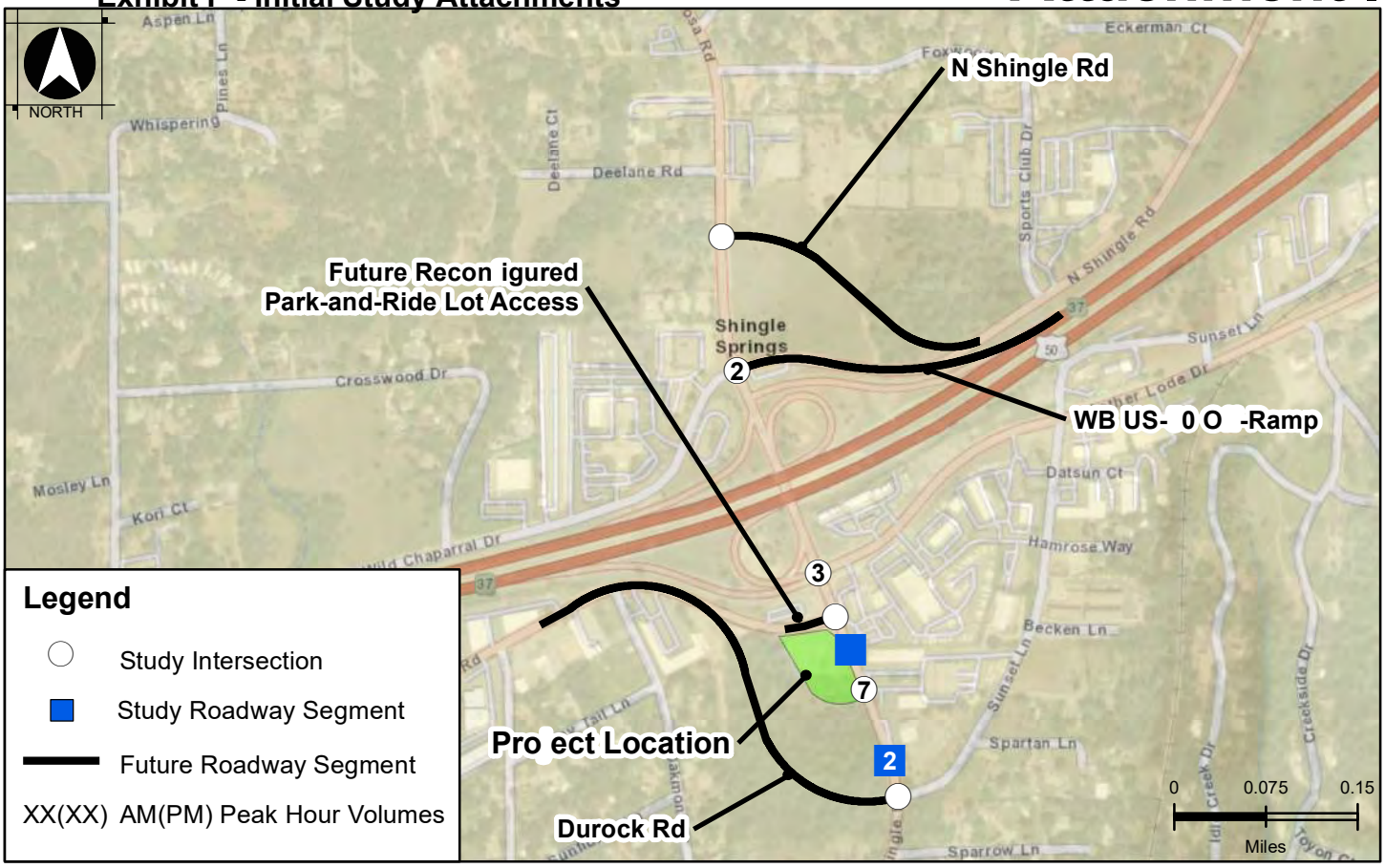


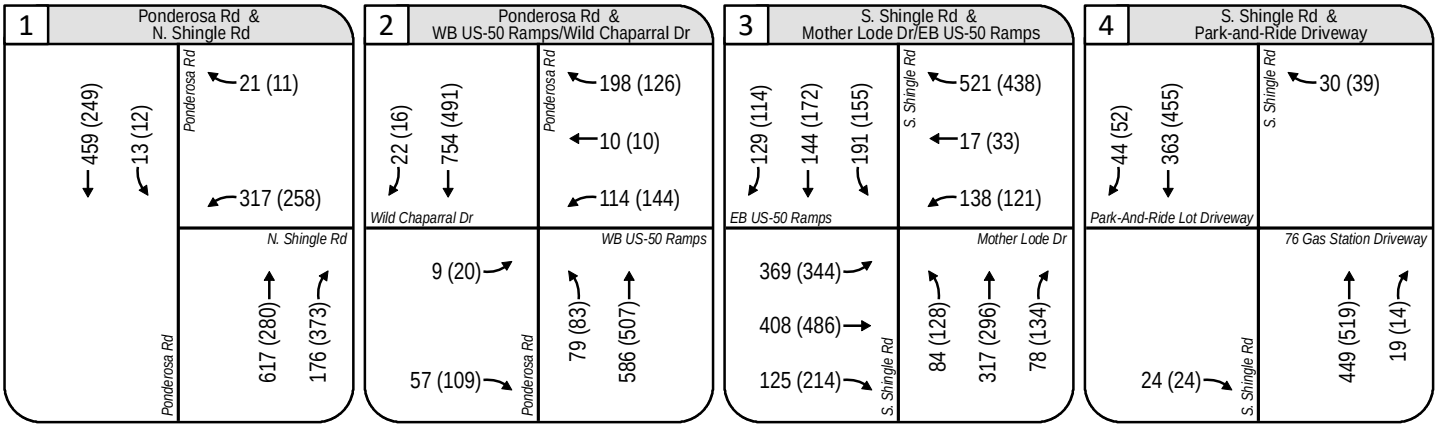
Near-Term Combined Project Trips Assignment
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

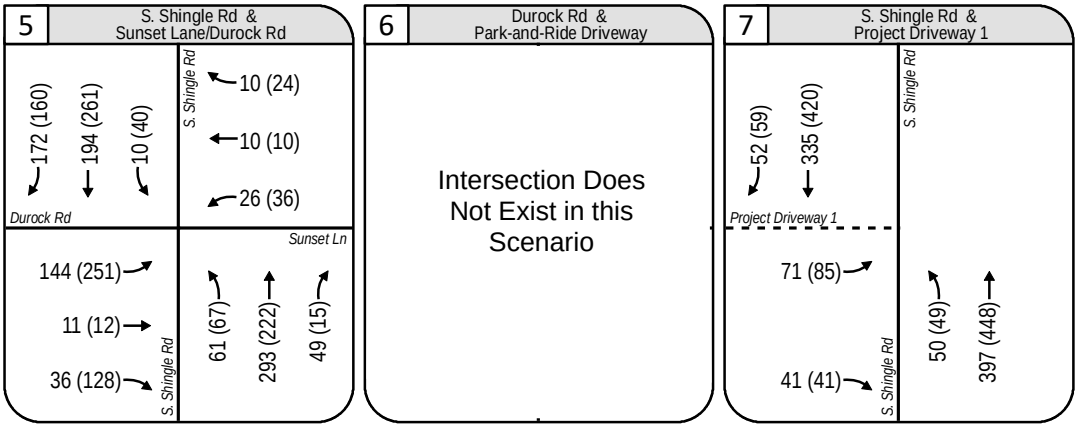
Figure 15

WOOD RODGERS

Attachment I







Near-Term Plus Project Intersection Turning Movement Volumes
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 16

6. CUMULATIVE CONDITIONS

This chapter describes the Cumulative conditions roadway network, traffic volumes, and traffic operations at study facilities.

6.1 CUMULATIVE ROADWAY NETWORK

Phase I and II (ultimate conditions) of the Interchange Improvements Project are assumed to be complete under Cumulative conditions. The ultimate configuration of the Interchange Improvements Project is assumed to conform to Build Alternative 1 of the *Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact* (January 2018) for the Interchange Improvements Project. An exhibit showing Build Alternative 1 is included in **Appendix G**. The Cumulative roadway network consists of the following improvements:

- Improvements included in Near-Term (Phase I) conditions
- Full widening of South Shingle Road/Ponderosa Road to four lanes between Durock Road (realigned)/Sunset Lane and North Shingle Road (realigned)
- Realignment of the Westbound Loop On-Ramp to the east leg of the Ponderosa Road & Wild Chaparral/Westbound US-50 Ramps intersection
- Reconstruction of the Westbound Slip On-Ramp south of the Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned) intersection
- Reconstruction of the Eastbound Loop On-Ramp at the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection
- Updated signal phasing to include protected northbound, eastbound, and westbound left-turns at the Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned) intersection
- Updated signal phasing to include protected left-turns in all directions at the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection. Right-turn overlap phasing was also assumed for the eastbound, westbound, and southbound right-turns at this intersection
- Assumed all Project study signals would be updated with new, coordinated timings using CA MUTCD defaults

Cumulative conditions intersection lane geometrics are shown in **Figure 17**.

6.2 CUMULATIVE VOLUMES

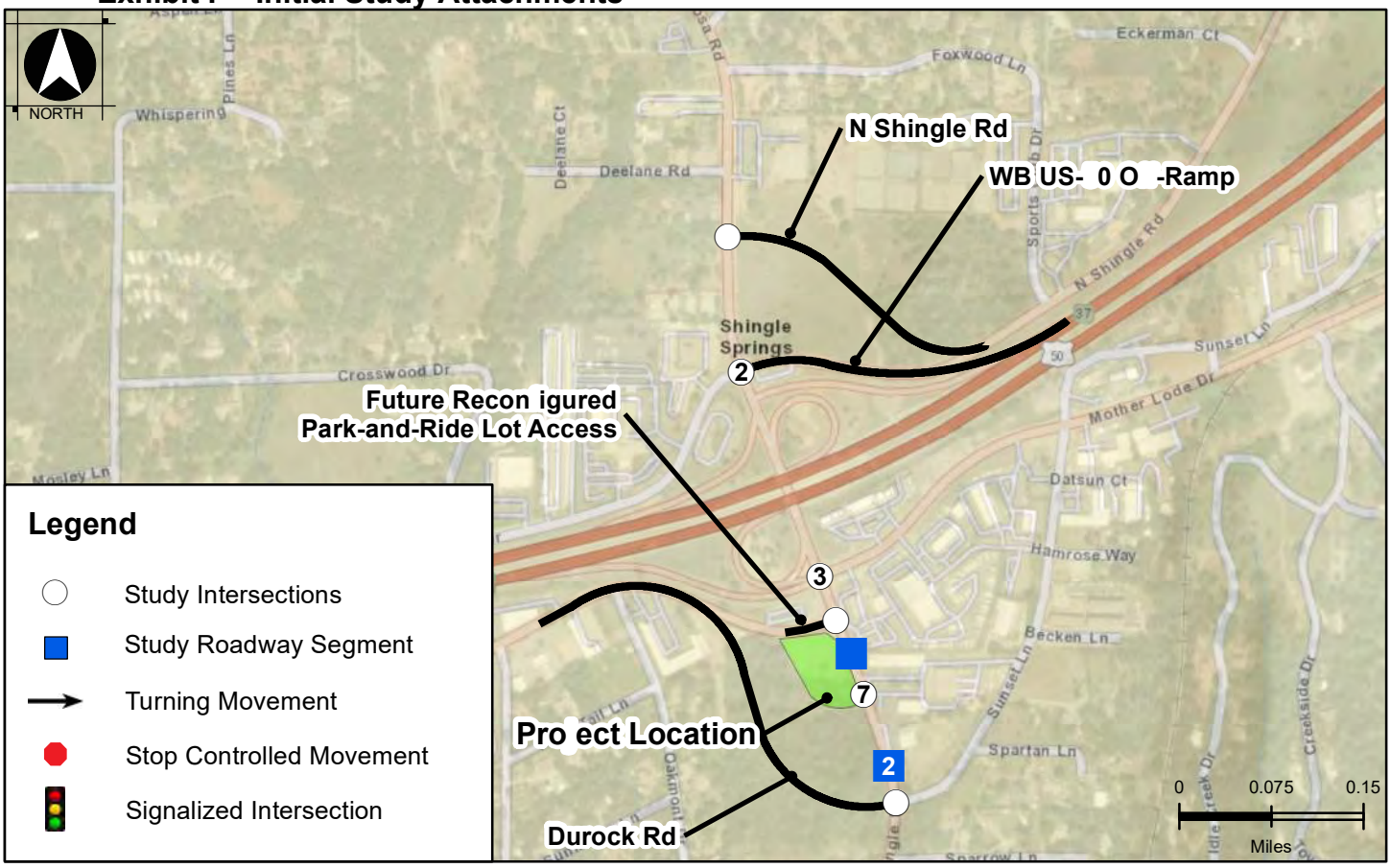
Cumulative conditions represent future year 2040 conditions, including completion of Phase I and Phase II of the Interchange Improvements Project. As a result, existing traffic counts have been rerouted accordingly to account for realigned and reconfigured intersections. Cumulative (2040) volumes were developed by applying the Furness Method to Existing rerouted traffic volumes based on future volumes from the Base Year (2018) and Future Year (2040) scenarios in the El Dorado TDM.

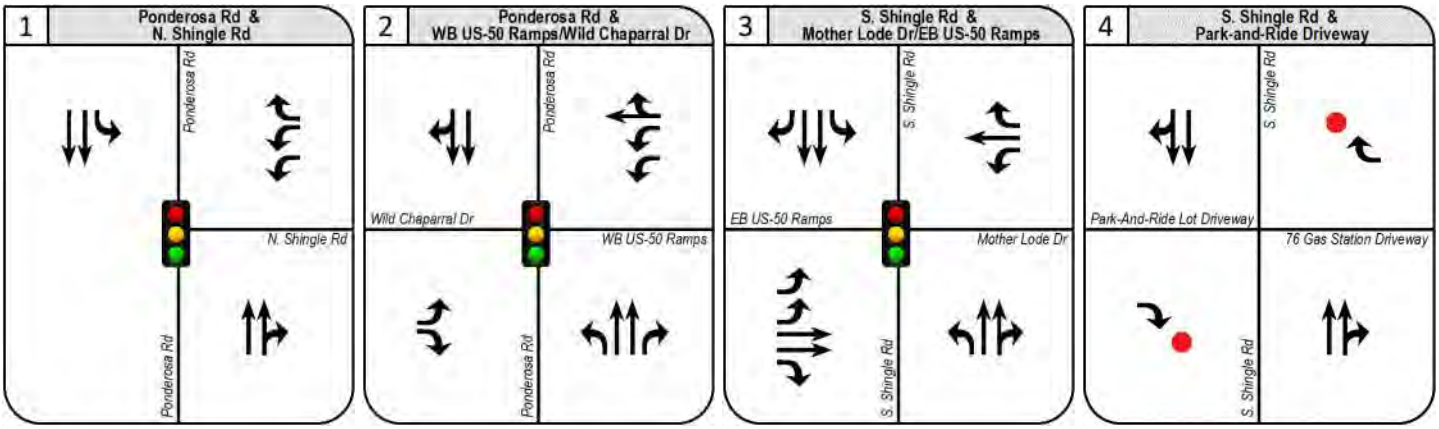
Figure 18 provides the weekday AM and PM peak hour Cumulative traffic volumes at the study intersections.

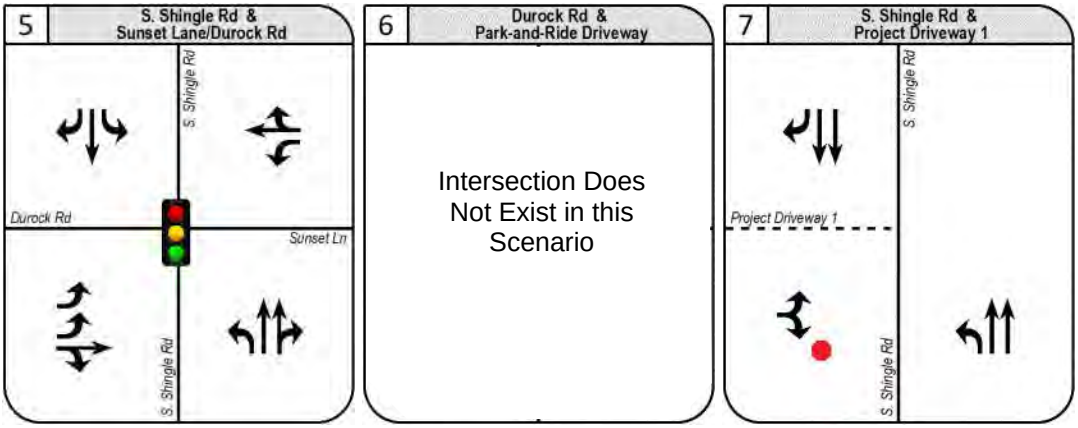
6.3 CUMULATIVE INTERSECTION OPERATIONS

Cumulative intersection operations were quantified under Cumulative intersection lane geometrics and control (shown in **Figure 17**) and Cumulative traffic volumes (shown in **Figure 18**). **Table 8** illustrates the resulting Cumulative intersection LOS operations. All study intersection traffic operations were calculated using Synchro 11 software.

Attachment I





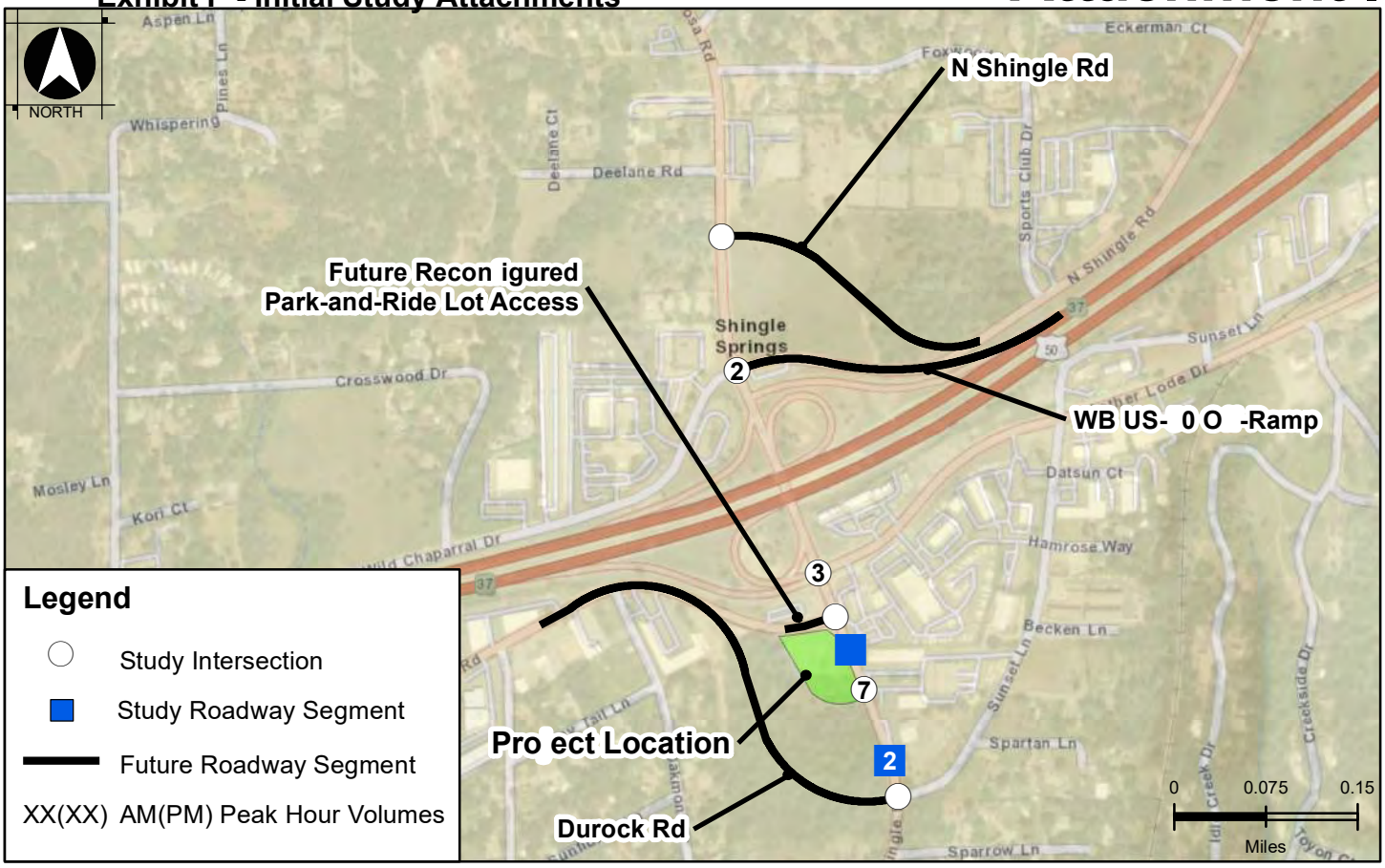


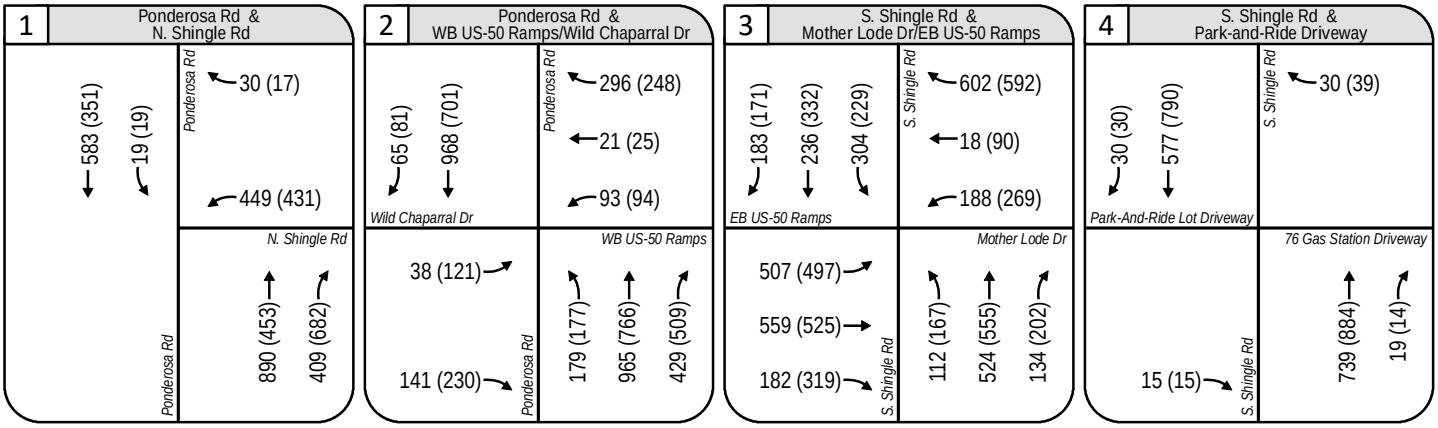
Cumulative Intersection Lane Geometrics and Control
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

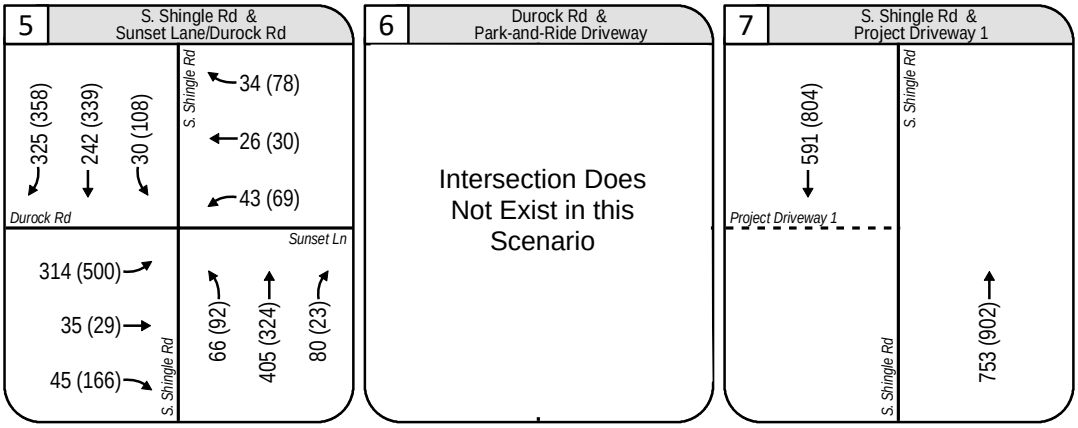
Figure 17

WOOD RODGERS

Attachment I







Cumulative Intersection Turning Movement Volumes
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 18

Table 8. Cumulative Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Cumulative Conditions		
					Delay (sec)[2]	LOS[2]	Warrant Met?[3]
1	Ponderosa Road & North Shingle Road (realigned)	Signal	E	AM	14.6	B	-
				PM	13.7	B	-
2	Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)	Signal	E	AM	33.7	C	-
				PM	24.0	C	-
3	South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	Signal	E	AM	70.8	E	-
				PM	71.7	E	-
4	South Shingle Road & Park-and-Ride Driveway (proposed)	OWSC[1]	E	AM	11.6	B	No
				PM	12.6	B	No
5	South Shingle Road & Durock Road (realigned)/Sunset Lane	Signal	E	AM	25.3	C	-
				PM	37.5	D	-
6	Durock Road & Project Driveway 2 (proposed)	OWSC[1]	E	AM	Intersection does not exist under this scenario		
				PM			
7	South Shingle Road & Project Driveway 1	OWSC[1]	E	AM	Future Intersection		
				PM			

Notes:
[1] OWSC = One-Way Stop-Controlled
[2] For signalized intersections, the average delay is reported. For OWSC, the worst-case approach/movement delay and LOS is reported.
[3] CA MUTCD Peak Hou Signal Warrant #3

As shown in **Table 9**, all study intersections operate at acceptable LOS under Cumulative conditions during the weekday AM and PM peak hours. Unsignalized study intersections are not projected to meet CA MUTCD Peak Hour Signal Warrant #3 under Cumulative conditions. Synchro software intersection LOS output reports are included in **Appendix B**. The signal warrant worksheet is provided in **Appendix C**.

7. CUMULATIVE PLUS PROJECT CONDITIONS

This chapter provides a description of analysis of projected traffic operations under Cumulative Plus Project conditions.

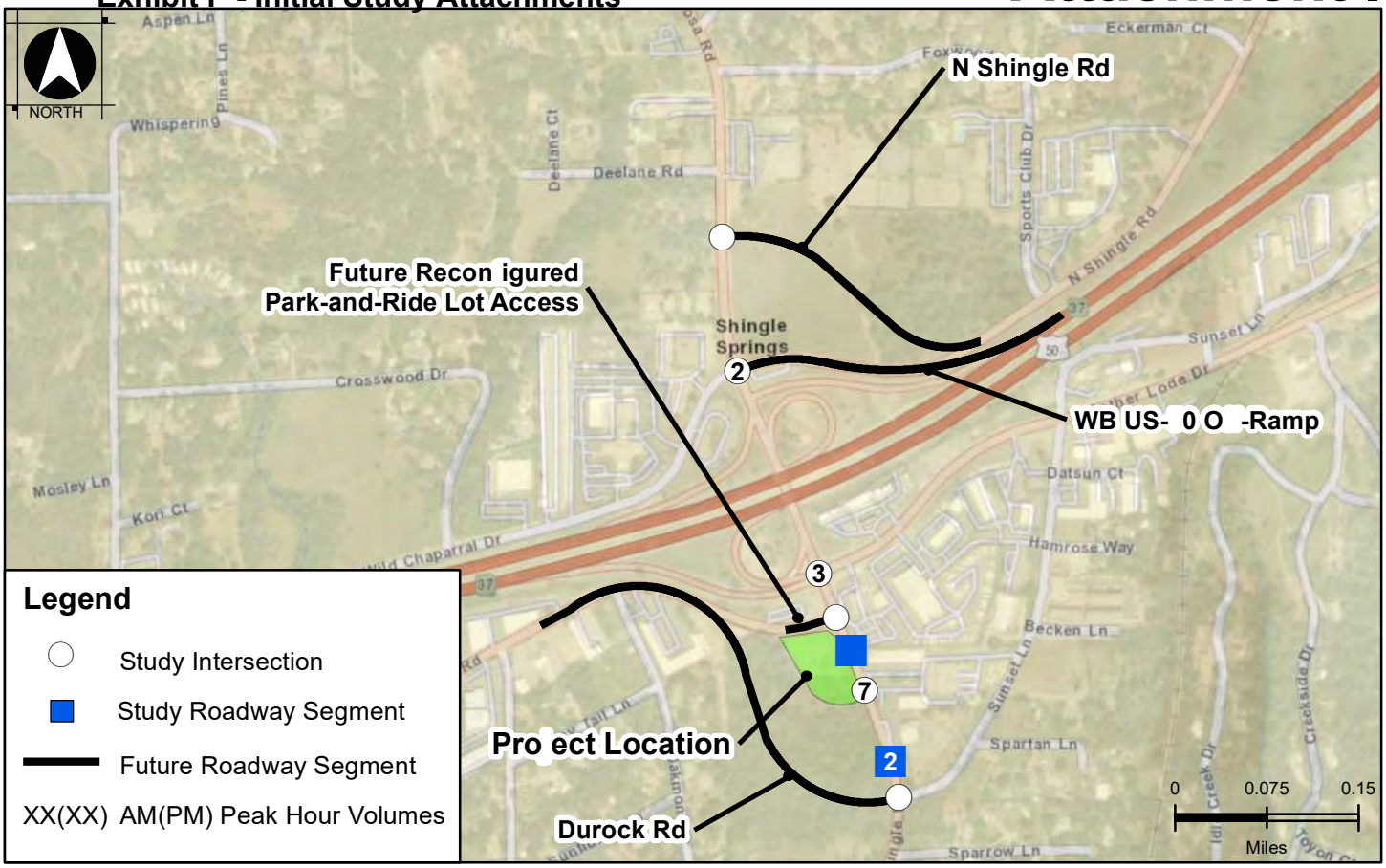
7.1 CUMULATIVE PLUS PROJECT INTERSECTION OPERATIONS

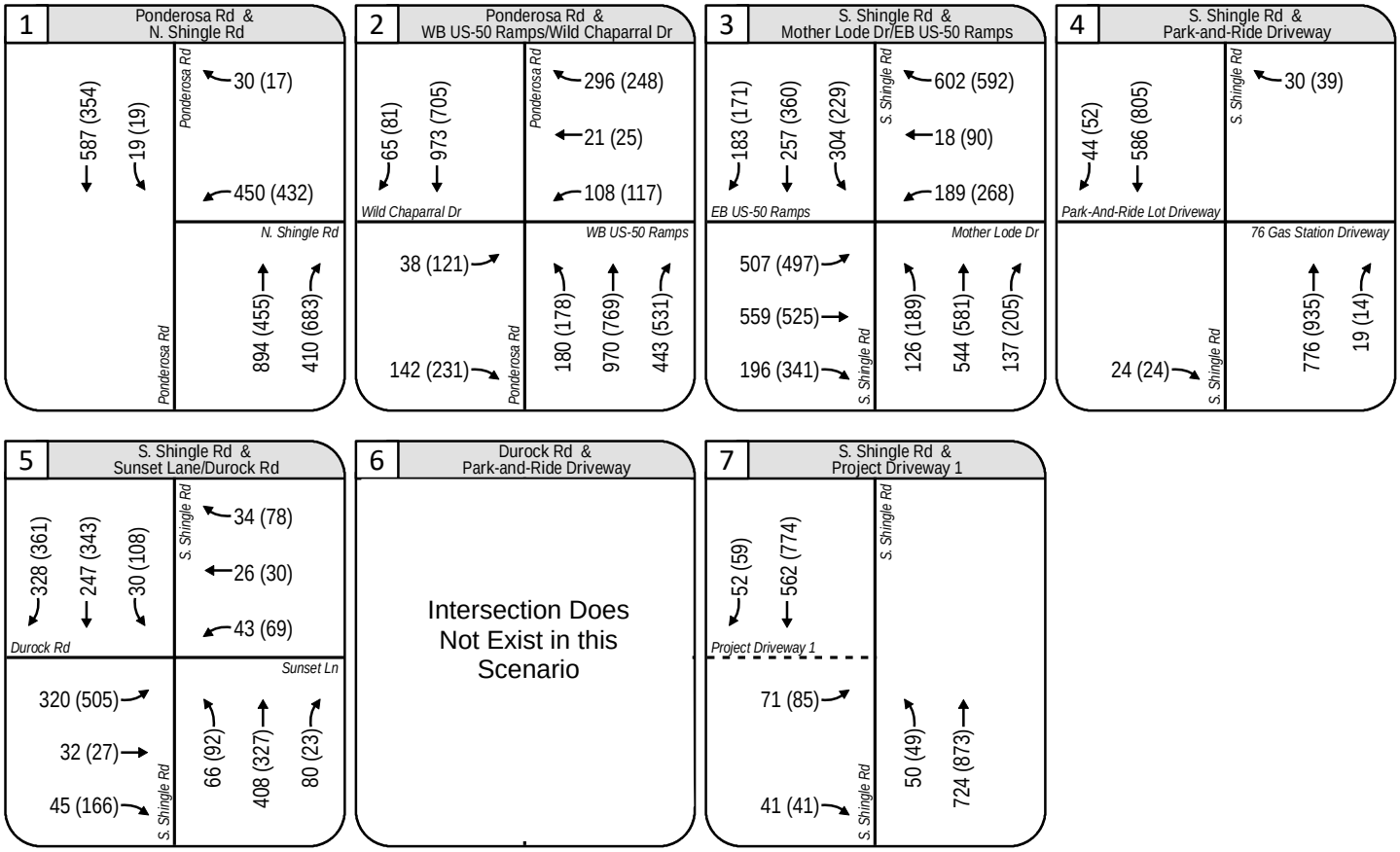
The Near-Term Combined Project Trips were added to Cumulative turning movement volumes at the study intersections to develop Cumulative Plus Project turning movement volumes. Note that Near-Term Combined Project Trips were used as Phase II of the Interchange Improvements Project is not anticipated to significantly change study area travel patterns beyond the changes already made in Phase I. **Figure 19** shows the Cumulative Plus Project traffic volumes. Note that Cumulative Plus Project volumes also include rerouted Park-and-Ride vehicles that would use the Project driveway. Note that under Cumulative geometrics, the Westbound US-50 Loop On-Ramp is realigned to become part of the east leg of the Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned) intersection. As such, all Project trips entering the Westbound US-50 Loop On-Ramp now make a northbound right-turn at Intersection #2.

Under Near-Term and Cumulative conditions, the second Project Driveway would connect to the Park-and-Ride lot to the north, which is planned to be improved under Phase I of the Interchange Improvements Project. The improved Park-and-Ride lot would have a single right-in right-out driveway on South Shingle Road.

Cumulative Plus Project intersection operations were evaluated under Cumulative Plus Project traffic volumes and Cumulative intersection lane geometrics and traffic control (illustrated in **Figure 17**). **Table 9** illustrates the Cumulative Plus Project intersection LOS operations. **Table 9** also contains Cumulative conditions intersection delays and LOS for comparison purposes. All study intersection traffic operations were calculated using Synchro 11 software.

Attachment I





Cumulative Plus Project Intersection Turning Movement Volumes
ARCO Shingle Springs TIS
El Dorado County, CA
September 2025

Figure 19

Table 9. Cumulative Plus Project Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Cumulative			Cumulative Plus Project		
					Delay (sec/ veh)[2]	LOS[2]	Warrant Met?[3]	Delay (sec/ veh)[2]	LOS[2]	Warrant Met?[3]
1	Ponderosa Road & North Shingle Road (realigned)	Signal	E	AM	14.6	B	-	14.6	B	-
				PM	13.7	B	-	13.7	B	-
2	Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)	Signal	E	AM	33.7	C	-	33.7	C	-
				PM	24.0	C	-	24.0	C	-
3	South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	Signal	E	AM	70.8	E	-	71.0	E	-
				PM	71.7	E	-	71.8	E	-
4	South Shingle Road & Park-and-Ride Driveway (proposed)	OWSC[1]	E	AM	11.6	B	No	11.9	B	No
				PM	12.6	B	No	13.0	B	No
5	South Shingle Road & Durock Road (realigned)/Sunset Lane	Signal	E	AM	25.3	C	-	25.4	C	-
				PM	37.5	D	-	37.6	D	-
6	Durock Road & Project Driveway 2 (proposed)	OWSC[1]	E	AM	Intersection does not exist under this scenario					
				PM						
7	South Shingle Road & Project Driveway 1	OWSC[1]	E	AM	Future Intersection			17.2	C	No
				PM				26.6	D	Yes

Notes:
[1] OWSC = One-Way Stop-Controlled
[2] For signalized intersections, the average delay is reported. For OWSC, the worst-case approach/movement delay and LOS is reported.
[3] CA MUTCD Peak Hou Signal Warrant #3

As shown in **Table 9**, all study intersections operate at acceptable LOS under Cumulative Plus Project conditions during the weekday AM and PM peak hours. All unsignalized study intersections are not projected to meet CA MUTCD Peak Hour Signal Warrant #3 except for the South Single Road & Project Driveway 1 intersection during the PM peak hour under Cumulative Plus Project conditions. Synchro software intersection LOS output reports are included in **Appendix B**. The signal warrant worksheet is provided in **Appendix C**.

8. ROADWAY SEGMENT ANALYSIS

Roadway operations for the two study roadway segments were evaluated against County peak hour capacity criteria shown in **Table 2**. Note that in the County General Plan, South Shingle Road is classified as a Major 2-Lane Road under Existing conditions and would be classified as a 4-Lane Undivided Road under Cumulative Conditions. However, based on classifications provided in the County TIS Guidelines, South Shingle can be classified as a 2-Lane Arterial under Existing and Near-Term conditions and a 4-Lane Arterial, Undivided under Cumulative conditions. Peak hour roadway segment volumes were calculated from the adjacent intersection turning movement volumes.

Roadway operations for Existing and Existing Plus Project conditions, Near-Term and Near-Term Plus Project conditions, and Cumulative and Cumulative Plus Project conditions are shown in **Table 10**, **Table 11** and **Table 12**, respectively.

Table 10. Existing and Existing Plus Project Roadway Operations

#	Segment	Operational Class[1]	LOS Criteria	Max Peak Hour Volume for Acceptable LOS[2]	Existing		Peak Hour Project Trips[3]	Existing Plus Project	
					Peak Hour Volume	LOS		Peak Hour Volume	LOS
1	South Shingle Road, between Mother Lode Drive and Project Driveway	Two-Lane Arterial	E	1,650	943	D	103	1,046	D
2	South Shingle Road, between Project Driveway (proposed) and Durock Road (realigned)	Two Lane Arterial	E	1,650	726	C	7	733	C

Notes:
[1] Source: Figure TC-1 of the General Plan Transportation and Circulation Element.
[2] Source: Table 1 of the El Dorado County Transportation Impact Study Guidelines.
[3] Peak Hour trips and volumes are the highest of AM or PM peaks.

Table 11. Near-Term and Near-Term Plus Project Roadway Operations

#	Segment	Operational Class[1]	LOS Criteria	Max Peak Hour Volume for Acceptable LOS[2]	Near-Term		Peak Hour Project Trips[3]	Near-Term Plus Project	
					Peak Hour Volume	LOS		Peak Hour Volume	LOS
1	South Shingle Road, between Mother Lode Drive and Project Driveway	Two-Lane Arterial	E	1,650	977	D	103	1,080	D
2	South Shingle Road, between Project Driveway (proposed) and Durock Road (realigned)	Two Lane Arterial	E	1,650	927	D	13	940	D

Notes:
[1] Source: Figure TC-1 of the General Plan Transportation and Circulation Element.
[2] Source: Table 1 of the El Dorado County Transportation Impact Study Guidelines.
[3] Peak Hour trips and volumes are the highest of AM or PM peaks.

Table 12. Cumulative and Cumulative Plus Project Roadway Operations

#	Segment	Operational Class[1]	LOS Criteria	Max Peak Hour Volume for Acceptable LOS[2]	Cumulative		Peak Hour Project Trips[3]	Cumulative Plus Project	
					Peak Hour Volume	LOS		Peak Hour Volume	LOS
1	South Shingle Road, between Mother Lode Drive and Project Driveway	Four-Lane Arterial, Undivided	E	3,130	1,844	D	103	1,947	D
2	South Shingle Road, between Project Driveway (proposed) and Durock Road (realigned)	Four-Lane Arterial, Undivided	E	3,130	1,707	C	13	1,720	C

Notes:
[1] Source: Figure TC-1 of the General Plan Transportation and Circulation Element.
[2] Source: Table 1 of the El Dorado County Transportation Impact Study Guidelines.
[3] Peak Hour trips and volumes are the highest of AM or PM peaks.

As shown in **Table 10**, **Table 11** and **Table 12**, the study roadway segments are projected to operate at acceptable LOS with and without the addition of Project trips.

9. QUEUING ANALYSIS

95th percentile vehicle queuing was analyzed at the study intersections for movements with turn pockets where the Project would add at least one (1) trip. **Table 13**, **Table 14**, and **Table 15** show the available storage lengths and 95th percentile queues under all analysis scenarios.

Table 13. Queuing Analysis Results – Existing and Existing Plus Project Conditions

Intersection	Movement	Storage (ft)[1]	Peak Hour	95th Percentile Queue (ft)[1]	
				Existing	Existing Plus Project
#1, Ponderosa Road & Wild Chapparal Drive/North Shingle Road	EBR	70	AM	20	21
			PM	53	54
#3, South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	NBR	105	AM	46	24
			PM	40	35
	WBL	75	AM	**196**	**202**
			PM	**171**	**178**
#7, South Shingle Road & Project Driveway 1	NBL	50	AM	-	2
			PM	-	2

Notes:
[1] Queues and storage length are reported per lane.
***Bold** represent queues that exceed existing storage.*

Table 14. Queuing Analysis Results – Near-Term and Near-Term Plus Project Conditions

Intersection	Movement	Storage (ft)[1]	Peak Hour	95th Percentile Queue (ft)[1]	
				Near-Term	Near-Term Plus Project
#2, Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)	WBL	275	AM	112	138
			PM	123	143
#3, South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	NBL	235	AM	68	83
			PM	79	101
	EBR	350	AM	26	36
			PM	58	62
	WBL	265	AM	206	186
			PM	191	170
#7, South Shingle Road & Project Driveway 1	NBL	50	AM	-	4
			PM	-	4

Notes:
[1] Queues and storage length are reported per lane.
***Bold** represent queues that exceed existing storage.*

Table 15. Queuing Analysis Results – Cumulative and Cumulative Plus Project Conditions

Intersection	Movement	Storage (ft)[1]	Peak Hour	95th Percentile Queue (ft)[1]	
				Cumulative	Cumulative Plus Project
#1 Ponderosa Road & North Shingle Road	WBL	325	AM	187	187
			PM	188	189
#2, Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)	NBL	235	AM	223	226
			PM	216	217
	NBR	235	AM	39	39
			PM	48	49
	WBL	275	AM	54	61
			PM	58	70
#3, South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	NBL	235	AM	95	113
			PM	151	178
	EBR	350	AM	41	43
			PM	170	197
	WBL	265	AM	252	254
			PM	**356**	**354**
#7, South Shingle Road & Project Driveway 1	NBL	50	AM	-	4
			PM	-	4

Notes:
[1] Queues and storage length are reported per lane.
***Bold** represent queues that exceed existing storage.*

As shown in **Table 13,** under Existing and Existing Plus Project conditions, the westbound left turn queue at the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection is projected to exceed available storage length. The Ponderosa Interchange Improvements Project would lengthen the westbound turn pocket at this intersection to 265 feet. However, the westbound left-turn queue is projected exceed storage by 91 feet under Cumulative conditions and by 89 feet under Cumulative Plus Project conditions. As shown in **Appendix G**, under future conditions, this turn pocket would have small striped island in between another westbound left turn pocket on Mother Lode Drive. The striped island could be shortened to slightly lengthen the westbound turn pocket; however, the turn pocket would not be able to be extended enough to fully accommodate projected queues.

The remaining 95th percentile queues are anticipated to be accommodated by the existing/planned available storage. Synchro queueing reports are contained in **Appendix B**.

10. CALTRANS FACILITY ANALYSIS

The *Interim Local Development Intergovernmental Review* (LDIGR) Safety Review Practitioners Guidance (Caltrans, December 18, 2020) establishes the safety review expectations for proposed land use projects that would affect Caltrans facilities in the context of the CEQA review process. LDIGR guidelines consist of a freeway queueing analysis and traffic safety review, including collision analysis. This memorandum section provides an evaluation of LDIGR components at the Eastbound and Westbound US-50 Ramp intersections with Ponderosa Road/South Shingle Road.

10.1 Study Area Safety Evaluation

This section discusses the collision history along Ponderosa Road/South Shingle Road and on the US-50 ramps in the vicinity of the project area. Five years of crash data (January 1, 2017 – December 31, 2021) were obtained from the Statewide Integrated Traffic Records System (SWITRS) to identify high collision locations and common collision characteristics. **Table 16** summarizes the collisions in the study area and describes the collision severity (fatal, serious injury, other visible injury, complaint of pain, and property damage (PDO)) and the collision type (broadside, sideswipe, rear-end, head-on, hit object, overturned, other, and vehicle/pedestrian). The SWITRS data indicated that a total 81 collisions occurred on the US-50 ramps over the last five years.

Table 16. Summary of Collisions in Study Area (2017 – 2021)

Intersection	Collisions	Severity					Type							
		Fatal	Serious Injury	Other Visible Injury	Complaint of Pain	PDO	Broadside	Sideswipe	Rear-End	Head-On	Hit Object	Overturned	Other	Vehicle/ Pedestrian
Ponderosa Road & Wild Chaparral Drive/North Shingle Road	15	0	0	0	1	14	1	4	7	1	2	0	0	0
Ponderosa Road & Westbound US-50 Ramps	67	0	2	14	10	41	2	9	24	1	20	9	1	1
South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	63	1	4	8	10	40	9	11	18	2	12	8	1	2
South Shingle Road & Durock Road	18	0	0	2	3	13	7	3	6	0	2	0	0	0
South Shingle Road & Sunset Lane	9	0	1	0	2	6	1	1	2	0	4	1	0	0

The most common primary collision factors were unsafe speed, improper turning, driving under the influence of alcohol or drugs, unsafe lane change, and traffic signals and signs.

Table 17 shows the 5-yr collision rate per million entering vehicles at each study intersection compared to the statewide average rate per million entering vehicles for similar facilities. As shown in **Table 17**, all existing study intersections were shown to experience a higher rate of collisions compared to the statewide average.

Table 17. Summary of Collisions in Study Area (2017 – 2021)

Location	Collision Rate in Study Area (per MV[1])	State Average Intersection Collision Rate (per MV)[2]	Difference in Study Area Rate vs. Statewide Rate
Ponderosa Road & North Shingle Road/Wild Chaparral Drive	0.48	0.42	+0.06
Ponderosa Road & Westbound US-50 Ramps	1.61	0.42	+1.19
South Shingle Road & Mother Lode Drive/Eastbound US-50 Ramps	1.37	0.42	+0.95
South Shingle Road & Durock Road	0.84	0.50	+0.34
South Shingle Road & Sunset Lane	0.63	0.42	+0.21

Notes:
[1] MV = Million Vehicle Entering the Intersection. Rate = (1,000,000 x Crashes over 5 yrs) / (365 x 5 yrs x Number of Vehicles Entering Intersection Daily)
[2] Source: 2019 Crash Data on California State Highways (Caltrans, 2019).

Due to the nature of the Project's use, the Project is not anticipated to add a notable about of pedestrian or bicycle traffic to the study area. However, sidewalk, curb ramp, and bike lane improvements within the interchange area are shown to be included as part of the Ponderosa Road/South Shingle Road Interchange Improvements Project. The Interchange Improvement Project would also realign/reconfigure the Eastbound and Westbound Ramps intersections, providing signal timing and geometric improvements that would potentially improve vehicle safety at the interchange. Additionally, realignment of Durock Road will eliminate the signalized intersection of South Shingle Road & Durock Road, which is currently less than 200 feet from the signalized intersection of South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive. Durock Road would form a new signalized intersection with Sunset Lane, potentially further reducing speeds along the corridor. Overall, under improved conditions, the addition of Project traffic is not anticipated to adversely affect safety at the interchange.

10.2 Off-Ramp Queueing Analysis

95th percentile AM and PM peak hour off-ramp queueing at the US-50 Off-Ramp intersections with Ponderosa Road/South Shingle Road was analyzed using Synchro software. Peak hour queueing is analyzed to determine if the addition of Project trips adds two or more car lengths to an off-ramp queue that will extend into the freeway mainline.

Table 18 shows the Existing and Existing Plus Project condition queueing at the ramp intersections.

As shown in **Table 18**, the addition of Project trips is not projected to cause the interchange off-ramp facilities to exceed available storage space nor spillback onto mainline US-50. Synchro queueing reports are contained in **Appendix B**.

Table 18. Off-Ramp Queueing

Intersection	Approach	Storage (ft)[1]	Peak Hour	95th Percentile Queue (ft)[1]	
				Existing Conditions	Existing Plus Project Conditions
#2, Ponderosa Road & Wild Chaparral Drive/Westbound US-50 Ramps (realigned)	WB	1,560	AM	119	131
			PM	82	99
#3, South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive	EB	1,310	AM	448	448
			PM	390	390

Notes:
[1] Queues and storage length are reported per lane. Storage is measured from the limit line to the gore area.
***Bold** represent queues that exceed existing storage.*

11. PROJECT-RELATED DEFICIENCIES AND IMPROVEMENTS

This chapter summarizes deficiencies caused by the Project at study facilities and identifies potential improvements.

11.1 INTERSECTIONS

All study intersections are projected to operate at acceptable LOS (LOS "E" or better) under all scenarios analyzed. CA MUTCD Peak Hour Signal Warrant #3 is projected to be met for the South Shingle Road & Project Driveway 1 intersection during the PM peak hour under Cumulative Plus Project conditions, however, as this intersection is projected to operate at LOS C or better, a Project-related deficiency is not considered to occur.

11.2 ROADWAY SEGMENTS

The study roadway segments are projected to operate at acceptable LOS with and without the addition of Project trips.

11.3 QUEUEING ANALYSIS

Under Existing and Existing Plus Project conditions, the westbound left turn queue at the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection is projected to exceed available storage length.

The Ponderosa Interchange Improvements Project would lengthen the westbound turn pocket at this intersection to 265 feet. However, the westbound left-turn queue is projected exceed storage by 91 feet under Cumulative conditions and by 89 feet under Cumulative Plus Project conditions. Under future conditions, this turn pocket would have small striped island in between another westbound left turn pocket on Mother Lode Drive. The striped island could be shortened to slightly lengthen the westbound turn pocket; however, the turn pocket would not be able to be extended enough to accommodate projected queues.

The remaining 95th percentile queues are anticipated to be accommodated by the existing available storage.

11.4 Caltrans Facilities

The addition of Project traffic is not anticipated to adversely affect safety at the interchange.

The addition of Project trips is not projected to cause the interchange off-ramp facilities to exceed available storage space nor spillback onto mainline US-50.

12. PROJECT SITE OPERATIONS AND ACCESS EVALUATION

This chapter reviews the proposed Project site plan, including discussion of access driveways, sight distance, internal circulation, and parking.

12.1 Project Access

Under Existing conditions, the Project would gain access to the nearby roadway network via one proposed driveway on South Shingle Road (Project Driveway 1) and one proposed driveway on Durock Road (Project Driveway 2). Under Near-Term and Cumulative conditions, Project Driveway 2 would connect to the improved Park-and-Ride lot to the north of the Project site. The proposed Project access is described in detail below:

Project Driveway 1 on South Shingle Road: This stop-controlled driveway provides the main access to the Project site. Under Existing Plus Project conditions, this driveway would be left-turn-out restricted, and the Project would restripe a portion of South Shingle Road to accommodate a northbound left-turn pocket with 50 feet of storage for vehicles turning into the Project driveway. Left turns out of the driveway on South Shingle Road would be restricted delineators and signage, as shown in **Appendix E**. The Project would construct a deceleration flare on southbound South Shingle Road at this driveway.

Under Near-Term and Cumulative conditions this driveway would allow full-access, and vehicles would utilize the two-way left-turn lane planned as part of Phase I of the Interchange Improvements Project to make left-turns into and out of the site. The Project Driveway should provide adequate width for the largest design vehicles that are anticipated to enter the site. A maximum 95th percentile egress queue of 46 feet is projected under Cumulative Plus Project PM peak hour conditions, which would be accommodated by the proposed Project Driveway throat depth.

Project Driveway 2 on Durock Road: Under Existing conditions, this stop-controlled, full-access driveway would connect to Durock Road. A maximum 95th percentile egress queue of less than one vehicle is projected, which would be accommodated by the proposed Project Driveway throat depth.

The 95th percentile Existing Plus Project eastbound queue on Durock Road at the South Shingle Road & Durock Road intersection is projected to be up to 507 feet under PM peak hour conditions. Therefore, the eastbound 95th percentile queue would extend past Project Driveway 2. Note that the 95th percentile queue would only occur approximately five percent of the time during the peak hour. Therefore, "Keep Clear" striping is recommended to be installed at the Project Driveway 2 intersection with Durock Road. Based on the Synchro model, eastbound queues on Durock Road would typically clear when the eastbound approach at the South Shingle Road & Durock Road signal has a green light, allowing egress vehicles using Project Driveway 2 to turn onto Durock Road without issue. The eastbound queue occasionally may not fully clear during peak commute/school traffic periods, however the queue would be projected to clear over the next several cycles. Existing Plus Project queues are shown in **Appendix B**.

Project Driveway 2 - Connection to the improved Park-and-Ride lot: Under Near-Term and Cumulative conditions, this driveway plans to connect to the improved Park-and-Ride lot to the north of the Project site. Project vehicles would be able to access the Project site via the proposed right-

in/right-out Park-and-Ride Lot Driveway on South Shingle Road. There would be no direct access to Durock Road from the Park-and-Ride and Project under Near-Term and Cumulative conditions.

Based on the site plan shown in **Figure 2**, it appears that emergency vehicles would have sufficient access throughout the Project site. Thus, emergency access to the project is considered adequate.

12.1.1 Sight Distance

High-level egress corner sight distance (CSD) for vehicles turning left and right out of the Project Driveway was evaluated. CSD was performed based on standards found in Chapter 400 of the Caltrans *Highway Design Manual* (HDM). At unsignalized intersections, a substantially clear line of sight should be maintained between the driver of a vehicle on the minor road and the driver of an approaching vehicle on the major road that has no stop. Minimum sight distance is the distance needed, based on speed limit of approaching traffic and other factors, to provide enough time for the stopped vehicle on the minor road to turn onto the major road without requiring through traffic to radically alter their speed. The visibility required for this maneuver forms a sight distance clear sight triangle. **Table 19** summarizes the minimum required and actual available sight distance for left and right egress turns from the Project Driveway. An exhibit illustrating CSD for the Project Driveway is contained in **Appendix D**.

Table 19. Sight Distance Analysis

Sight Distance Case	Direction of Sight Distance Triangle	Direction of Approaching Traffic	Design Speed (mph)[1]	Minimum Required Sight Distance (ft)[2]	Actual Sight Distance (ft)[3]	Minimum Sight Distance Met?
Left turn from Project Driveway onto South Shingle Road	South	NB	50	590	220[4]	No[4]
Right turn from Project Driveway onto South Shingle Road	North	SB	50	480	480+	Yes

Notes:
[1] Design speed was considered to be 5 mph over the posted speed limit on South Shingle Road.
[2] Source: Caltrans HDM Section 405.1. Minimum Sight Distance = $1.47*V_m*T_g$, where V_m = design speed of the major road and T_g= is the time gap (seconds) for the minor road vehicle to enter the major road (7.5+0.5 s for left-turns from stop and 6.5 s for right-turns from stop).
[3] Actual sight distance in the worst-case direction is reported.
[4] Sight distance for left-turn egress vehicles should be met if adequate clear space is provided on the west side of South Shingle Road. With full widening of South Shingle Springs under Cumulative conditions, sight distance for left-turn egress will likely be met.

As shown in **Table 19**, the proposed Project Driveway was shown to provide adequate sight distance for right-turn egress vehicles. Sight distance for left-turn egress vehicles should be met if adequate clear space is provided on the west side of South Shingle Road. Sight distance for left-turn egress vehicles is not an issue under Existing Plus Project conditions as left-turns out of the Project Driveway on South Shingle will not be allowed until Phase I of the Interchange Improvements Project is complete. Under Near Term Plus Project conditions, left-turn egress vehicles will be able to turn into the two-way left-turn lane on South Shingle Road which is planned to be constructed under Phase I of the Interchange Improvements Project. With full widening of South Shingle Road under Cumulative conditions, sight distance for left-turn egress will likely be met. As shown in **Appendix D**, the red shaded area would represent the approximate extent of the clear space needed for left turn egress vehicles to have a clear line of sight to vehicles approaching northbound on South Shingle Road.

12.2 INTERNAL CIRCULATION

Internal circulation within the Project site would occur on bi-directional internal drive aisles, as depicted in **Figure 2**. A single-lane entrance to the automated car wash would be provided on the northern end of the site and allow approximately 150 feet of vehicle stacking space. The car wash exit lane would lead to 12 parking spaces with vacuums. Pedestrian connectivity is provided throughout the site via curb ramps and marked crosswalks and a bike rack is provided on site.

12.2.1 Parking

The Project site would provide 13 general parking spaces (including one (1) accessible space), four (4) electric vehicle spaces, and 12 spaces with access to vacuums. County Municipal Code Table 130.35.030.1 provides the following requirements for off-street parking:

Car Wash: 2 per washing stall; Drive-through stalls may utilize stacking areas with a length of 24 feet (ft.) as parking spaces.

General Indoor Retail (Gas Station/Convenience Market): 1 per 300 square feet active use area, plus 1 per 600 square feet of storage area.

Based on the 3,400 square-foot convenience market area and the stacking area provided for the car wash, the Project site would accommodate the minimum required number of parking spaces.

13. ADVERSE EFFECTS ON BICYCLE, PEDESTRIAN, AND TRANSIT FACILITIES

This section discusses projected Project effects on study area bicycle and pedestrian facilities. This section also identifies planned bicycle and pedestrian facility improvements in the study area.

13.1 PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian sidewalks are planned to be constructed on all study area roadways as part of the Interchange Improvements Project. Based on Map 3 of the *El Dorado County Active Transportation Plan* (February 2020), Class II Bike Lanes are planned on Durock Road, Mother Lode Drive, South Shingle Road, and Ponderosa Road within the study area. The Project is not anticipated to cause a notable increase in pedestrian or bicycle demand in the study area that would put existing or planned facilities over capacity. The Project would not adversely affect existing or proposed pedestrian and bicycle facilities in a way that would discourage their use.

As Project construction of frontage improvements with sidewalks and curb and gutter may be in conflict with the future Interchange Improvements Project, the Project would be conditioned to enter into a Deferred Frontage Improvement Agreement.

13.2 TRANSIT FACILITIES

The existing Park-and-Ride facility adjacent to the Project site would be improved under Phase I conditions. Access to the existing Park-and-Ride lots on Ponderosa Road would also be improved with construction of sidewalks on Ponderosa Road and Wild Chaparral Drive. The Project is not anticipated to cause an increase in transit demand in the study area that would put existing or planned facilities over capacity. The Project would not adversely affect existing or proposed transit facilities in a way that would discourage their use.

14. VEHICLE MILES TRAVELED (VMT) ANALYSIS

Senate Bill 743 (SB 743), signed in 2013, required changes to CEQA guidelines on the measurement and identification of transportation impacts due to new projects in California. Revised CEQA Guidelines were adopted in 2018 which identified VMT as the most appropriate metric to evaluate transportation impacts. Statewide implementation of assessment of VMT as a metric of transportation impact occurred for all jurisdictions on July 1, 2020. The Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) (December 2018), contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures.

OPR guidance states the following:

> By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact…Generally, however, retail development including stores larger than 50,000 square feet might be considered regional-serving, and so lead agencies should undertake an analysis to determine whether the project might increase or decrease VMT.

As the Project gross square footage is planned to be less than 50,000 square feet, under OPR guidance, the Project may be considered "local-serving retail" and would not be considered a VMT increasing project.

However, El Dorado County Resolution 141-2020 (adopted October 6, 2020), which contains County VMT thresholds and screening criteria for land use projects, does not contain screening criteria for local-serving retail projects. County Resolution 141-2020 provides the following significance threshold for retail projects: "no net increase in VMT".

In order to estimate the Project's effect on area VMT, the Project area gas station trips were evaluated before and after development of the Project. As gas stations are generally local serving and a necessity for the majority of vehicle operators, customers will typically visit gas stations that are closest to their residence or along their commute route. Additionally, since gas stations are necessities, they typically do not generate all new trips to the area, but instead reroute trips from other existing gas stations in the area. As shown in **Figure 20**, there are two existing gas stations with convenience stores (76 and Chevron) in the immediate vicinity of the Project site. The blue shaded area in **Figure 20** represents the potential local customers that would patronize the proposed Project and likely currently patronize the existing 76 and Chevron in the Project area.

Figure 21 through **Figure 28** illustrate the projected change in gas station customer trip length before and after construction of the Project for all Project trip types. The projected change in trip length is shown by comparing the different distances/routes traveled to the existing gas stations vs. the Project gas station. For example, **Figure 21** shows that vehicles traveling to a gas station from the north (i.e., from US 50 or north Shingle Springs) would have to travel only an average of 270 feet east of the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection to reach the existing gas stations, while they would have to travel an average of 410 feet south/west of the South Shingle Road & Eastbound US-50 Ramps/Mother Lode Drive intersection to reach the Project, or an increase of approximately 140 feet one-way. Conversely, **Figure 22** shows that vehicles traveling to a gas station from the south would have to travel an average of 470 feet further north (one-way) to reach the existing 76 or Chevron instead of the Project.

Table 20 and **Table 21** summarize the projected change in gas station customer trip length for all trip types and origins/destinations. **Table 22** shows the total projected net change in daily VMT due to the Project.

Table 20. Change in Daily VMT due to Project Primary and Diverted Trips

Origin/Destination	Trips	Change in Distance (ft)	Change in VMT
North	1,076	+280	+57.1
South	152	-940	-27.1
East	114	+1,160	+25.0
West	114	-1,040	-22.5
Total	**1,456**	**-**	**+32.6**

Table 21. Change in Daily VMT due to Project Pass-By Trips

Travel Direction	Trips	Change in Distance (ft)	Change in VMT
NB	741	-330	-46.3
SB	741	-450	-63.2
EB	185	-330	-11.6
WB	185	-450	-15.8
Total	**1,852**	**-**	**-136.8**

Table 22. Net Change in Daily VMT due to the Project

Trip Types	Change in VMT
Primary and Diverted	+32.6
Pass-By	-136.8
Net Change	**-104.2**

As shown in **Table 20** and **Table 21**, the Project is generally projected to result in shorter gas station trips in the study area, consistent with the OPR Technical Advisory's discussion on local-serving retail projects. As shown in **Table 22**, the Project is projected to result in a net decrease in area VMT. Therefore, the Project would not exceed the County's no net increase threshold for retail land uses and is expected to result in a **less-than-significant** transportation impact.

Figure 20. Gas Stations Within the Project Area and Potential Project Customers



Figure 21. Primary & Diverted Trips Change in Length Due to Project - North O/D

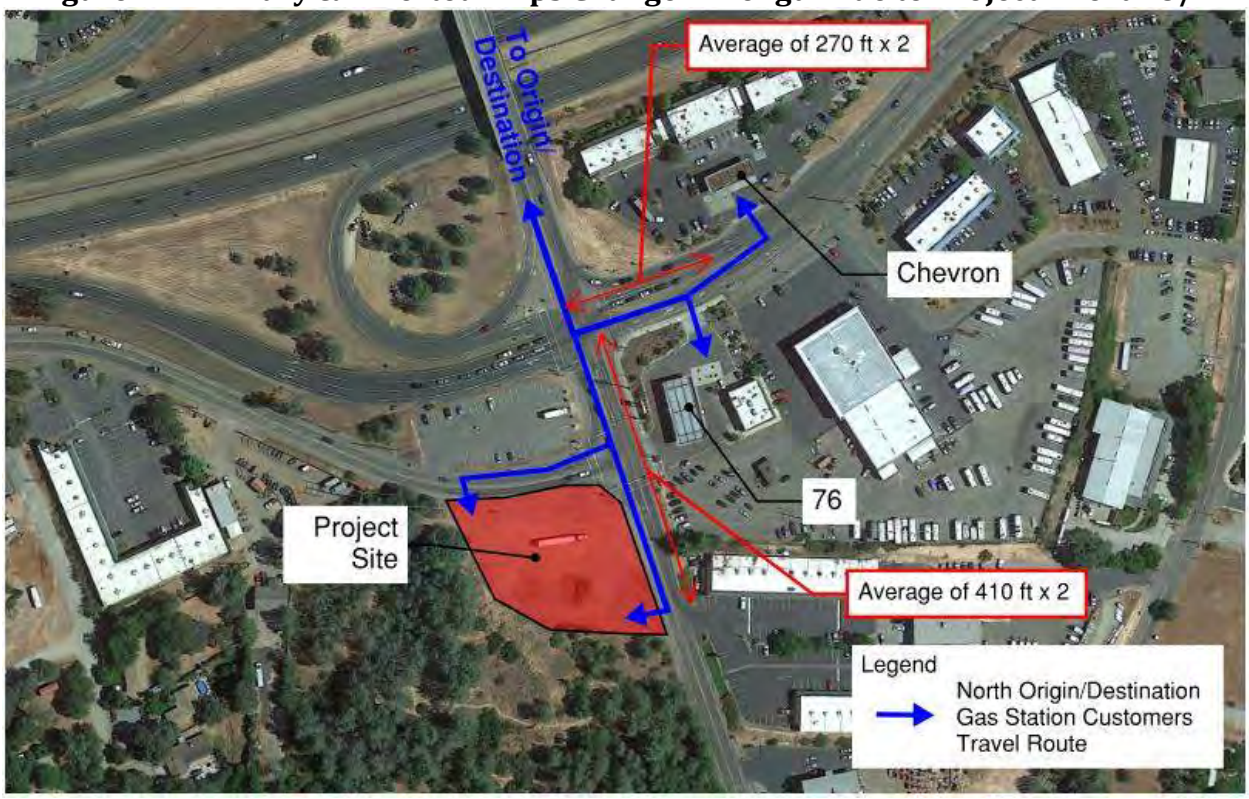


Figure 22. Primary & Diverted Trips Change in Length Due to Project - South O/D

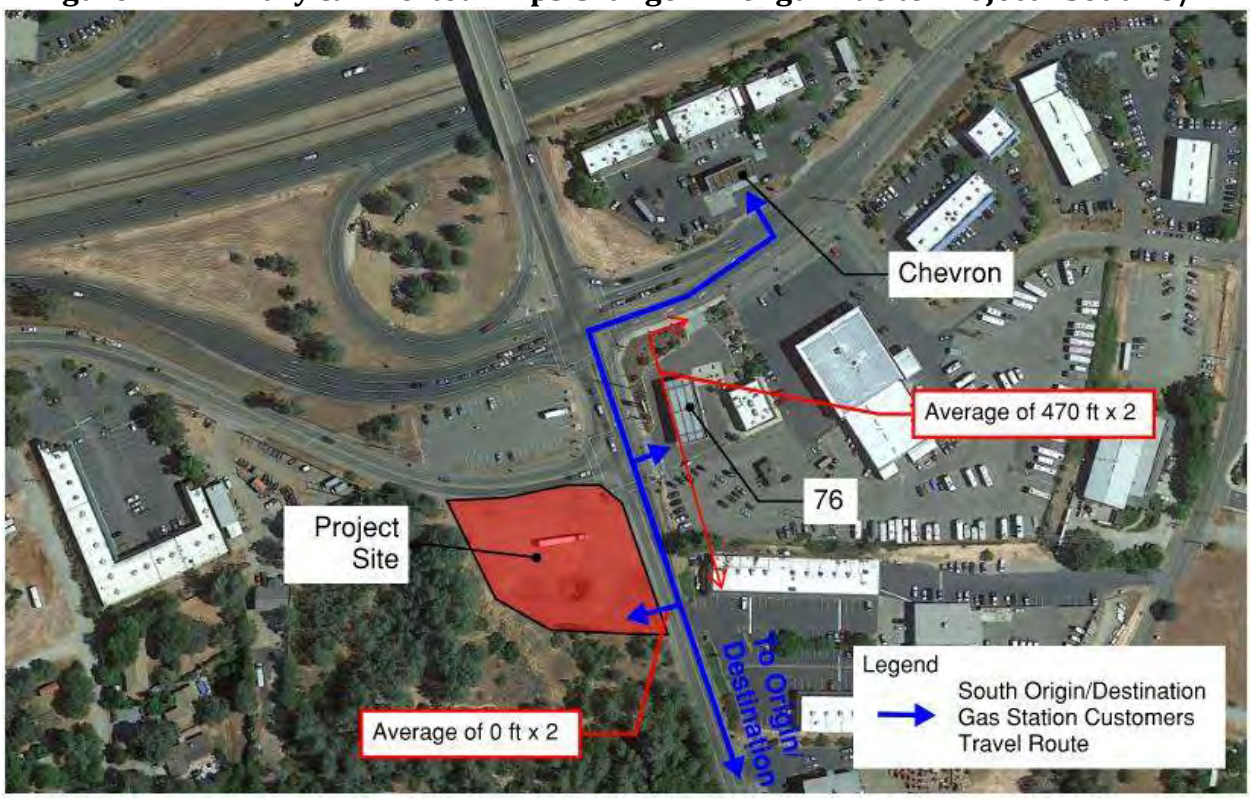


Figure 23. Primary & Diverted Trips Change in Length Due to Project - East O/D

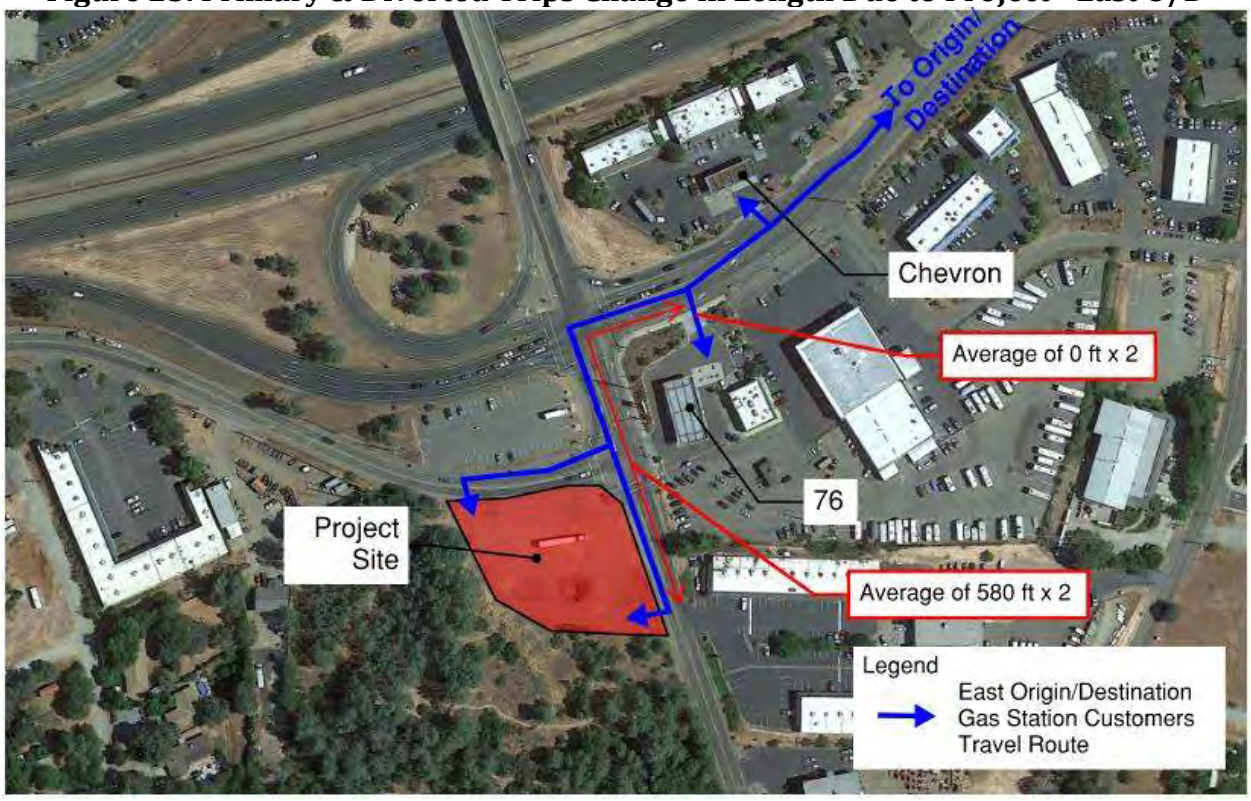


Figure 24. Primary & Diverted Trips Change in Length Due to Project - West O/D



Figure 25. Pass-By Trips Change in Length Due to Project - NB

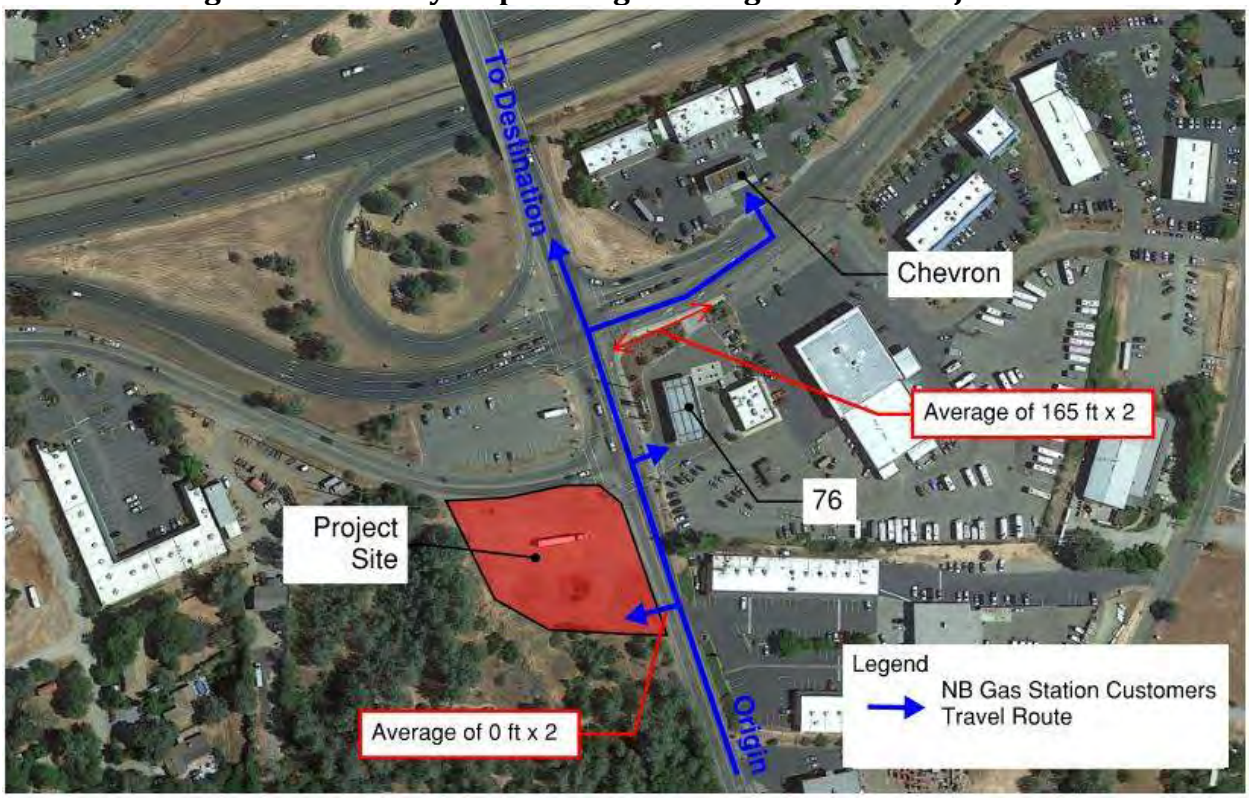


Figure 26. Pass-By Trips Change in Length Due to Project - SB

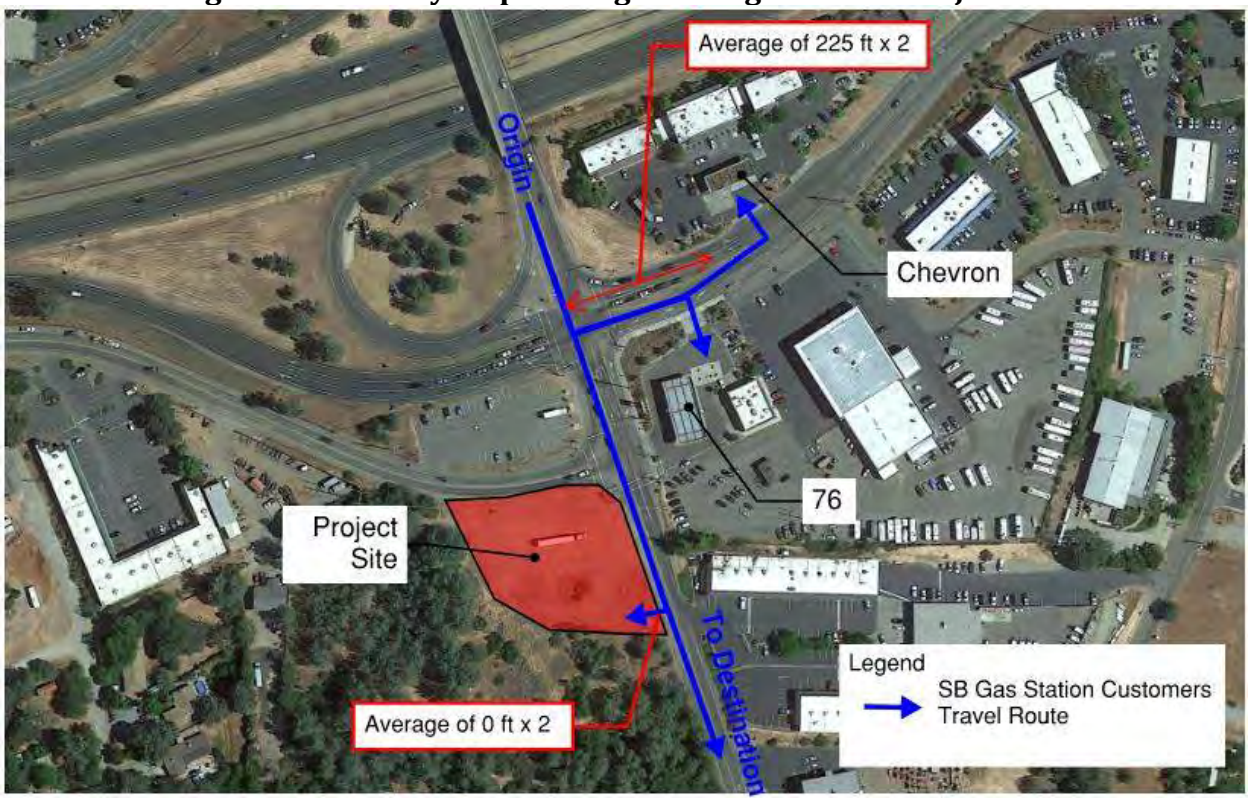


Figure 27. Pass-By Trips Change in Length Due to Project – EB Durock Rd

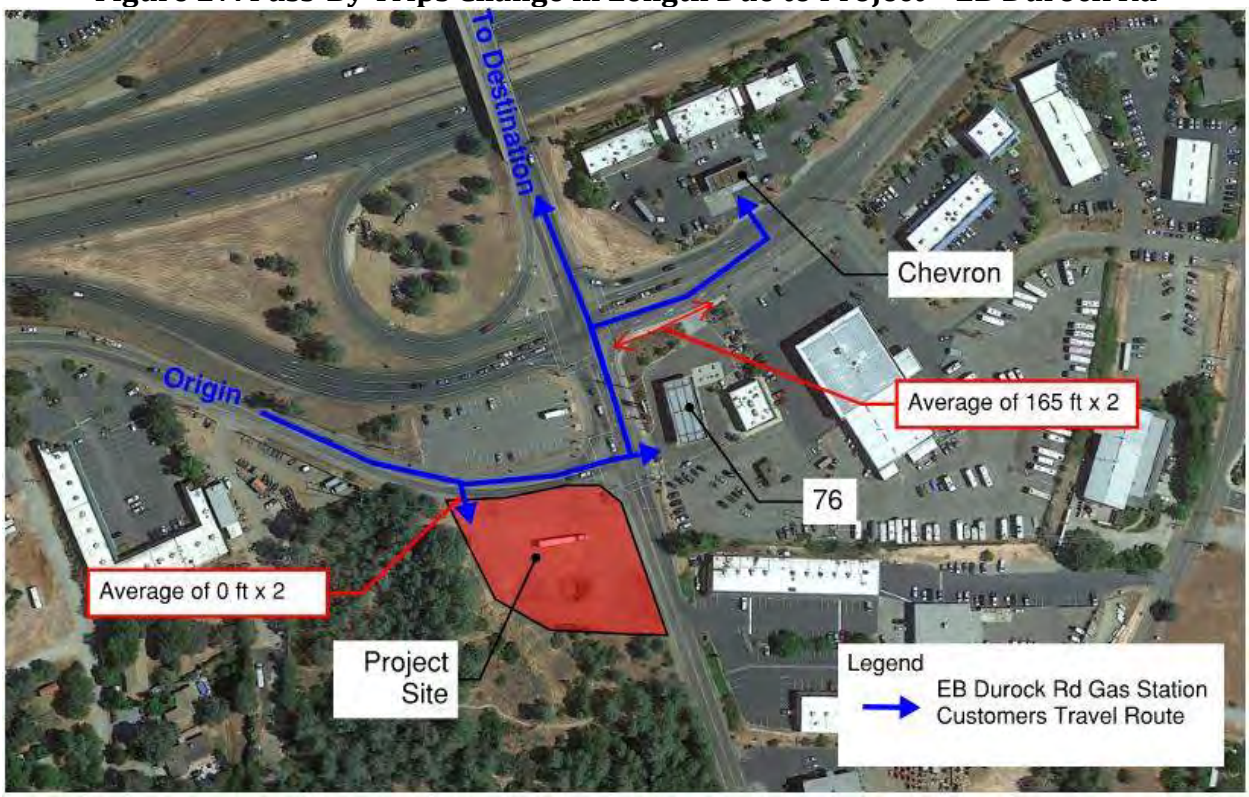
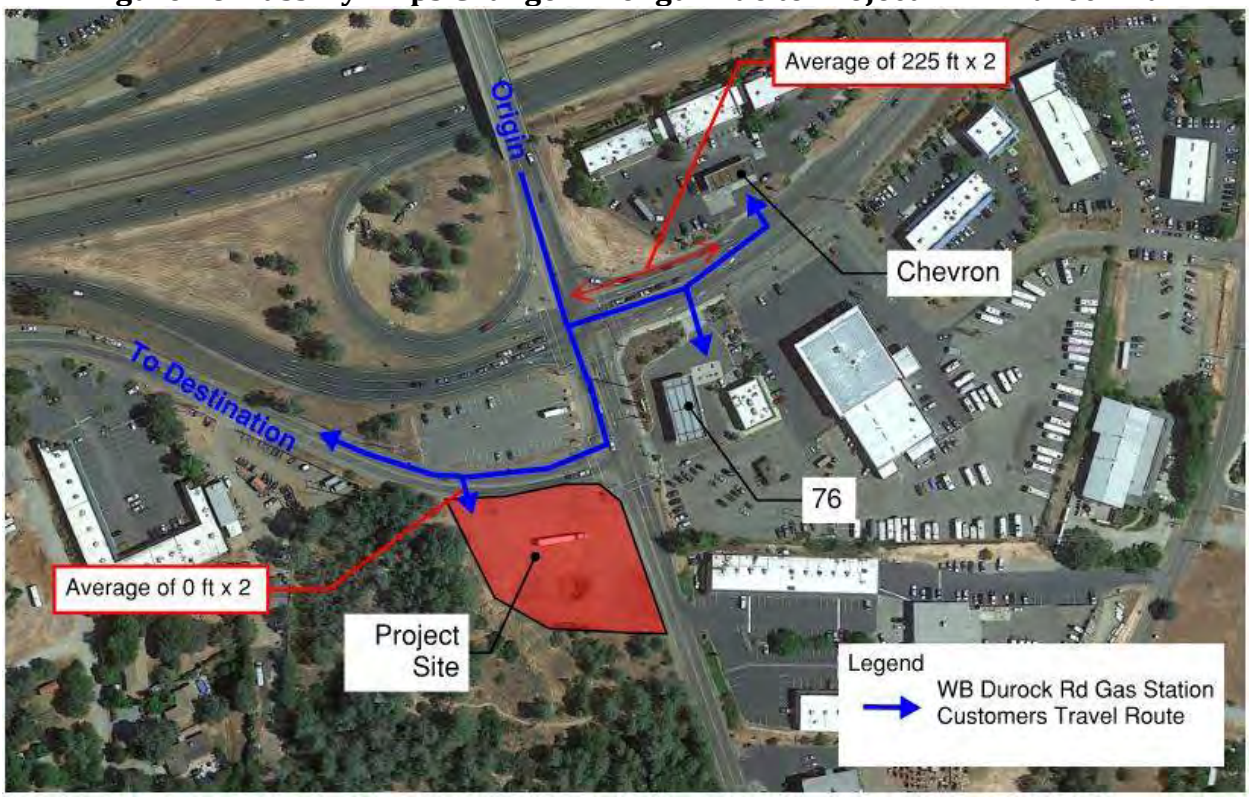


Figure 28. Pass-By Trips Change in Length Due to Project – WB Durock Rd



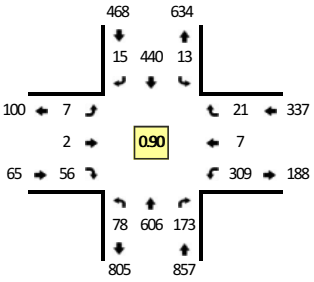
Appendix A

Traffic Count Data

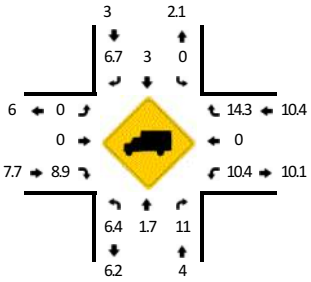
LOCATION: Ponderosa Road -- Wild Chaparral Drive-N Shingle Road
CITY/STATE: Shingle Springs, CA

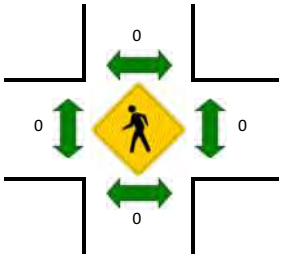
QC JOB #: 15821101
DATE: Wed, May 18 2022

Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

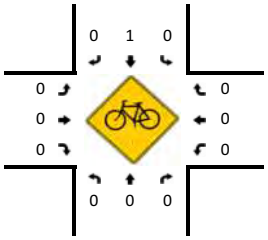


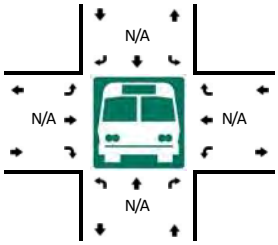


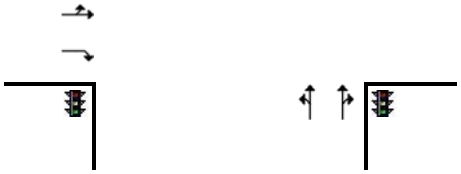


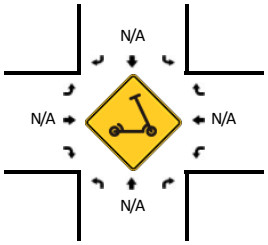












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Wild Chaparral Drive-N Shingle Road (Eastbound)				Wild Chaparral Drive-N Shingle Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	7	6	0	0	5	0	0	0	1	2	0	13	1	2	0	41	
7:05 AM	5	1	14	0	0	9	1	0	1	0	1	0	21	1	1	0	55	
7:10 AM	6	11	10	0	1	13	1	0	1	0	7	0	29	0	0	0	79	
7:15 AM	6	15	9	0	0	14	1	0	0	0	3	0	29	4	0	0	81	
7:20 AM	9	13	8	0	0	14	0	0	0	0	7	0	29	1	2	0	83	
7:25 AM	5	33	7	0	2	23	2	0	0	0	5	0	17	0	2	0	96	
7:30 AM	7	28	9	0	0	10	2	0	1	0	3	0	40	1	1	0	102	
7:35 AM	4	29	12	0	1	28	2	0	1	0	6	0	41	2	3	0	129	
7:40 AM	6	30	14	0	1	34	1	0	0	0	5	0	37	2	2	0	132	
7:45 AM	11	39	22	0	2	31	1	0	1	0	8	0	15	0	0	0	130	
7:50 AM	13	61	7	0	0	23	1	0	0	0	3	0	27	2	1	0	138	
7:55 AM	4	69	12	0	0	22	1	0	0	0	6	0	33	0	3	0	150	1216
8:00 AM	6	53	11	0	1	39	1	0	1	0	4	0	34	0	3	0	153	1328
8:05 AM	6	71	12	0	2	49	1	0	0	0	4	0	18	0	2	0	165	1438
8:10 AM	10	78	18	0	1	28	0	0	0	0	3	0	21	0	1	0	160	1519
8:15 AM	1	44	7	0	0	52	0	0	4	1	6	0	25	1	1	0	142	1580
8:20 AM	7	70	15	0	1	29	1	0	0	1	4	0	28	0	5	0	161	1658
8:25 AM	7	44	22	0	1	58	3	0	0	0	4	0	15	0	0	0	154	1716
8:30 AM	3	18	21	0	3	47	3	0	0	0	3	0	15	0	0	0	113	1727
8:35 AM	11	14	18	0	0	40	3	0	0	0	8	0	19	2	1	0	116	1714
8:40 AM	7	11	27	0	2	15	1	0	0	1	8	0	24	1	1	0	98	1680
8:45 AM	9	13	40	0	8	22	0	0	0	1	5	0	29	0	3	0	130	1680
8:50 AM	5	23	37	0	3	17	1	0	1	0	6	0	36	0	3	0	132	1674
8:55 AM	7	18	24	0	5	14	1	0	1	0	5	0	35	1	2	0	113	1637

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	808	164	0	16	464	8	0	4	0	44	0	292	0	24	0	1912
Heavy Trucks	4	28	16		0	8	0		0	0	8		36	0	4		104
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

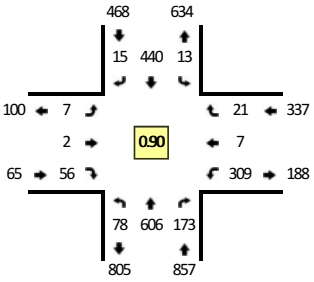
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

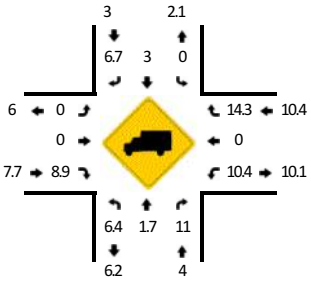
LOCATION: Ponderosa Road -- Wild Chaparral Drive-N Shingle Road
CITY/STATE: Shingle Springs, CA

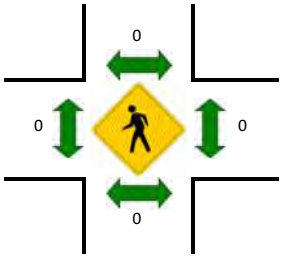
QC JOB #: 15821101
DATE: Wed, May 18 2022

Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

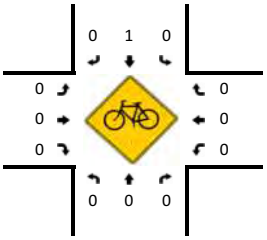


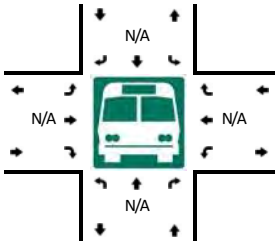


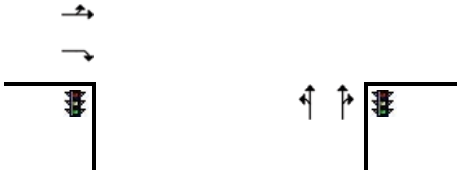


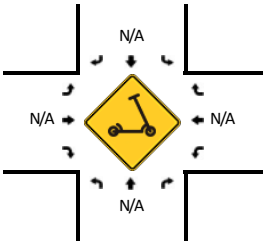












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Wild Chaparral Drive-N Shingle Road (Eastbound)				Wild Chaparral Drive-N Shingle Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	7	6	0	0	5	0	0	0	1	2	0	13	1	2	0	41	
7:05 AM	5	1	14	0	0	9	1	0	1	0	1	0	21	1	1	0	55	
7:10 AM	6	11	10	0	1	13	1	0	1	0	7	0	29	0	0	0	79	
7:15 AM	6	15	9	0	0	14	1	0	0	0	3	0	29	4	0	0	81	
7:20 AM	9	13	8	0	0	14	0	0	0	0	7	0	29	1	2	0	83	
7:25 AM	5	33	7	0	2	23	2	0	0	0	5	0	17	0	2	0	96	
7:30 AM	7	28	9	0	0	10	2	0	1	0	3	0	40	1	1	0	102	
7:35 AM	4	29	12	0	1	28	2	0	1	0	6	0	41	2	3	0	129	
7:40 AM	6	30	14	0	1	34	1	0	0	0	5	0	37	2	2	0	132	
7:45 AM	11	39	22	0	2	31	1	0	1	0	8	0	15	0	0	0	130	
7:50 AM	13	61	7	0	0	23	1	0	0	0	3	0	27	2	1	0	138	
7:55 AM	4	69	12	0	0	22	1	0	0	0	6	0	33	0	3	0	150	1216
8:00 AM	6	53	11	0	1	39	1	0	1	0	4	0	34	0	3	0	153	1328
8:05 AM	6	71	12	0	2	49	1	0	0	0	4	0	18	0	2	0	165	1438
8:10 AM	10	78	18	0	1	28	0	0	0	0	3	0	21	0	1	0	160	1519
8:15 AM	1	44	7	0	0	52	0	0	4	1	6	0	25	1	1	0	142	1580
8:20 AM	7	70	15	0	1	29	1	0	0	1	4	0	28	0	5	0	161	1658
8:25 AM	7	44	22	0	1	58	3	0	0	0	4	0	15	0	0	0	154	1716
8:30 AM	3	18	21	0	3	47	3	0	0	0	3	0	15	0	0	0	113	1727
8:35 AM	11	14	18	0	0	40	3	0	0	0	8	0	19	2	1	0	116	1714
8:40 AM	7	11	27	0	2	15	1	0	0	1	8	0	24	1	1	0	98	1680
8:45 AM	9	13	40	0	8	22	0	0	0	1	5	0	29	0	3	0	130	1680
8:50 AM	5	23	37	0	3	17	1	0	1	0	6	0	36	0	3	0	132	1674
8:55 AM	7	18	24	0	5	14	1	0	1	0	5	0	35	1	2	0	113	1637

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	808	164	0	16	464	8	0	4	0	44	0	292	0	24	0	1912
Heavy Trucks	4	28	16		0	8	0		0	0	8		36	0	4		104
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

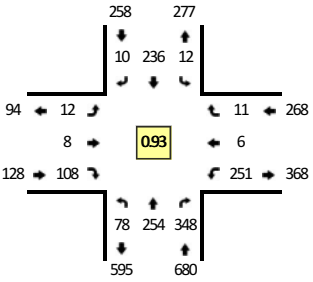
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

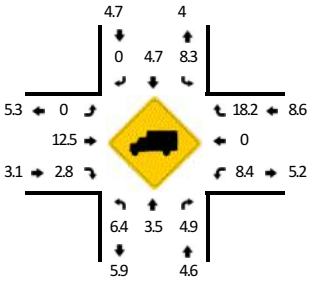
LOCATION: Ponderosa Road -- Wild Chaparral Drive-N Shingle Road
CITY/STATE: Shingle Springs, CA

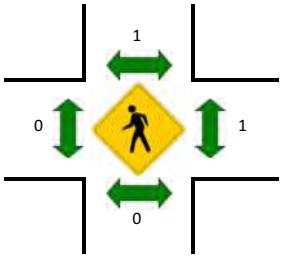
QC JOB #: 15821102
DATE: Wed, May 18 2022

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

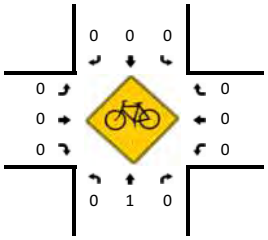


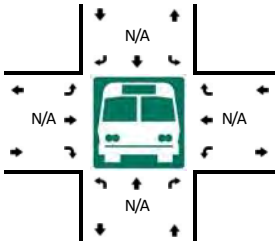


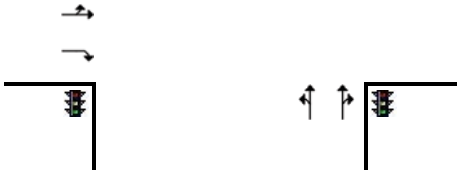


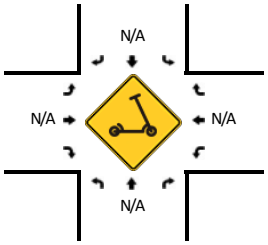












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Wild Chaparral Drive-N Shingle Road (Eastbound)				Wild Chaparral Drive-N Shingle Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	24	27	0	1	24	2	0	1	1	10	0	26	2	0	0	125	
4:05 PM	7	24	26	0	0	25	2	0	3	0	16	0	14	1	0	0	118	
4:10 PM	7	23	26	0	2	22	0	0	1	0	8	0	25	1	0	0	115	
4:15 PM	7	25	26	0	0	22	3	0	2	0	4	0	23	1	1	0	114	
4:20 PM	7	17	22	0	3	23	0	0	0	0	7	0	15	0	3	0	97	
4:25 PM	12	11	34	0	1	27	0	0	0	2	9	0	21	0	2	0	119	
4:30 PM	9	20	38	0	2	19	0	0	2	1	4	0	18	0	0	0	113	
4:35 PM	6	20	40	0	0	19	1	0	0	0	8	0	28	0	2	0	124	
4:40 PM	1	25	29	0	1	16	1	0	0	2	9	0	13	0	0	0	97	
4:45 PM	3	29	27	0	1	7	1	0	1	2	12	0	25	1	0	0	109	
4:50 PM	8	18	23	0	0	18	0	0	1	0	7	0	25	0	0	0	100	
4:55 PM	4	18	30	0	1	14	0	0	1	0	14	0	18	0	3	0	103	1334
5:00 PM	6	24	29	0	0	12	0	0	2	2	13	0	17	0	1	0	106	1315
5:05 PM	9	25	24	0	2	16	1	0	1	0	4	0	22	1	1	0	106	1303
5:10 PM	5	20	39	0	1	27	0	0	1	0	8	0	23	2	2	0	128	1316
5:15 PM	1	31	35	0	0	16	1	0	0	2	10	0	14	0	1	0	111	1313
5:20 PM	5	25	28	0	1	23	1	0	1	0	9	0	9	0	1	0	103	1319
5:25 PM	6	23	33	0	2	19	1	0	0	1	2	0	13	0	2	0	102	1302
5:30 PM	5	29	26	0	0	18	1	0	0	0	3	0	26	0	0	0	108	1297
5:35 PM	1	25	23	0	1	7	0	0	0	0	6	0	15	1	2	0	81	1254
5:40 PM	7	31	24	0	2	21	0	0	0	1	5	0	25	1	2	0	119	1276
5:45 PM	7	27	31	0	0	19	1	0	0	1	5	0	13	0	3	0	107	1274
5:50 PM	8	29	33	0	0	18	2	0	1	0	6	0	12	0	0	0	109	1283
5:55 PM	10	30	22	0	3	6	2	0	0	0	6	0	17	2	1	0	99	1279

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	84	284	316	0	12	284	16	0	20	4	136	0	260	16	0	0	1432
Heavy Trucks	4	4	12		0	12	0		0	0	4		8	0	0		44
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

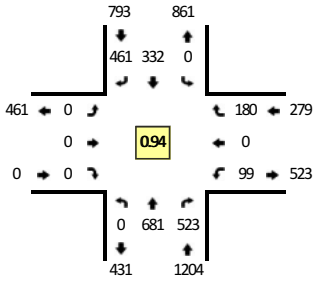
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

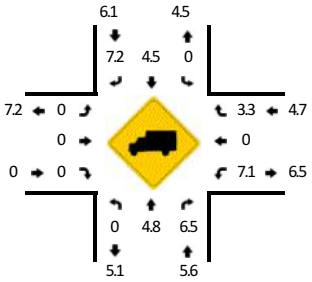
LOCATION: Ponderosa Road -- Westbound US-50 Ramps
CITY/STATE: Shingle Springs, CA

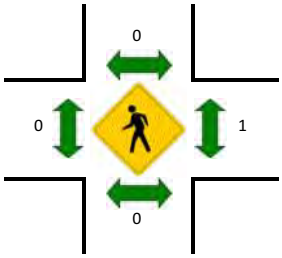
QC JOB #: 15821103
DATE: Wed, May 18 2022

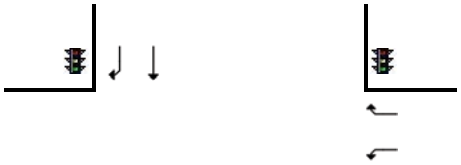
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:05 AM -- 8:20 AM

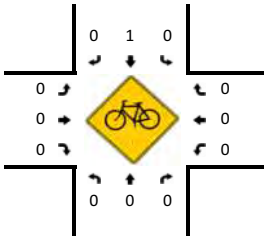


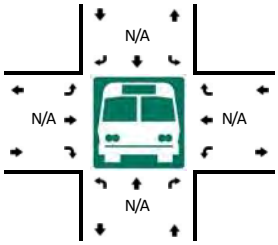


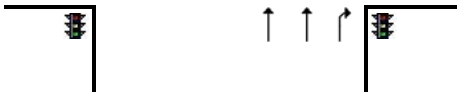


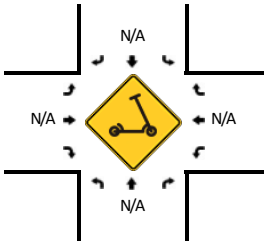












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Westbound US-50 Ramps (Eastbound)				Westbound US-50 Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	13	29	0	0	8	12	0	0	0	0	0	6	0	5	0	73	
7:05 AM	0	13	24	0	0	8	23	0	0	0	0	0	10	0	6	0	84	
7:10 AM	0	19	32	0	0	13	36	0	0	0	0	0	5	1	4	0	110	
7:15 AM	0	22	42	0	0	14	35	0	0	0	0	0	4	0	6	0	123	
7:20 AM	0	27	42	0	0	5	42	0	0	0	0	0	5	0	7	0	128	
7:25 AM	0	34	40	0	0	12	33	0	0	0	0	0	7	0	8	0	134	
7:30 AM	0	39	55	0	0	12	41	0	0	0	0	0	15	0	5	0	167	
7:35 AM	0	40	39	0	0	29	46	0	0	0	0	0	4	0	13	0	171	
7:40 AM	0	32	55	0	0	26	49	0	0	0	0	0	6	0	12	0	180	
7:45 AM	0	61	52	0	0	26	28	0	0	0	0	0	9	0	9	0	185	
7:50 AM	0	64	55	0	0	27	28	0	0	0	0	0	11	0	16	0	201	
7:55 AM	0	82	35	0	0	18	41	0	0	0	0	0	12	0	9	0	197	1753
8:00 AM	0	43	28	0	0	26	51	0	0	0	0	0	5	0	22	0	175	1855
8:05 AM	0	76	50	0	0	36	37	0	0	0	0	0	4	0	12	0	215	1986
8:10 AM	0	77	34	0	0	21	29	0	0	0	0	0	12	0	29	0	202	2078
8:15 AM	0	40	42	0	0	45	41	0	0	0	0	0	6	0	13	0	187	2142
8:20 AM	0	79	37	0	0	23	36	0	0	0	0	0	11	0	20	0	206	2220
8:25 AM	0	48	41	0	0	43	34	0	0	0	0	0	4	0	20	0	190	2276
8:30 AM	0	28	44	0	0	29	36	0	0	0	0	0	3	0	13	0	153	2262
8:35 AM	0	27	45	0	0	39	30	0	0	0	0	0	2	0	10	0	153	2244
8:40 AM	0	33	47	0	0	21	27	0	0	0	0	0	3	0	12	0	143	2207
8:45 AM	0	40	32	0	0	35	18	0	0	0	0	0	10	0	27	0	162	2184
8:50 AM	0	41	41	0	0	26	33	0	0	0	0	0	9	0	25	0	175	2158
8:55 AM	0	26	46	0	0	22	32	0	0	0	0	0	13	0	21	0	160	2121

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	772	504	0	0	408	428	0	0	0	0	0	88	0	216	0	2416
Heavy Trucks	0	44	24		0	20	36		0	0	0		0	0	12		136
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

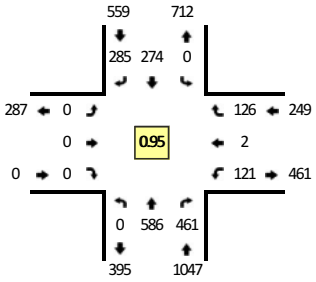
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

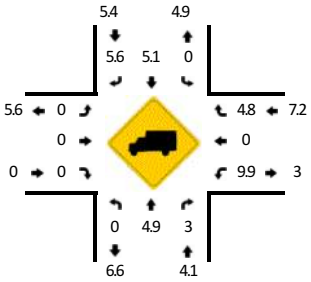
LOCATION: Ponderosa Road -- Westbound US-50 Ramps
CITY/STATE: Shingle Springs, CA

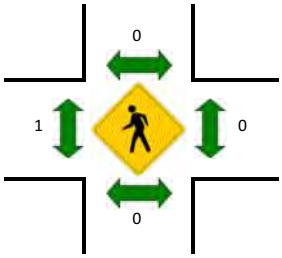
QC JOB #: 15821104
DATE: Wed, May 18 2022

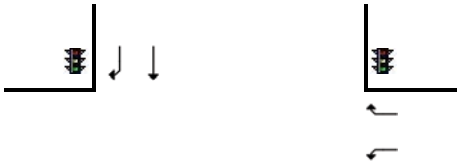
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

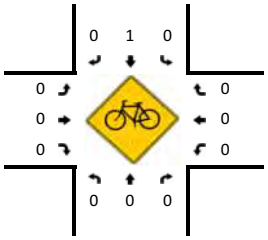


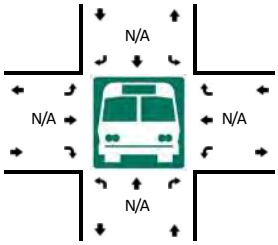


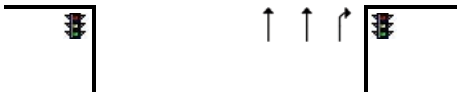


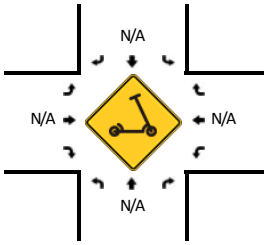












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Westbound US-50 Ramps (Eastbound)				Westbound US-50 Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	47	27	0	0	28	31	0	0	0	0	0	16	0	14	0	163	
4:05 PM	0	47	36	0	0	24	34	0	0	0	0	0	10	0	9	0	160	
4:10 PM	0	45	34	0	0	27	30	0	0	0	0	0	12	0	18	0	166	
4:15 PM	0	47	39	0	0	23	27	0	0	0	0	0	6	0	10	0	152	
4:20 PM	0	31	38	0	0	22	20	0	0	0	0	0	8	0	5	0	124	
4:25 PM	0	54	39	0	0	34	25	0	0	0	0	0	7	0	6	0	165	
4:30 PM	0	54	33	0	0	16	28	0	0	0	0	0	11	0	10	0	152	
4:35 PM	0	57	39	0	0	29	24	0	0	0	0	0	7	0	8	0	164	
4:40 PM	0	48	44	0	0	22	17	0	0	0	0	0	11	1	9	0	152	
4:45 PM	0	46	33	0	0	16	30	0	0	0	0	0	10	0	13	0	148	
4:50 PM	0	42	39	0	0	18	30	0	0	0	0	0	12	0	12	0	153	
4:55 PM	0	45	31	0	0	27	19	0	0	0	0	0	9	1	8	0	140	1839
5:00 PM	0	45	40	0	0	17	24	0	0	0	0	0	15	0	12	0	153	1829
5:05 PM	0	44	37	0	0	15	27	0	0	0	0	0	10	0	12	0	145	1814
5:10 PM	0	53	49	0	0	33	26	0	0	0	0	0	8	0	10	0	179	1827
5:15 PM	0	49	46	0	0	22	17	0	0	0	0	0	12	0	19	0	165	1840
5:20 PM	0	49	31	0	0	25	18	0	0	0	0	0	9	0	7	0	139	1855
5:25 PM	0	57	24	0	0	19	15	0	0	0	0	0	11	0	5	0	131	1821
5:30 PM	0	48	28	0	0	26	20	0	0	0	0	0	10	0	11	0	143	1812
5:35 PM	0	47	25	0	0	18	10	0	0	0	0	0	9	0	9	0	118	1766
5:40 PM	0	52	33	0	0	24	27	0	0	0	0	0	8	0	12	0	156	1770
5:45 PM	0	45	35	0	0	18	9	0	0	0	0	0	10	0	12	0	129	1751
5:50 PM	0	58	25	0	0	13	23	0	0	0	0	0	10	0	18	0	147	1745
5:55 PM	0	50	19	0	0	15	14	0	0	0	0	0	5	0	5	0	108	1713

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	584	528	0	0	280	280	0	0	0	0	0	120	0	164	0	1956
Heavy Trucks	0	12	20		0	20	8		0	0	0		4	0	8		72
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

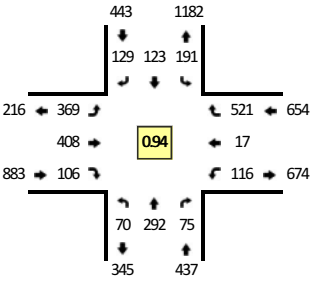
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

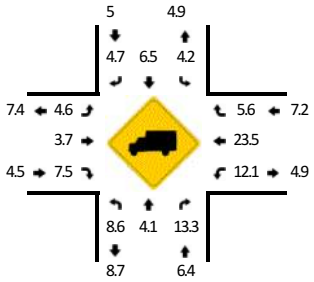
LOCATION: S Shingle Road -- Eastbound US-50 Ramps-Mother Lode Drive
CITY/STATE: Shingle Springs, CA

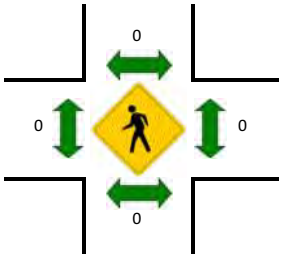
QC JOB #: 15821105
DATE: Wed, May 18 2022

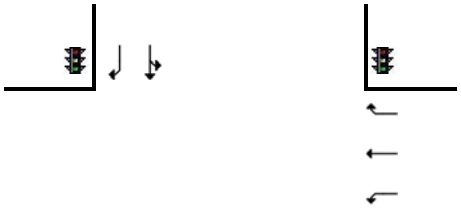
Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

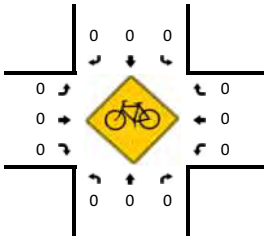


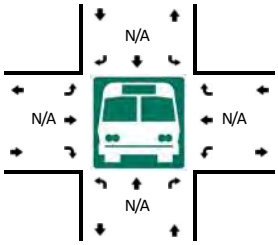


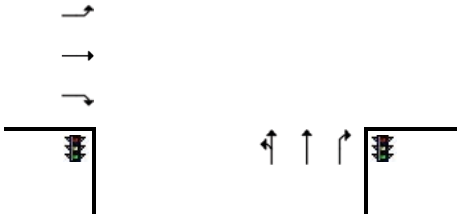


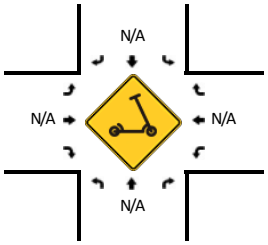












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Eastbound US-50 Ramps-Mother Lode Drive (Eastbound)				Eastbound US-50 Ramps-Mother Lode Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	11	1	0	2	9	3	0	11	10	8	0	8	2	25	0	94	
7:05 AM	4	7	0	0	4	10	3	0	11	16	4	0	8	2	22	0	91	
7:10 AM	8	13	1	0	6	9	1	0	13	14	2	0	6	1	25	0	99	
7:15 AM	4	19	4	0	5	7	5	0	12	19	7	0	10	0	32	0	124	
7:20 AM	5	20	4	0	4	3	5	0	13	26	10	0	6	2	39	0	137	
7:25 AM	6	13	4	0	6	5	3	0	31	15	7	0	8	3	28	0	129	
7:30 AM	12	22	5	0	11	12	4	0	17	20	5	0	10	0	48	0	166	
7:35 AM	12	26	3	0	10	11	10	0	22	19	11	0	10	2	38	0	174	
7:40 AM	3	27	7	0	14	5	14	0	30	21	8	0	6	1	46	0	182	
7:45 AM	7	23	7	0	15	10	8	0	34	29	7	0	6	1	48	0	195	
7:50 AM	4	28	8	0	14	10	8	0	45	29	8	0	6	2	41	0	203	
7:55 AM	7	34	9	0	13	12	10	0	38	42	7	0	11	2	44	0	229	1823
8:00 AM	8	23	5	0	13	10	7	0	39	31	9	0	11	1	44	0	201	1930
8:05 AM	5	33	0	0	12	10	5	0	40	36	9	0	12	0	49	0	211	2050
8:10 AM	3	15	2	0	21	10	13	0	29	44	10	0	9	1	39	0	196	2147
8:15 AM	7	29	7	0	17	15	12	0	25	38	11	0	7	1	53	0	222	2245
8:20 AM	10	22	7	0	20	10	13	0	30	40	12	0	12	1	38	0	215	2323
8:25 AM	3	26	6	0	15	13	14	0	26	38	10	0	12	2	36	0	201	2395
8:30 AM	5	19	9	0	17	12	12	0	11	25	9	0	10	3	40	0	172	2401
8:35 AM	8	13	8	0	20	6	13	0	22	35	6	0	14	2	43	0	190	2417
8:40 AM	6	12	10	0	16	8	10	0	18	24	9	0	13	3	47	0	176	2411
8:45 AM	7	11	11	0	13	6	17	0	25	28	10	0	8	2	38	0	176	2392
8:50 AM	3	15	4	0	13	14	7	0	29	30	8	0	17	3	44	0	187	2376
8:55 AM	7	8	5	0	17	11	9	0	15	24	5	0	14	2	47	0	164	2311

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	80	360	56	0	152	128	88	0	468	436	100	0	136	12	548	0	2564
Heavy Trucks	4	8	8		12	0	0		24	8	4		24	4	32		128
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

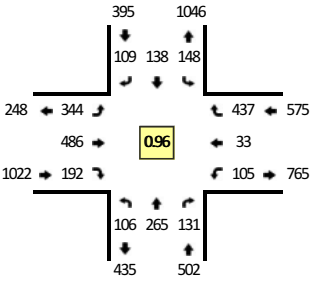
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

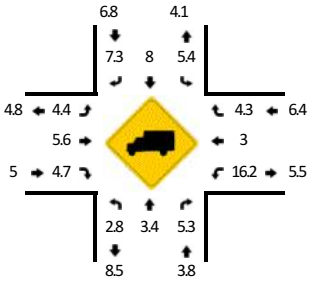
LOCATION: S Shingle Road -- Eastbound US-50 Ramps-Mother Lode Drive
CITY/STATE: Shingle Springs, CA

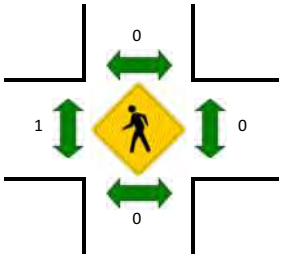
QC JOB #: 15821106
DATE: Wed, May 18 2022

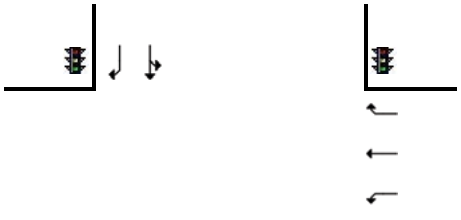
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

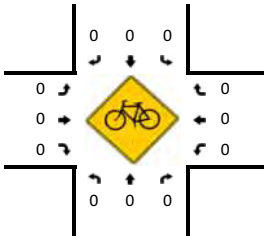


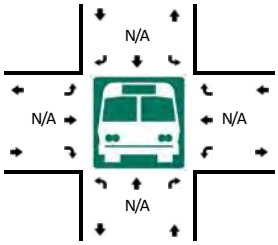


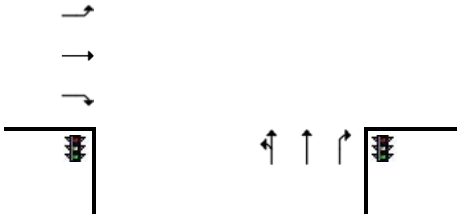


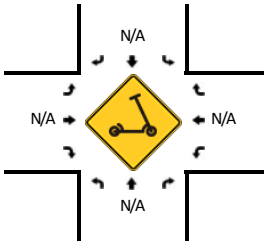












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Eastbound US-50 Ramps-Mother Lode Drive (Eastbound)				Eastbound US-50 Ramps-Mother Lode Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	19	8	0	9	19	15	0	33	42	10	0	13	0	20	0	197	
4:05 PM	4	22	14	0	15	15	11	0	25	39	18	0	5	5	32	0	205	
4:10 PM	6	23	7	0	13	17	11	0	27	26	20	0	7	4	32	0	193	
4:15 PM	15	17	9	0	8	18	10	0	26	36	18	0	10	0	47	0	214	
4:20 PM	7	16	8	0	10	12	9	0	16	23	18	0	12	3	38	0	172	
4:25 PM	13	25	17	0	12	11	5	0	36	47	16	0	8	2	40	0	232	
4:30 PM	10	22	18	0	14	16	9	0	22	30	19	0	6	3	37	0	206	
4:35 PM	8	29	5	0	15	9	12	0	32	35	19	0	11	3	34	0	212	
4:40 PM	13	19	10	0	11	12	7	0	29	42	18	0	11	1	40	0	213	
4:45 PM	6	19	9	0	7	14	8	0	28	49	16	0	10	4	34	0	204	
4:50 PM	8	22	12	0	14	11	5	0	27	48	19	0	9	6	31	0	212	
4:55 PM	7	17	3	0	16	9	11	0	25	38	18	0	5	1	41	0	191	2451
5:00 PM	6	24	14	0	12	14	9	0	22	39	10	0	9	2	37	0	198	2452
5:05 PM	8	19	8	0	10	8	4	0	30	31	7	0	9	5	39	0	178	2425
5:10 PM	9	31	11	0	17	10	12	0	36	39	20	0	4	0	32	0	221	2453
5:15 PM	10	17	13	0	11	17	10	0	29	40	17	0	15	4	39	0	222	2461
5:20 PM	8	21	11	0	9	7	17	0	28	48	13	0	8	2	33	0	205	2494
5:25 PM	7	13	12	0	13	12	8	0	40	51	15	0	9	6	27	0	213	2475
5:30 PM	5	14	10	0	15	13	8	0	33	36	19	0	3	2	32	0	190	2459
5:35 PM	5	8	7	0	12	13	3	0	37	33	16	0	8	2	31	0	175	2422
5:40 PM	5	26	6	0	12	7	22	0	30	35	12	0	3	1	26	0	185	2394
5:45 PM	2	20	5	0	9	8	8	0	34	33	5	0	5	3	35	0	167	2357
5:50 PM	6	15	4	0	8	12	9	0	30	37	13	0	4	3	34	0	175	2320
5:55 PM	3	14	5	0	8	8	6	0	30	41	19	0	4	0	22	0	160	2289

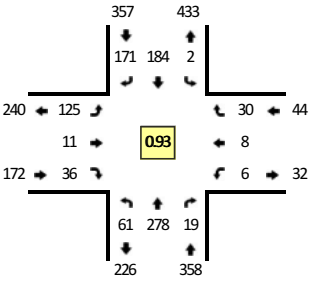
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	124	304	160	0	164	144	104	0	360	448	216	0	100	32	444	0	2600
Heavy Trucks	8	20	12		4	16	8		16	28	8		12	0	20		152
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

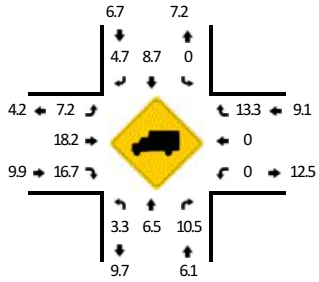
LOCATION: S Shingle Road -- Durock Road
CITY/STATE: Shingle Springs, CA

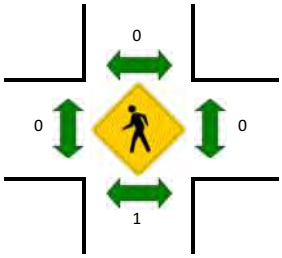
QC JOB #: 15821107
DATE: Wed, May 18 2022

Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

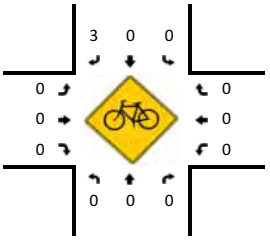


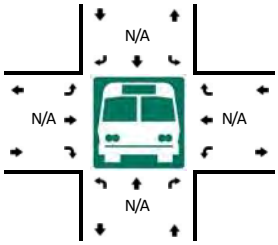




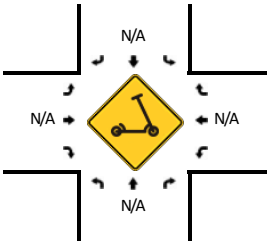












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Durock Road (Eastbound)				Durock Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	4	2	0	0	8	22	0	3	2	2	0	0	1	2	0	50	
7:05 AM	4	8	0	0	0	6	13	0	2	1	2	0	0	0	4	0	40	
7:10 AM	2	13	1	0	0	6	13	0	5	0	1	0	0	0	1	0	42	
7:15 AM	2	17	2	0	0	12	10	0	8	1	3	0	0	0	3	0	58	
7:20 AM	2	18	1	0	0	12	7	0	8	1	1	0	0	1	3	0	54	
7:25 AM	4	30	0	0	0	12	10	0	10	0	5	0	0	1	2	0	74	
7:30 AM	3	31	2	0	0	8	14	0	4	0	4	0	0	0	2	0	68	
7:35 AM	3	21	1	0	0	17	14	0	10	1	3	0	0	0	1	0	71	
7:40 AM	6	24	0	0	0	10	10	0	6	1	4	0	0	1	3	0	65	
7:45 AM	5	27	1	0	1	10	15	0	11	0	1	0	1	0	1	0	73	
7:50 AM	5	32	1	0	0	9	20	0	9	4	4	0	0	0	2	0	86	
7:55 AM	8	27	4	0	0	16	14	0	11	0	2	0	0	0	2	0	84	765
8:00 AM	3	22	1	0	0	19	11	0	12	1	4	0	1	2	4	0	80	795
8:05 AM	2	29	4	0	0	13	14	0	7	1	5	0	2	1	2	0	80	835
8:10 AM	5	18	3	0	0	16	13	0	13	0	5	0	1	0	4	0	78	871
8:15 AM	9	27	1	0	0	20	10	0	12	2	2	0	0	0	3	0	86	899
8:20 AM	4	15	2	0	0	18	17	0	13	1	1	0	1	1	4	0	77	922
8:25 AM	4	17	0	0	0	20	16	0	8	0	3	0	0	2	3	0	73	921
8:30 AM	7	19	1	0	1	16	17	0	13	0	2	0	0	1	1	0	78	931
8:35 AM	5	15	0	0	0	7	22	0	13	1	1	0	0	0	0	0	64	924
8:40 AM	4	18	0	0	0	11	19	0	10	1	1	0	1	0	2	0	67	926
8:45 AM	6	13	1	0	0	11	12	0	12	2	2	0	1	0	1	0	61	914
8:50 AM	5	16	0	0	1	17	17	0	4	0	0	0	0	1	1	0	62	890
8:55 AM	6	12	2	0	0	7	20	0	14	0	3	0	0	0	0	0	64	870

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	64	324	24	0	0	176	180	0	128	20	40	0	4	8	32	0	1000
Heavy Trucks	0	24	4		0	8	4		8	8	8		0	0	8		72
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

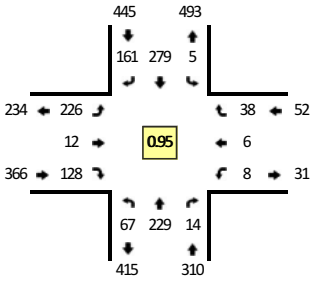
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

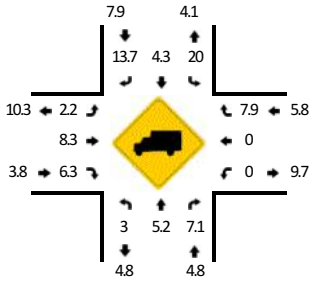
LOCATION: S Shingle Road -- Durock Road
CITY/STATE: Shingle Springs, CA

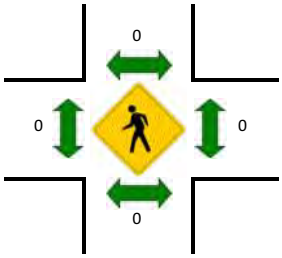
QC JOB #: 15821108
DATE: Wed, May 18 2022

Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

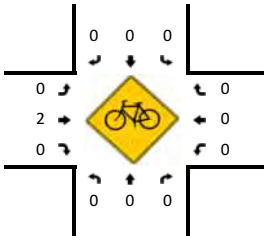


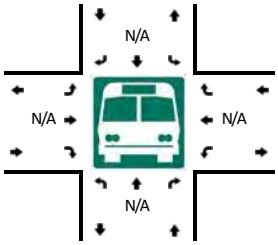




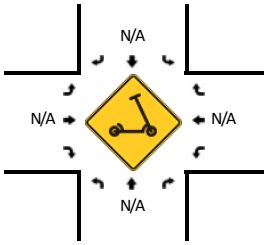












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Durock Road (Eastbound)				Durock Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	17	0	0	0	19	22	0	15	1	6	0	2	0	3	0	89	
4:05 PM	5	19	3	0	1	22	10	0	20	0	5	0	1	0	4	0	90	
4:10 PM	9	18	3	0	0	24	16	0	22	2	7	0	0	0	3	0	104	
4:15 PM	3	20	1	0	1	26	18	0	15	2	3	0	3	1	1	0	94	
4:20 PM	4	12	1	0	0	24	21	0	13	0	2	0	1	0	5	0	83	
4:25 PM	4	24	0	0	1	25	16	0	27	1	12	0	0	0	0	0	110	
4:30 PM	8	19	1	0	0	28	12	0	19	1	10	0	0	0	9	0	107	
4:35 PM	7	25	0	0	0	19	19	0	15	1	4	0	1	1	1	0	93	
4:40 PM	4	17	2	0	1	23	17	0	22	2	16	0	1	1	4	0	110	
4:45 PM	7	17	2	0	0	24	15	0	18	1	14	0	0	0	5	0	103	
4:50 PM	5	27	2	0	0	22	12	0	11	1	6	0	0	1	4	0	91	
4:55 PM	5	24	1	0	1	24	6	0	10	0	10	0	1	1	1	0	84	1158
5:00 PM	8	11	2	0	1	22	14	0	23	1	12	0	0	2	3	0	99	1168
5:05 PM	5	14	1	0	1	11	10	0	15	1	10	0	1	0	3	0	72	1150
5:10 PM	4	22	2	0	0	28	12	0	19	0	18	0	0	0	4	0	109	1155
5:15 PM	7	11	0	0	0	30	19	0	26	1	10	0	0	0	1	0	105	1166
5:20 PM	3	18	1	0	0	23	9	0	21	2	6	0	4	0	3	0	90	1173
5:25 PM	3	14	3	0	0	21	13	0	14	1	7	0	0	0	4	0	80	1143
5:30 PM	4	12	1	0	1	20	12	0	17	1	3	0	0	0	1	0	72	1108
5:35 PM	7	23	1	0	0	23	6	0	12	1	4	0	3	0	2	0	82	1097
5:40 PM	0	17	3	0	2	15	8	0	12	0	11	0	0	0	2	0	70	1057
5:45 PM	6	8	0	0	0	12	7	0	3	0	8	0	1	0	4	0	49	1003
5:50 PM	3	11	0	0	0	24	10	0	14	1	2	0	1	0	0	0	66	978
5:55 PM	4	7	1	0	1	18	13	0	13	0	5	0	0	0	1	0	63	957

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	76	272	4	0	4	288	188	0	244	12	104	0	4	4	40	0	1240
Heavy Trucks	0	32	0		0	20	36		0	4	8		0	0	12		112
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

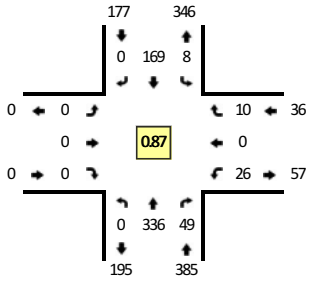
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

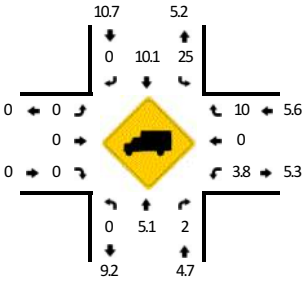
LOCATION: S Shingle Road -- Sunset Lane
CITY/STATE: Shingle Springs, CA

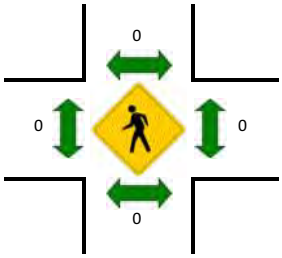
QC JOB #: 15821109
DATE: Wed, May 18 2022

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:05 AM -- 8:20 AM

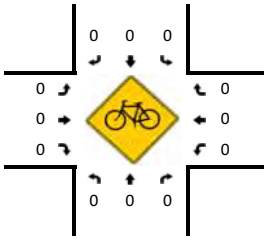


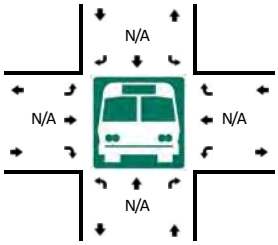




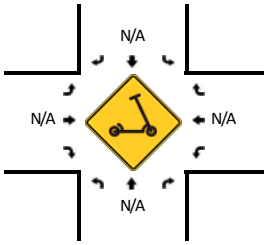












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Sunset Lane (Eastbound)				Sunset Lane (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	15	2	0	0	8	0	0	0	0	0	0	0	0	1	0	26	
7:05 AM	0	11	3	0	0	3	0	0	0	0	0	0	1	0	1	0	19	
7:10 AM	0	12	0	0	0	3	0	0	0	0	0	0	1	0	0	0	16	
7:15 AM	0	16	0	0	0	11	0	0	0	0	0	0	2	0	2	0	31	
7:20 AM	0	18	1	0	0	11	0	0	0	0	0	0	2	0	0	0	32	
7:25 AM	0	29	1	0	0	7	0	0	0	0	0	0	2	0	0	0	39	
7:30 AM	0	29	2	0	1	9	0	0	0	0	0	0	2	0	2	0	45	
7:35 AM	0	29	1	0	1	14	0	0	0	0	0	0	1	0	1	0	47	
7:40 AM	0	29	3	0	2	5	0	0	0	0	0	0	2	0	0	0	41	
7:45 AM	0	32	6	0	0	6	0	0	0	0	0	0	3	0	0	0	47	
7:50 AM	0	37	4	0	0	9	0	0	0	0	0	0	1	0	0	0	51	
7:55 AM	0	30	6	0	0	12	0	0	0	0	0	0	2	0	1	0	51	445
8:00 AM	0	23	2	0	0	25	0	0	0	0	0	0	3	0	1	0	54	473
8:05 AM	0	32	6	0	1	20	0	0	0	0	0	0	2	0	0	0	61	515
8:10 AM	0	21	4	0	1	19	0	0	0	0	0	0	3	0	1	0	49	548
8:15 AM	0	33	6	0	0	20	0	0	0	0	0	0	1	0	1	0	61	578
8:20 AM	0	19	5	0	0	13	0	0	0	0	0	0	2	0	2	0	41	587
8:25 AM	0	22	4	0	2	17	0	0	0	0	0	0	4	0	1	0	50	598
8:30 AM	0	22	4	0	0	12	0	0	0	0	0	0	3	0	3	0	44	597
8:35 AM	0	13	5	0	0	11	0	0	0	0	0	0	6	0	0	0	35	585
8:40 AM	0	17	5	0	1	3	0	0	0	0	0	0	3	0	1	0	30	574
8:45 AM	0	17	7	0	1	10	0	0	0	0	0	0	3	0	0	0	38	565
8:50 AM	0	18	7	0	0	13	0	0	0	0	0	0	3	0	0	0	41	555
8:55 AM	0	14	3	0	0	6	0	0	0	0	0	0	2	0	2	0	27	531

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	344	64	0	8	236	0	0	0	0	0	0	24	0	8	0	684
Heavy Trucks	0	12	0		4	24	0		0	0	0		0	0	0		40
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

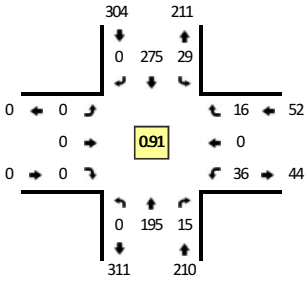
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

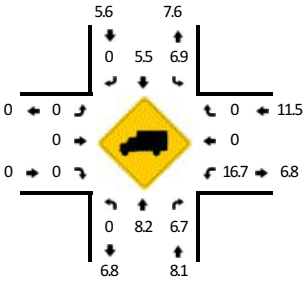
LOCATION: S Shingle Road -- Sunset Lane
CITY/STATE: Shingle Springs, CA

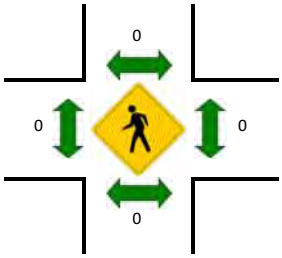
QC JOB #: 15821110
DATE: Wed, May 18 2022

Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

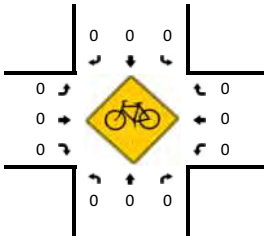


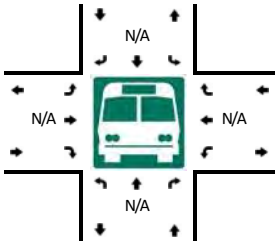




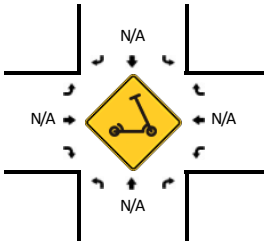












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Sunset Lane (Eastbound)				Sunset Lane (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	7	3	0	1	22	0	0	0	0	0	0	5	0	0	0	38	
4:05 PM	0	18	1	0	0	20	0	0	0	0	0	0	6	0	1	0	46	
4:10 PM	0	17	5	0	2	20	0	0	0	0	0	0	3	0	2	0	49	
4:15 PM	0	12	4	0	1	22	0	0	0	0	0	0	4	0	4	0	47	
4:20 PM	0	17	2	0	1	16	0	0	0	0	0	0	5	0	0	0	41	
4:25 PM	0	20	2	0	1	24	0	0	0	0	0	0	2	0	1	0	50	
4:30 PM	0	17	0	0	1	23	0	0	0	0	0	0	4	0	0	0	45	
4:35 PM	0	24	2	0	5	17	0	0	0	0	0	0	2	0	3	0	53	
4:40 PM	0	12	3	0	4	25	0	0	0	0	0	0	2	0	0	0	46	
4:45 PM	0	9	0	0	2	23	0	0	0	0	0	0	5	0	0	0	39	
4:50 PM	0	22	1	0	3	22	0	0	0	0	0	0	1	0	2	0	51	
4:55 PM	0	17	0	0	1	20	0	0	0	0	0	0	1	0	5	0	44	549
5:00 PM	0	16	2	0	3	23	0	0	0	0	0	0	5	0	1	0	50	561
5:05 PM	0	14	2	0	3	10	0	0	0	0	0	0	3	0	0	0	32	547
5:10 PM	0	20	0	0	3	25	0	0	0	0	0	0	3	0	0	0	51	549
5:15 PM	0	12	2	0	2	35	0	0	0	0	0	0	4	0	3	0	58	560
5:20 PM	0	12	1	0	1	28	0	0	0	0	0	0	4	0	1	0	47	566
5:25 PM	0	14	3	0	0	20	0	0	0	0	0	0	2	0	1	0	40	556
5:30 PM	0	10	6	0	1	21	0	0	0	0	0	0	2	0	0	0	40	551
5:35 PM	0	21	1	0	0	23	0	0	0	0	0	0	4	0	0	0	49	547
5:40 PM	0	13	5	0	3	18	0	0	0	0	0	0	3	0	2	0	44	545
5:45 PM	0	10	2	0	1	22	0	0	0	0	0	0	5	0	0	0	40	546
5:50 PM	0	15	3	0	0	12	0	0	0	0	0	0	2	0	1	0	33	528
5:55 PM	0	10	1	0	1	23	0	0	0	0	0	0	3	0	1	0	39	523

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	176	12	0	24	352	0	0	0	0	0	0	44	0	16	0	624
Heavy Trucks	0	4	0		0	12	0		0	0	0		8	0	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of report: Tube Count - Volume Data

LOCATION: S Shingle Road between Durock Road and Commercial Driveway (Post Office) **QC JOB #:** 15821111
SPECIFIC LOCATION: **DIRECTION:** NB
CITY/STATE: Shingle Springs, CA **DATE:** May 18 2022 - May 18 2022

Start Time	Mon	Tue	Wed 18 May 22	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			6			6			6	
01:00 AM			4			4			4	
02:00 AM			4			4			4	
03:00 AM			6			6			6	
04:00 AM			27			27			27	
05:00 AM			88			88			88	
06:00 AM			155			155			155	
07:00 AM			**331**			**331**			**331**	
08:00 AM			293			293			293	
09:00 AM			299			299			299	
10:00 AM			269			269			269	
11:00 AM			245			245			245	
12:00 PM			299			299			299	
01:00 PM			282			282			282	
02:00 PM			298			298			298	
03:00 PM			292			292			292	
04:00 PM			**327**			**327**			**327**	
05:00 PM			238			238			238	
06:00 PM			194			194			194	
07:00 PM			127			127			127	
08:00 PM			104			104			104	
09:00 PM			52			52			52	
10:00 PM			15			15			15	
11:00 PM			14			14			14	
Day Total			3969			3969			3969	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			7:00 AM 331			7:00 AM 331			7:00 AM 331	
PM Peak Volume			4:00 PM 327			4:00 PM 327			4:00 PM 327	

Comments:

Report generated on 5/23/2022 1:03 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: S Shingle Road between Durock Road and Commercial Driveway (Post Office) **QC JOB #:** 15821111
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Shingle Springs, CA **DATE:** May 18 2022 - May 18 2022

Start Time	Mon	Tue	Wed 18 May 22	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			18			18			18	
01:00 AM			7			7			7	
02:00 AM			2			2			2	
03:00 AM			3			3			3	
04:00 AM			12			12			12	
05:00 AM			29			29			29	
06:00 AM			80			80			80	
07:00 AM			180			180			180	
08:00 AM			211			211			211	
09:00 AM			222			222			222	
10:00 AM			224			224			224	
11:00 AM			**267**			**267**			**267**	
12:00 PM			318			318			318	
01:00 PM			323			323			323	
02:00 PM			310			310			310	
03:00 PM			377			377			377	
04:00 PM			**396**			**396**			**396**	
05:00 PM			341			341			341	
06:00 PM			260			260			260	
07:00 PM			179			179			179	
08:00 PM			127			127			127	
09:00 PM			90			90			90	
10:00 PM			56			56			56	
11:00 PM			39			39			39	
Day Total			4071			4071			4071	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			11:00 AM 267			11:00 AM 267			11:00 AM 267	
PM Peak Volume			4:00 PM 396			4:00 PM 396			4:00 PM 396	

Comments:

Report generated on 5/23/2022 1:03 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: S Shingle Road between Durock Road and Commercial Driveway (Post Office) **QC JOB #:** 15821111
SPECIFIC LOCATION: **DIRECTION:** NB, SB
CITY/STATE: Shingle Springs, CA **DATE:** May 18 2022 - May 18 2022

Start Time	Mon	Tue	Wed 18 May 22	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			24			24			24	
01:00 AM			11			11			11	
02:00 AM			6			6			6	
03:00 AM			9			9			9	
04:00 AM			39			39			39	
05:00 AM			117			117			117	
06:00 AM			235			235			235	
07:00 AM			511			511			511	
08:00 AM			504			504			504	
09:00 AM			**521**			**521**			**521**	
10:00 AM			493			493			493	
11:00 AM			512			512			512	
12:00 PM			617			617			617	
01:00 PM			605			605			605	
02:00 PM			608			608			608	
03:00 PM			669			669			669	
04:00 PM			**723**			**723**			**723**	
05:00 PM			579			579			579	
06:00 PM			454			454			454	
07:00 PM			306			306			306	
08:00 PM			231			231			231	
09:00 PM			142			142			142	
10:00 PM			71			71			71	
11:00 PM			53			53			53	
Day Total			8040			8040			8040	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			9:00 AM 521			9:00 AM 521			9:00 AM 521	
PM Peak Volume			4:00 PM 723			4:00 PM 723			4:00 PM 723	

Comments:

Report generated on 5/23/2022 1:03 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: S Shingle Road between Commercial Driveway (Post Office) and Sunset Lane **QC JOB #:** 15821112
SPECIFIC LOCATION: **DIRECTION:** NB
CITY/STATE: Shingle Springs, CA **DATE:** May 18 2022 - May 18 2022

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
			18 May 22							
12:00 AM			8			8			8	
01:00 AM			3			3			3	
02:00 AM			4			4			4	
03:00 AM			7			7			7	
04:00 AM			26			26			26	
05:00 AM			90			90			90	
06:00 AM			134			134			134	
07:00 AM			**298**			**298**			**298**	
08:00 AM			270			270			270	
09:00 AM			238			238			238	
10:00 AM			192			192			192	
11:00 AM			188			188			188	
12:00 PM			215			215			215	
01:00 PM			200			200			200	
02:00 PM			212			212			212	
03:00 PM			227			227			227	
04:00 PM			**229**			**229**			**229**	
05:00 PM			177			177			177	
06:00 PM			156			156			156	
07:00 PM			115			115			115	
08:00 PM			71			71			71	
09:00 PM			42			42			42	
10:00 PM			14			14			14	
11:00 PM			13			13			13	
Day Total			3129			3129			3129	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			7:00 AM 298			7:00 AM 298			7:00 AM 298	
PM Peak Volume			4:00 PM 229			4:00 PM 229			4:00 PM 229	

Comments:

Report generated on 5/23/2022 1:03 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: S Shingle Road between Commercial Driveway (Post Office) and Sunset Lane **QC JOB #:** 15821112
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Shingle Springs, CA **DATE:** May 18 2022 - May 18 2022

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
			18 May 22							
12:00 AM			15			15			15	
01:00 AM			5			5			5	
02:00 AM			2			2			2	
03:00 AM			2			2			2	
04:00 AM			7			7			7	
05:00 AM			19			19			19	
06:00 AM			55			55			55	
07:00 AM			129			129			129	
08:00 AM			**179**			**179**			**179**	
09:00 AM			158			158			158	
10:00 AM			149			149			149	
11:00 AM			166			166			166	
12:00 PM			208			208			208	
01:00 PM			225			225			225	
02:00 PM			236			236			236	
03:00 PM			280			280			280	
04:00 PM			279			279			279	
05:00 PM			**283**			**283**			**283**	
06:00 PM			215			215			215	
07:00 PM			167			167			167	
08:00 PM			122			122			122	
09:00 PM			95			95			95	
10:00 PM			51			51			51	
11:00 PM			38			38			38	
Day Total			3085			3085			3085	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			8:00 AM 179			8:00 AM 179			8:00 AM 179	
PM Peak Volume			5:00 PM 283			5:00 PM 283			5:00 PM 283	

Comments:

Report generated on 5/23/2022 1:03 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: S Shingle Road between Commercial Driveway (Post Office) and Sunset Lane **QC JOB #:** 15821112
SPECIFIC LOCATION: **DIRECTION:** NB, SB
CITY/STATE: Shingle Springs, CA **DATE:** May 18 2022 - May 18 2022

Start Time	Mon	Tue	Wed 18 May 22	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			23			23			23	
01:00 AM			8			8			8	
02:00 AM			6			6			6	
03:00 AM			9			9			9	
04:00 AM			33			33			33	
05:00 AM			109			109			109	
06:00 AM			189			189			189	
07:00 AM			427			427			427	
08:00 AM			**449**			**449**			**449**	
09:00 AM			396			396			396	
10:00 AM			341			341			341	
11:00 AM			354			354			354	
12:00 PM			423			423			423	
01:00 PM			425			425			425	
02:00 PM			448			448			448	
03:00 PM			507			507			507	
04:00 PM			**508**			**508**			**508**	
05:00 PM			460			460			460	
06:00 PM			371			371			371	
07:00 PM			282			282			282	
08:00 PM			193			193			193	
09:00 PM			137			137			137	
10:00 PM			65			65			65	
11:00 PM			51			51			51	
Day Total			6214			6214			6214	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			8:00 AM 449			8:00 AM 449			8:00 AM 449	
PM Peak Volume			4:00 PM 508			4:00 PM 508			4:00 PM 508	

Comments:

Report generated on 5/23/2022 1:03 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Appendix B

Synchro Output Reports

ARCO Shingle Springs TIS

1: Ponderosa Road & Wild Chaparral Drive/N Shingle Rd

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	8	108	251	6	11	82	266	364	12	236	10
Future Volume (veh/h)	12	8	108	251	6	11	82	266	364	12	236	10
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	13	9	116	270	6	12	88	286	391	13	254	11
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	96	66	142	305	7	14	114	372	416	47	964	44
Arrive On Green	0.09	0.09	0.09	0.19	0.19	0.19	0.09	0.09	0.09	0.29	0.29	0.29
Sat Flow, veh/h	1048	726	1547	1623	36	72	425	1380	1544	162	3305	150
Grp Volume(v), veh/h	22	0	116	288	0	0	374	0	391	146	0	132
Grp Sat Flow(s),veh/h/ln	1774	0	1547	1732	0	0	1805	0	1544	1818	0	1799
Q Serve(g_s), s	1.2	0.0	7.7	16.9	0.0	0.0	21.1	0.0	26.2	6.4	0.0	5.8
Cycle Q Clear(g_c), s	1.2	0.0	7.7	16.9	0.0	0.0	21.1	0.0	26.2	6.4	0.0	5.8
Prop In Lane	0.59		1.00	0.94		0.04	0.24		1.00	0.09		0.08
Lane Grp Cap(c), veh/h	163	0	142	325	0	0	486	0	416	530	0	525
V/C Ratio(X)	0.14	0.00	0.82	0.89	0.00	0.00	0.77	0.00	0.94	0.28	0.00	0.25
Avail Cap(c_a), veh/h	242	0	211	433	0	0	486	0	416	530	0	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.85	0.00	0.85	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	46.4	41.2	0.0	0.0	44.2	0.0	46.5	28.4	0.0	28.1
Incr Delay (d2), s/veh	0.1	0.0	8.8	14.1	0.0	0.0	5.7	0.0	26.1	1.3	0.0	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	0.5	0.0	3.3	8.2	0.0	0.0	10.9	0.0	13.8	2.9	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	0.0	55.2	55.3	0.0	0.0	50.0	0.0	72.7	29.6	0.0	29.3
LnGrp LOS	D	A	E	E	A	A	D	A	E	C	A	C
Approach Vol, veh/h		138			288			765			278	
Approach Delay, s/veh		53.3			55.3			61.6			29.5	
Approach LOS		D			E			E			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.1		34.3		23.5		32.0				
Change Period (Y+Rc), s		4.6		* 4		4.0		4.0				
Max Green Setting (Gmax), s		14.2		* 19		26.0		28.0				
Max Q Clear Time (g_c+I1), s		9.7		8.4		18.9		28.2				
Green Ext Time (p_c), s		0.1		0.4		0.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			53.5									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	121	2	126	0	586	461	0	292	303
Future Volume (veh/h)	0	0	0	121	2	126	0	586	461	0	292	303
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				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	
Adj Sat Flow, veh/h/ln				1826	1826	1826	0	1826	1826	0	1826	1826
Adj Flow Rate, veh/h				127	2	133	0	617	0	0	307	319
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				5	5	5	0	5	5	0	5	5
Cap, veh/h				183	0	163	0	2838		0	1494	1239
Arrive On Green				0.11	0.11	0.11	0.00	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				1739	0	1547	0	3652	0	0	1826	1515
Grp Volume(v), veh/h				127	0	133	0	617	0	0	307	319
Grp Sat Flow(s),veh/h/ln				1739	0	1547	0	1735	0	0	1826	1515
Q Serve(g_s), s				7.3	0.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				7.3	0.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				183	0	163	0	2838		0	1494	1239
V/C Ratio(X)				0.69	0.00	0.82	0.00	0.22		0.00	0.21	0.26
Avail Cap(c_a), veh/h				418	0	372	0	2838		0	1494	1239
HCM Platoon Ratio				1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.67	1.67
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.70	0.00	0.00	0.95	0.95
Uniform Delay (d), s/veh				44.9	0.0	45.6	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				1.8	0.0	3.8	0.0	0.1	0.0	0.0	0.3	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
%ile BackOfQ(50%),veh/ln				3.2	0.0	3.5	0.0	0.0	0.0	0.0	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.7	0.0	49.4	0.0	0.1	0.0	0.0	0.3	0.5
LnGrp LOS				D	A	D	A	A		A	A	A
Approach Vol, veh/h					260			617			626	
Approach Delay, s/veh					48.1			0.1			0.4	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	89.1	14.9	89.1
Change Period (Y+Rc), s	* 4	* 4	* 4
Max Green Setting (Gmax), s	* 71	* 25	* 71
Max Q Clear Time (g_c+I1), s	2.0	10.8	2.0
Green Ext Time (p_c), s	0.9	0.2	1.8

Intersection Summary	
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	486	192	105	33	438	106	265	131	155	144	114
Future Volume (veh/h)	344	486	192	105	33	438	106	265	131	155	144	114
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		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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	358	506	200	109	34	456	110	276	136	161	150	0
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	399	554	218	134	140	744	130	348	210	372	346	
Arrive On Green	0.23	0.23	0.23	0.08	0.08	0.08	0.14	0.14	0.14	0.40	0.40	0.00
Sat Flow, veh/h	1739	2414	949	1739	1826	1547	954	2559	1547	921	858	0
Grp Volume(v), veh/h	358	363	343	109	34	456	205	181	136	311	0	0
Grp Sat Flow(s),veh/h/ln	1739	1735	1629	1739	1826	1547	1778	1735	1547	1780	0	0
Q Serve(g_s), s	20.8	21.2	21.4	6.4	1.8	8.0	11.7	10.5	8.7	13.1	0.0	0.0
Cycle Q Clear(g_c), s	20.8	21.2	21.4	6.4	1.8	8.0	11.7	10.5	8.7	13.1	0.0	0.0
Prop In Lane	1.00		0.58	1.00		1.00	0.54		1.00	0.52		0.00
Lane Grp Cap(c), veh/h	399	398	374	134	140	744	242	236	210	718	0	
V/C Ratio(X)	0.90	0.91	0.92	0.81	0.24	0.61	0.85	0.77	0.65	0.43	0.00	
Avail Cap(c_a), veh/h	418	417	391	134	140	744	445	434	387	718	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	1.00	1.00	1.00	1.00	1.00	0.54	0.54	0.54	0.97	0.00	0.00
Uniform Delay (d), s/veh	38.9	39.0	39.1	47.3	45.1	16.1	43.9	43.3	42.6	22.4	0.0	0.0
Incr Delay (d2), s/veh	20.1	22.5	24.9	29.0	0.3	1.1	17.8	12.2	8.0	0.1	0.0	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	10.8	11.2	10.8	3.8	0.8	12.0	6.3	5.3	3.8	5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	61.5	64.0	76.2	45.5	17.2	61.6	55.5	50.6	22.6	0.0	0.0
LnGrp LOS	E	E	E	E	D	B	E	E	D	C	A	
Approach Vol, veh/h		1064			599			522			311	
Approach Delay, s/veh		61.5			29.6			56.6			22.6	
Approach LOS		E			C			E			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	46.0	12.0	18.1	27.9
Change Period (Y+Rc), s	* 4	* 4	4.0	4.0
Max Green Setting (Gmax), s	* 29	* 8	26.0	25.0
Max Q Clear Time (g_c+I1), s	15.1	10.0	13.7	23.4
Green Ext Time (p_c), s	0.3	0.0	0.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	12	128	8	6	39	67	229	14	0	280	161
Future Volume (veh/h)	234	12	128	8	6	39	67	229	14	0	280	161
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	0	1811	1811
Adj Flow Rate, veh/h	246	13	135	8	6	41	71	241	15	0	295	169
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	0	6	6
Cap, veh/h	265	14	145	11	8	54	85	306	20	0	441	253
Arrive On Green	0.26	0.26	0.26	0.05	0.05	0.05	0.12	0.12	0.12	0.00	0.41	0.41
Sat Flow, veh/h	1035	55	568	231	173	1183	736	2647	171	0	1081	619
Grp Volume(v), veh/h	394	0	0	55	0	0	171	0	156	0	0	464
Grp Sat Flow(s),veh/h/ln	1657	0	0	1587	0	0	1774	0	1780	0	0	1700
Q Serve(g_s), s	24.1	0.0	0.0	3.6	0.0	0.0	9.8	0.0	8.8	0.0	0.0	23.1
Cycle Q Clear(g_c), s	24.1	0.0	0.0	3.6	0.0	0.0	9.8	0.0	8.8	0.0	0.0	23.1
Prop In Lane	0.62		0.34	0.15		0.75	0.42		0.10	0.00		0.36
Lane Grp Cap(c), veh/h	424	0	0	73	0	0	205	0	206	0	0	694
V/C Ratio(X)	0.93	0.00	0.00	0.75	0.00	0.00	0.83	0.00	0.76	0.00	0.00	0.67
Avail Cap(c_a), veh/h	468	0	0	93	0	0	241	0	241	0	0	694
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	0.00	1.00	0.00	0.00	0.32
Uniform Delay (d), s/veh	37.8	0.0	0.0	49.0	0.0	0.0	45.0	0.0	44.6	0.0	0.0	25.0
Incr Delay (d2), s/veh	22.9	0.0	0.0	16.4	0.0	0.0	16.7	0.0	8.8	0.0	0.0	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	2.4	0.0	0.0	1.8	0.0	0.0	5.2	0.0	4.4	0.0	0.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	0.0	0.0	65.4	0.0	0.0	61.7	0.0	53.3	0.0	0.0	26.7
LnGrp LOS	E	A	A	E	A	A	E	A	D	A	A	C
Approach Vol, veh/h		394			55			327			464	
Approach Delay, s/veh		60.7			65.4			57.7			26.7	
Approach LOS		E			E			E			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	46.6	8.9	17.3	31.2
Change Period (Y+Rc), s	4.1	4.1	5.3	4.6
Max Green Setting (Gmax), s	36.3	6.1	14.1	29.4
Max Q Clear Time (g_c+I1), s	25.1	5.6	11.8	26.1
Green Ext Time (p_c), s	1.0	0.0	0.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	47.4
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	24	286	15	40	376
Future Vol, veh/h	36	24	286	15	40	376
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	40	26	314	16	44	413

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	823	322	0	0	330	0
Stage 1	322	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Critical Hdwy	6.47	6.27	-	-	4.17	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	-	-	2.263	-
Pot Cap-1 Maneuver	337	707	-	-	1202	-
Stage 1	723	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	321	707	-	-	1202	-
Mov Cap-2 Maneuver	321	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	411	1202	-
HCM Lane V/C Ratio	-	-	0.16	0.037	-
HCM Control Delay (s)	-	-	15.4	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	374	0	0	234	0	0
Future Vol, veh/h	374	0	0	234	0	0
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	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	2	2	2
Mvmt Flow	394	0	0	246	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	394	0	640	394
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	246	-
Critical Hdwy	-	-	4.16	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.254	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1143	-	440	655
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	795	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1143	-	440	655
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	795	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1143	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	310	416	0
Future Vol, veh/h	0	0	0	310	416	0
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	50	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	0	0	0	326	438	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	438	438	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.17	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	0	619	1096	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	619	1096	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1096	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2	57	310	7	21	80	610	174	13	443	15
Future Volume (veh/h)	7	2	57	310	7	21	80	610	174	13	443	15
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		0.98
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	8	2	63	344	8	23	89	678	193	14	492	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	74	18	81	366	9	24	90	707	214	25	915	33
Arrive On Green	0.05	0.05	0.05	0.23	0.23	0.23	0.10	0.10	0.10	0.27	0.27	0.27
Sat Flow, veh/h	1405	351	1547	1585	37	106	311	2452	740	93	3406	123
Grp Volume(v), veh/h	10	0	63	375	0	0	519	0	441	275	0	248
Grp Sat Flow(s),veh/h/ln	1756	0	1547	1728	0	0	1810	0	1693	1821	0	1801
Q Serve(g_s), s	0.6	0.0	4.2	22.2	0.0	0.0	29.8	0.0	26.8	13.5	0.0	12.1
Cycle Q Clear(g_c), s	0.6	0.0	4.2	22.2	0.0	0.0	29.8	0.0	26.8	13.5	0.0	12.1
Prop In Lane	0.80		1.00	0.92		0.06	0.17		0.44	0.05		0.07
Lane Grp Cap(c), veh/h	92	0	81	399	0	0	522	0	488	489	0	484
V/C Ratio(X)	0.11	0.00	0.78	0.94	0.00	0.00	0.99	0.00	0.90	0.56	0.00	0.51
Avail Cap(c_a), veh/h	238	0	210	399	0	0	522	0	488	489	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.86	0.00	0.86	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.0	0.0	48.7	39.3	0.0	0.0	46.9	0.0	45.6	32.8	0.0	32.3
Incr Delay (d2), s/veh	0.2	0.0	5.8	30.1	0.0	0.0	34.7	0.0	17.5	4.6	0.0	3.8
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	0.3	0.0	1.7	12.4	0.0	0.0	19.4	0.0	14.5	6.4	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	54.5	69.4	0.0	0.0	81.6	0.0	63.1	37.4	0.0	36.1
LnGrp LOS	D	A	D	E	A	A	F	A	E	D	A	D
Approach Vol, veh/h		73			375			960			523	
Approach Delay, s/veh		53.5			69.4			73.1			36.8	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	10.1	31.9	28.0	34.0
Change Period (Y+Rc), s	4.6	* 4	4.0	4.0
Max Green Setting (Gmax), s	14.1	* 19	24.0	30.0
Max Q Clear Time (g_c+I1), s	6.2	15.5	24.2	31.8
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	61.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	113	0	198	0	666	537	0	349	461
Future Volume (veh/h)	0	0	0	113	0	198	0	666	537	0	349	461
Initial Q (Qb), veh				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
Parking Bus, Adj				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	
Adj Sat Flow, veh/h/ln				1811	0	1811	0	1811	1811	0	1811	1811
Adj Flow Rate, veh/h				120	0	211	0	709	0	0	371	490
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				6	0	6	0	6	6	0	6	6
Cap, veh/h				269	0	239	0	2640		0	1389	1177
Arrive On Green				0.16	0.00	0.16	0.00	1.00	0.00	0.00	0.25	0.25
Sat Flow, veh/h				1725	0	1535	0	3622	0	0	1811	1535
Grp Volume(v), veh/h				120	0	211	0	709	0	0	371	490
Grp Sat Flow(s),veh/h/ln				1725	0	1535	0	1721	0	0	1811	1535
Q Serve(g_s), s				6.6	0.0	14.0	0.0	0.0	0.0	0.0	17.1	27.7
Cycle Q Clear(g_c), s				6.6	0.0	14.0	0.0	0.0	0.0	0.0	17.1	27.7
Prop In Lane				1.00		1.00	0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				269	0	239	0	2640		0	1389	1177
V/C Ratio(X)				0.45	0.00	0.88	0.00	0.27		0.00	0.27	0.42
Avail Cap(c_a), veh/h				448	0	398	0	2640		0	1389	1177
HCM Platoon Ratio				1.00	1.00	1.00	1.00	2.00	2.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.52	0.00	0.00	0.76	0.76
Uniform Delay (d), s/veh				39.8	0.0	42.9	0.0	0.0	0.0	0.0	15.4	19.4
Incr Delay (d2), s/veh				0.4	0.0	6.7	0.0	0.1	0.0	0.0	0.4	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
%ile BackOfQ(50%),veh/ln				2.8	0.0	5.7	0.0	0.0	0.0	0.0	8.3	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				40.2	0.0	49.6	0.0	0.1	0.0	0.0	15.8	20.2
LnGrp LOS				D	A	D	A	A		A	B	C
Approach Vol, veh/h					331			709			861	
Approach Delay, s/veh					46.2			0.1			18.3	
Approach LOS					D			A			B	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	83.8	20.2	83.8
Change Period (Y+Rc), s	* 4	* 4	* 4
Max Green Setting (Gmax), s	* 69	* 27	* 69
Max Q Clear Time (g_c+I1), s	29.7	16.0	2.0
Green Ext Time (p_c), s	1.2	0.2	2.1

Intersection Summary	
HCM 6th Ctrl Delay	16.4
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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	408	126	124	17	521	84	313	78	191	142	129
Future Volume (veh/h)	369	408	126	124	17	521	84	313	78	191	142	129
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	393	434	134	132	18	554	89	333	83	203	151	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	415	624	191	149	157	702	104	415	228	374	278	
Arrive On Green	0.24	0.24	0.24	0.09	0.09	0.09	0.15	0.15	0.15	0.12	0.12	0.00
Sat Flow, veh/h	1725	2595	794	1725	1811	1535	703	2793	1532	1010	751	0
Grp Volume(v), veh/h	393	286	282	132	18	554	225	197	83	354	0	0
Grp Sat Flow(s),veh/h/ln	1725	1721	1668	1725	1811	1535	1776	1721	1532	1761	0	0
Q Serve(g_s), s	23.3	15.8	16.0	7.9	1.0	9.0	12.8	11.5	5.1	19.7	0.0	0.0
Cycle Q Clear(g_c), s	23.3	15.8	16.0	7.9	1.0	9.0	12.8	11.5	5.1	19.7	0.0	0.0
Prop In Lane	1.00		0.48	1.00		1.00	0.40		1.00	0.57		0.00
Lane Grp Cap(c), veh/h	415	414	401	149	157	702	264	256	228	653	0	
V/C Ratio(X)	0.95	0.69	0.70	0.88	0.11	0.79	0.85	0.77	0.36	0.54	0.00	
Avail Cap(c_a), veh/h	415	414	401	149	157	702	444	430	383	653	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.54	0.54	0.54	0.95	0.00	0.00
Uniform Delay (d), s/veh	38.9	36.0	36.1	47.0	43.8	17.8	43.2	42.6	39.9	37.3	0.0	0.0
Incr Delay (d2), s/veh	30.8	4.1	4.6	40.7	0.1	5.6	16.9	11.6	2.4	0.5	0.0	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	3.0	6.9	6.8	5.0	0.4	15.4	6.8	5.7	2.1	9.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	40.1	40.7	87.7	43.9	23.3	60.1	54.1	42.3	37.8	0.0	0.0
LnGrp LOS	E	D	D	F	D	C	E	D	D	D	A	
Approach Vol, veh/h		961			704			505			354	
Approach Delay, s/veh		52.4			35.9			54.8			37.8	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	42.5	13.0	19.5	29.0
Change Period (Y+Rc), s	* 4	* 4	4.0	4.0
Max Green Setting (Gmax), s	* 28	* 9	26.0	25.0
Max Q Clear Time (g_c+I1), s	21.7	11.0	14.8	25.3
Green Ext Time (p_c), s	0.2	0.0	0.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	46.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	11	36	6	8	30	61	259	19	0	205	187
Future Volume (veh/h)	186	11	36	6	8	30	61	259	19	0	205	187
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	0	1796	1796
Adj Flow Rate, veh/h	200	12	39	6	9	32	66	278	20	0	220	201
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, %	7	7	7	7	7	7	7	7	7	0	7	7
Cap, veh/h	224	13	44	9	13	46	80	353	26	0	419	383
Arrive On Green	0.17	0.17	0.17	0.04	0.04	0.04	0.13	0.13	0.13	0.00	0.49	0.49
Sat Flow, veh/h	1340	80	261	203	305	1083	611	2711	203	0	864	790
Grp Volume(v), veh/h	251	0	0	47	0	0	191	0	173	0	0	421
Grp Sat Flow(s),veh/h/ln	1682	0	0	1591	0	0	1766	0	1760	0	0	1654
Q Serve(g_s), s	15.2	0.0	0.0	3.0	0.0	0.0	11.0	0.0	9.9	0.0	0.0	18.3
Cycle Q Clear(g_c), s	15.2	0.0	0.0	3.0	0.0	0.0	11.0	0.0	9.9	0.0	0.0	18.3
Prop In Lane	0.80		0.16	0.13		0.68	0.35		0.12	0.00		0.48
Lane Grp Cap(c), veh/h	282	0	0	68	0	0	230	0	229	0	0	803
V/C Ratio(X)	0.89	0.00	0.00	0.69	0.00	0.00	0.83	0.00	0.76	0.00	0.00	0.52
Avail Cap(c_a), veh/h	330	0	0	112	0	0	334	0	333	0	0	803
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	0.00	1.00	0.00	0.00	0.31
Uniform Delay (d), s/veh	42.4	0.0	0.0	49.1	0.0	0.0	44.1	0.0	43.6	0.0	0.0	18.5
Incr Delay (d2), s/veh	20.6	0.0	0.0	4.5	0.0	0.0	7.3	0.0	2.7	0.0	0.0	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	7.9	0.0	0.0	1.3	0.0	0.0	5.2	0.0	4.4	0.0	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	0.0	0.0	53.6	0.0	0.0	51.3	0.0	46.4	0.0	0.0	19.2
LnGrp LOS	E	A	A	D	A	A	D	A	D	A	A	B
Approach Vol, veh/h		251			47			364			421	
Approach Delay, s/veh		63.0			53.6			49.0			19.2	
Approach LOS		E			D			D			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	54.6	8.6	18.9	22.0
Change Period (Y+Rc), s	4.1	4.1	5.3	4.6
Max Green Setting (Gmax), s	38.5	7.3	19.7	20.4
Max Q Clear Time (g_c+I1), s	20.3	5.0	13.0	17.2
Green Ext Time (p_c), s	1.0	0.0	0.6	0.2

Intersection Summary	
HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	10	355	49	10	219
Future Vol, veh/h	26	10	355	49	10	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	7	7	7	7	2
Mvmt Flow	30	11	408	56	11	252

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	710	436	0	0	464	0
Stage 1	436	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Critical Hdwy	6.47	6.27	-	-	4.17	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	-	-	2.263	-
Pot Cap-1 Maneuver	393	610	-	-	1072	-
Stage 1	641	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	388	610	-	-	1072	-
Mov Cap-2 Maneuver	388	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	432	1072	-
HCM Lane V/C Ratio	-	-	0.096	0.011	-
HCM Control Delay (s)	-	-	14.2	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	159	17	30	226	17	74
Future Vol, veh/h	159	17	30	226	17	74
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, %	7	7	7	7	2	2
Mvmt Flow	173	18	33	246	18	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	191	0	494	182
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	312	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1353	-	535	861
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	742	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1353	-	520	861
Mov Cap-2 Maneuver	-	-	-	-	520	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	721	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	767	-	-	1353	-
HCM Lane V/C Ratio	0.129	-	-	0.024	-
HCM Control Delay (s)	10.4	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	26	339	204	43
Future Vol, veh/h	0	25	26	339	204	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	50	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	0	27	28	368	222	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	222	269	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.17	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	0	818	1266	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	818	1266	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1266	-	818	-	-
HCM Lane V/C Ratio	0.022	-	0.033	-	-
HCM Control Delay (s)	7.9	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	8	109	252	6	11	82	270	365	12	238	10
Future Volume (veh/h)	12	8	109	252	6	11	82	270	365	12	238	10
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	13	9	117	271	6	12	88	290	392	13	256	11
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	97	67	143	306	7	14	113	373	416	47	961	43
Arrive On Green	0.09	0.09	0.09	0.19	0.19	0.19	0.09	0.09	0.09	0.29	0.29	0.29
Sat Flow, veh/h	1048	726	1547	1624	36	72	420	1385	1544	161	3307	149
Grp Volume(v), veh/h	22	0	117	289	0	0	378	0	392	147	0	133
Grp Sat Flow(s),veh/h/ln	1774	0	1547	1732	0	0	1805	0	1544	1818	0	1799
Q Serve(g_s), s	1.2	0.0	7.7	16.9	0.0	0.0	21.3	0.0	26.2	6.5	0.0	5.9
Cycle Q Clear(g_c), s	1.2	0.0	7.7	16.9	0.0	0.0	21.3	0.0	26.2	6.5	0.0	5.9
Prop In Lane	0.59		1.00	0.94		0.04	0.23		1.00	0.09		0.08
Lane Grp Cap(c), veh/h	164	0	143	326	0	0	486	0	416	528	0	523
V/C Ratio(X)	0.13	0.00	0.82	0.89	0.00	0.00	0.78	0.00	0.94	0.28	0.00	0.25
Avail Cap(c_a), veh/h	242	0	211	433	0	0	486	0	416	528	0	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.84	0.00	0.84	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	46.3	41.1	0.0	0.0	44.3	0.0	46.6	28.5	0.0	28.3
Incr Delay (d2), s/veh	0.1	0.0	9.2	14.3	0.0	0.0	6.1	0.0	26.4	1.3	0.0	1.2
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	0.5	0.0	3.3	8.3	0.0	0.0	11.0	0.0	13.8	2.9	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	0.0	55.5	55.4	0.0	0.0	50.4	0.0	73.0	29.8	0.0	29.4
LnGrp LOS	D	A	E	E	A	A	D	A	E	C	A	C
Approach Vol, veh/h		139			289			770			280	
Approach Delay, s/veh		53.6			55.4			61.9			29.6	
Approach LOS		D			E			E			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.2		34.2		23.6		32.0				
Change Period (Y+Rc), s		4.6		* 4		4.0		4.0				
Max Green Setting (Gmax), s		14.2		* 19		26.0		28.0				
Max Q Clear Time (g_c+I1), s		9.7		8.5		18.9		28.2				
Green Ext Time (p_c), s		0.1		0.4		0.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			53.7									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	143	2	126	0	591	483	0	296	303
Future Volume (veh/h)	0	0	0	143	2	126	0	591	483	0	296	303
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				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	
Adj Sat Flow, veh/h/ln				1826	1826	1826	0	1826	1826	0	1826	1826
Adj Flow Rate, veh/h				151	2	133	0	622	0	0	312	319
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				5	5	5	0	5	5	0	5	5
Cap, veh/h				185	0	164	0	2834		0	1492	1238
Arrive On Green				0.11	0.11	0.11	0.00	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				1739	0	1547	0	3652	0	0	1826	1515
Grp Volume(v), veh/h				151	0	133	0	622	0	0	312	319
Grp Sat Flow(s),veh/h/ln				1739	0	1547	0	1735	0	0	1826	1515
Q Serve(g_s), s				8.8	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				8.8	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				185	0	164	0	2834		0	1492	1238
V/C Ratio(X)				0.82	0.00	0.81	0.00	0.22		0.00	0.21	0.26
Avail Cap(c_a), veh/h				418	0	372	0	2834		0	1492	1238
HCM Platoon Ratio				1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.67	1.67
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.68	0.00	0.00	0.95	0.95
Uniform Delay (d), s/veh				45.5	0.0	45.5	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				3.4	0.0	3.6	0.0	0.1	0.0	0.0	0.3	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
%ile BackOfQ(50%),veh/ln				4.0	0.0	3.5	0.0	0.0	0.0	0.0	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				48.9	0.0	49.0	0.0	0.1	0.0	0.0	0.3	0.5
LnGrp LOS				D	A	D	A	A		A	A	A
Approach Vol, veh/h					284			622			631	
Approach Delay, s/veh					49.0			0.1			0.4	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	89.0	15.0	89.0
Change Period (Y+Rc), s	* 4	* 4	* 4
Max Green Setting (Gmax), s	* 71	* 25	* 71
Max Q Clear Time (g_c+I1), s	2.0	10.8	2.0
Green Ext Time (p_c), s	0.9	0.2	1.8

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	486	215	108	33	438	128	292	133	155	170	114
Future Volume (veh/h)	344	486	215	108	33	438	128	292	133	155	170	114
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		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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	358	506	224	112	34	456	133	304	139	161	177	0
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	410	548	241	134	140	710	154	377	234	325	357	
Arrive On Green	0.24	0.24	0.24	0.08	0.08	0.08	0.15	0.15	0.15	0.51	0.51	0.00
Sat Flow, veh/h	1739	2324	1023	1739	1826	1547	1018	2491	1547	850	934	0
Grp Volume(v), veh/h	358	377	353	112	34	456	232	205	139	338	0	0
Grp Sat Flow(s),veh/h/ln	1739	1735	1613	1739	1826	1547	1775	1735	1547	1783	0	0
Q Serve(g_s), s	20.6	22.1	22.3	6.6	1.8	8.0	13.3	11.8	8.7	13.0	0.0	0.0
Cycle Q Clear(g_c), s	20.6	22.1	22.3	6.6	1.8	8.0	13.3	11.8	8.7	13.0	0.0	0.0
Prop In Lane	1.00		0.63	1.00		1.00	0.57		1.00	0.48		0.00
Lane Grp Cap(c), veh/h	410	409	380	134	140	710	269	263	234	681	0	
V/C Ratio(X)	0.87	0.92	0.93	0.84	0.24	0.64	0.86	0.78	0.59	0.50	0.00	
Avail Cap(c_a), veh/h	418	417	388	134	140	710	444	434	387	681	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.49	0.49	0.49	0.97	0.00	0.00
Uniform Delay (d), s/veh	38.2	38.8	38.9	47.4	45.1	17.4	43.1	42.5	41.1	19.0	0.0	0.0
Incr Delay (d2), s/veh	17.1	25.0	27.6	33.3	0.3	1.5	16.3	10.8	5.3	0.2	0.0	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	10.4	11.9	11.4	4.1	0.8	12.1	7.0	5.8	3.6	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	63.8	66.5	80.7	45.5	18.9	59.4	53.3	46.5	19.2	0.0	0.0
LnGrp LOS	E	E	E	F	D	B	E	D	D	B	A	
Approach Vol, veh/h		1088			602			576			338	
Approach Delay, s/veh		61.9			31.9			54.1			19.2	
Approach LOS		E			C			D			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	43.7	12.0	19.7	28.5
Change Period (Y+Rc), s	* 4	* 4	4.0	4.0
Max Green Setting (Gmax), s	* 29	* 8	26.0	25.0
Max Q Clear Time (g_c+I1), s	15.0	10.0	15.3	24.3
Green Ext Time (p_c), s	0.3	0.0	0.5	0.2

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	306	12	128	8	6	39	67	208	14	0	308	185
Future Volume (veh/h)	306	12	128	8	6	39	67	208	14	0	308	185
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	0	1811	1811
Adj Flow Rate, veh/h	322	13	135	8	6	41	71	219	15	0	324	195
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	0	6	6
Cap, veh/h	323	13	135	11	8	54	87	283	20	0	410	247
Arrive On Green	0.28	0.28	0.28	0.05	0.05	0.05	0.11	0.11	0.11	0.00	0.39	0.39
Sat Flow, veh/h	1143	46	479	231	173	1183	788	2578	183	0	1059	637
Grp Volume(v), veh/h	470	0	0	55	0	0	160	0	145	0	0	519
Grp Sat Flow(s),veh/h/ln	1668	0	0	1587	0	0	1772	0	1778	0	0	1696
Q Serve(g_s), s	29.3	0.0	0.0	3.6	0.0	0.0	9.2	0.0	8.2	0.0	0.0	28.1
Cycle Q Clear(g_c), s	29.3	0.0	0.0	3.6	0.0	0.0	9.2	0.0	8.2	0.0	0.0	28.1
Prop In Lane	0.69		0.29	0.15		0.75	0.45		0.10	0.00		0.38
Lane Grp Cap(c), veh/h	471	0	0	73	0	0	195	0	195	0	0	657
V/C Ratio(X)	1.00	0.00	0.00	0.75	0.00	0.00	0.82	0.00	0.75	0.00	0.00	0.79
Avail Cap(c_a), veh/h	471	0	0	93	0	0	240	0	241	0	0	657
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	0.00	1.00	0.00	0.00	0.33
Uniform Delay (d), s/veh	37.3	0.0	0.0	49.0	0.0	0.0	45.3	0.0	44.9	0.0	0.0	28.1
Incr Delay (d2), s/veh	40.6	0.0	0.0	16.4	0.0	0.0	13.8	0.0	6.9	0.0	0.0	3.3
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	7.1	0.0	0.0	1.8	0.0	0.0	4.7	0.0	4.0	0.0	0.0	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.8	0.0	0.0	65.4	0.0	0.0	59.1	0.0	51.8	0.0	0.0	31.4
LnGrp LOS	E	A	A	E	A	A	E	A	D	A	A	C
Approach Vol, veh/h		470			55			305			519	
Approach Delay, s/veh		77.8			65.4			55.6			31.4	
Approach LOS		E			E			E			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	44.4	8.9	16.7	34.0
Change Period (Y+Rc), s	4.1	4.1	5.3	4.6
Max Green Setting (Gmax), s	36.3	6.1	14.1	29.4
Max Q Clear Time (g_c+I1), s	30.1	5.6	11.2	31.3
Green Ext Time (p_c), s	0.8	0.0	0.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	24	289	15	40	379
Future Vol, veh/h	36	24	289	15	40	379
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	40	26	318	16	44	416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	830	326	0	0	334	0
Stage 1	326	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Critical Hdwy	6.47	6.27	-	-	4.17	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	-	-	2.263	-
Pot Cap-1 Maneuver	333	704	-	-	1198	-
Stage 1	720	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	317	704	-	-	1198	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	406	1198	-
HCM Lane V/C Ratio	-	-	0.162	0.037	-
HCM Control Delay (s)	-	-	15.6	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	359	17	39	219	18	87
Future Vol, veh/h	359	17	39	219	18	87
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	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	2	2
Mvmt Flow	378	18	41	231	19	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	396	0	700	387
Stage 1	-	-	-	-	387	-
Stage 2	-	-	-	-	313	-
Critical Hdwy	-	-	4.16	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.254	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1141	-	405	661
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1141	-	388	661
Mov Cap-2 Maneuver	-	-	-	-	388	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	711	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	590	-	-	1141	-
HCM Lane V/C Ratio	0.187	-	-	0.036	-
HCM Control Delay (s)	12.5	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	24	289	394	50
Future Vol, veh/h	0	25	24	289	394	50
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	50	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	0	26	25	304	415	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	415	468	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.17	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	0	637	1068	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	637	1068	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1068	-	637	-	-
HCM Lane V/C Ratio	0.024	-	0.041	-	-
HCM Control Delay (s)	8.5	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

ARCO Shingle Springs TIS
1: Ponderosa Road & North Shingle Road

Near-Term AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	316	21	613	175	13	455
Future Volume (veh/h)	316	21	613	175	13	455
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	343	23	666	190	14	495
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	387	345	1524	434	29	1184
Arrive On Green	0.22	0.22	1.00	1.00	0.02	0.65
Sat Flow, veh/h	1739	1547	2756	760	1739	1826
Grp Volume(v), veh/h	343	23	433	423	14	495
Grp Sat Flow(s),veh/h/ln	1739	1547	1735	1689	1739	1826
Q Serve(g_s), s	17.2	1.1	0.0	0.0	0.7	11.8
Cycle Q Clear(g_c), s	17.2	1.1	0.0	0.0	0.7	11.8
Prop In Lane	1.00	1.00		0.45	1.00	
Lane Grp Cap(c), veh/h	387	345	992	966	29	1184
V/C Ratio(X)	0.89	0.07	0.44	0.44	0.49	0.42
Avail Cap(c_a), veh/h	614	547	992	966	108	1184
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.72	0.72	1.00	1.00
Uniform Delay (d), s/veh	33.9	27.6	0.0	0.0	43.9	7.6
Incr Delay (d2), s/veh	9.3	0.1	1.0	1.0	12.5	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	0.4	0.3	0.3	0.4	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.2	27.7	1.0	1.0	56.3	8.7
LnGrp LOS	D	C	A	A	E	A
Approach Vol, veh/h	366		856			509
Approach Delay, s/veh	42.2		1.0			10.0
Approach LOS	D		A			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	56.9			63.7	26.3
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	5.6	35.6			46.6	31.8
Max Q Clear Time (g_c+I1), s	2.7	2.0			13.8	19.2
Green Ext Time (p_c), s	0.0	5.9			3.2	0.9

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	56	99	10	198	78	581	0	0	749	22
Future Volume (veh/h)	9	0	56	99	10	198	78	581	0	0	749	22
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	1811	0	1811	1811	1811	1811	1811	1811	0	0	1811	1811
Adj Flow Rate, veh/h	10	0	61	108	11	215	85	632	0	0	814	24
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, %	6	0	6	6	6	6	6	6	0	0	6	6
Cap, veh/h	91	0	0	392	9	180	125	977	0	0	953	28
Arrive On Green	0.05	0.00	0.00	0.23	0.12	0.12	0.10	0.10	0.00	0.00	0.28	0.28
Sat Flow, veh/h	1725	10		1725	75	1471	398	3204	0	0	3503	101
Grp Volume(v), veh/h	10	41.2		108	0	226	383	334	0	0	410	428
Grp Sat Flow(s),veh/h/ln	1725	D		1725	0	1546	1791	1721	0	0	1721	1793
Q Serve(g_s), s	0.5			4.6	0.0	11.0	18.5	16.8	0.0	0.0	20.3	20.3
Cycle Q Clear(g_c), s	0.5			4.6	0.0	11.0	18.5	16.8	0.0	0.0	20.3	20.3
Prop In Lane	1.00			1.00		0.95	0.22		0.00	0.00		0.06
Lane Grp Cap(c), veh/h	91			392	0	189	562	540	0	0	480	501
V/C Ratio(X)	0.11			0.28	0.00	1.20	0.68	0.62	0.00	0.00	0.85	0.85
Avail Cap(c_a), veh/h	98			392	0	189	562	540	0	0	562	586
HCM Platoon Ratio	1.00			1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.79	0.79
Uniform Delay (d), s/veh	40.6			28.7	0.0	39.5	36.0	35.2	0.0	0.0	30.7	30.7
Incr Delay (d2), s/veh	0.5			0.4	0.0	128.1	6.5	5.3	0.0	0.0	8.8	8.5
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
%ile BackOfQ(50%),veh/ln	0.2			1.9	0.0	10.7	9.8	8.4	0.0	0.0	9.1	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2			29.1	0.0	167.6	42.5	40.5	0.0	0.0	39.5	39.2
LnGrp LOS	D			C	A	F	D	D	A	A	D	D
Approach Vol, veh/h					334			717			838	
Approach Delay, s/veh					122.8			41.6			39.3	
Approach LOS					F			D			D	

Timer - Assigned Phs	2	3		6	7	8
Phs Duration (G+Y+Rc), s	33.6	25.8		30.5	9.4	16.4
Change Period (Y+Rc), s	5.4	5.4		5.4	* 4.7	5.4
Max Green Setting (Gmax), s	23.6	10.6		29.4	* 5.1	11.0
Max Q Clear Time (g_c+I1), s	20.5	6.6		22.3	2.5	13.0
Green Ext Time (p_c), s	1.2	0.1		2.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	408	111	150	17	521	70	297	75	191	123	129
Future Volume (veh/h)	369	408	111	150	17	521	70	297	75	191	123	129
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	401	443	121	163	18	566	76	323	82	208	134	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, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	644	513	229	190	121	447	475	751	188	240	154	
Arrive On Green	0.19	0.15	0.15	0.11	0.07	0.07	0.28	0.28	0.28	0.22	0.22	0.00
Sat Flow, veh/h	3346	3441	1535	1725	1811	1535	1725	2727	682	1069	689	0
Grp Volume(v), veh/h	401	443	121	163	18	566	76	202	203	342	0	0
Grp Sat Flow(s),veh/h/ln	1673	1721	1535	1725	1811	1535	1725	1721	1688	1758	0	0
Q Serve(g_s), s	9.9	11.3	6.6	8.4	0.8	6.0	3.0	8.7	8.9	16.9	0.0	0.0
Cycle Q Clear(g_c), s	9.9	11.3	6.6	8.4	0.8	6.0	3.0	8.7	8.9	16.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	0.61		0.00
Lane Grp Cap(c), veh/h	644	513	229	190	121	447	475	474	465	394	0	
V/C Ratio(X)	0.62	0.86	0.53	0.86	0.15	1.27	0.16	0.43	0.44	0.87	0.00	
Avail Cap(c_a), veh/h	651	520	232	190	121	447	475	474	465	559	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.3	37.4	35.4	39.4	39.6	24.8	24.7	26.8	26.8	33.6	0.0	0.0
Incr Delay (d2), s/veh	1.8	13.9	2.2	30.4	0.6	137.2	0.7	2.8	3.0	10.0	0.0	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	4.0	5.5	2.5	5.0	0.4	26.8	1.3	3.8	3.9	7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	51.3	37.6	69.8	40.2	161.9	25.4	29.5	29.8	43.7	0.0	0.0
LnGrp LOS	D	D	D	E	D	F	C	C	C	D	A	
Approach Vol, veh/h		965			747			481			342	
Approach Delay, s/veh		42.9			138.9			29.0			43.7	
Approach LOS		D			F			C			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	30.6	15.0	18.8	25.6	22.7	11.1
Change Period (Y+Rc), s	5.8	5.1	5.4	5.4	5.4	5.1
Max Green Setting (Gmax), s	16.2	9.9	13.6	28.6	17.5	6.0
Max Q Clear Time (g_c+I1), s	10.9	10.4	13.3	18.9	11.9	8.0
Green Ext Time (p_c), s	1.2	0.0	0.1	1.3	0.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	68.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	15	0	0	30	0	412	19	0	354	30
Future Vol, veh/h	0	0	15	0	0	30	0	412	19	0	354	30
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	0	16	0	0	33	0	448	21	0	385	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	403	-	-	235	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.305	-	-	7.005	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3665	-	-	3.3665	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	634	0	0	754	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	633	-	-	754	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	633	754	-	-
HCM Lane V/C Ratio	-	-	0.026	0.043	-	-
HCM Control Delay (s)	-	-	10.8	10	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	26	36	26	10	10	61	290	49	10	185	169
Future Volume (veh/h)	126	26	36	26	10	10	61	290	49	10	185	169
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	137	28	39	28	11	11	66	315	53	11	201	184
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	170	43	61	150	43	43	84	951	160	23	517	473
Arrive On Green	0.10	0.06	0.06	0.09	0.05	0.05	0.05	0.63	0.63	0.01	0.60	0.60
Sat Flow, veh/h	1711	679	946	1711	824	824	1711	1499	252	1711	864	790
Grp Volume(v), veh/h	137	0	67	28	0	22	66	0	368	11	0	385
Grp Sat Flow(s),veh/h/ln	1711	0	1626	1711	0	1648	1711	0	1751	1711	0	1654
Q Serve(g_s), s	7.1	0.0	3.6	1.4	0.0	1.2	3.4	0.0	8.7	0.6	0.0	10.9
Cycle Q Clear(g_c), s	7.1	0.0	3.6	1.4	0.0	1.2	3.4	0.0	8.7	0.6	0.0	10.9
Prop In Lane	1.00		0.58	1.00		0.50	1.00		0.14	1.00		0.48
Lane Grp Cap(c), veh/h	170	0	104	150	0	87	84	0	1111	23	0	991
V/C Ratio(X)	0.81	0.00	0.64	0.19	0.00	0.25	0.78	0.00	0.33	0.48	0.00	0.39
Avail Cap(c_a), veh/h	314	0	298	150	0	119	200	0	1111	105	0	991
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.7	0.0	41.1	38.1	0.0	40.9	42.3	0.0	7.6	44.1	0.0	9.4
Incr Delay (d2), s/veh	8.7	0.0	6.5	0.6	0.0	1.5	14.6	0.0	0.8	14.9	0.0	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	3.2	0.0	1.6	0.6	0.0	0.5	1.7	0.0	2.8	0.3	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	0.0	47.6	38.7	0.0	42.5	57.0	0.0	8.4	58.9	0.0	10.6
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	A	B
Approach Vol, veh/h		204			50			434			396	
Approach Delay, s/veh		48.1			40.3			15.8			11.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	61.6	13.4	9.2	8.9	58.4	12.4	10.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	43.5	16.5	6.5	10.5	38.5	6.5	16.5
Max Q Clear Time (g_c+I1), s	2.6	10.7	9.1	3.2	5.4	12.9	3.4	5.6
Green Ext Time (p_c), s	0.0	2.2	0.2	0.0	0.0	2.3	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	426	364	0
Future Vol, veh/h	0	0	0	426	364	0
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	-	100	-	-	50
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	0	0	0	463	396	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	859	396	396	0	-	0
Stage 1	396	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.17	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	327	653	1136	-	-	-
Stage 1	680	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	327	653	1136	-	-	-
Mov Cap-2 Maneuver	518	-	-	-	-	-
Stage 1	680	-	-	-	-	-
Stage 2	634	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1136	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

ARCO Shingle Springs TIS

1: Ponderosa Road & North Shingle Road

Near-Term PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	257	11	278	372	12	246
Future Volume (veh/h)	257	11	278	372	12	246
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	279	12	302	404	13	267
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	323	287	513	457	574	1252
Arrive On Green	0.19	0.19	0.49	0.49	0.33	0.69
Sat Flow, veh/h	1739	1547	1826	1545	1739	1826
Grp Volume(v), veh/h	279	12	302	404	13	267
Grp Sat Flow(s),veh/h/ln	1739	1547	1735	1545	1739	1826
Q Serve(g_s), s	14.0	0.6	11.2	21.2	0.5	4.8
Cycle Q Clear(g_c), s	14.0	0.6	11.2	21.2	0.5	4.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	323	287	513	457	574	1252
V/C Ratio(X)	0.86	0.04	0.59	0.88	0.02	0.21
Avail Cap(c_a), veh/h	614	547	667	594	574	1252
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	35.5	30.1	18.9	21.4	20.4	5.2
Incr Delay (d2), s/veh	6.9	0.1	4.3	19.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.2	4.1	7.5	0.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.5	30.1	23.2	40.8	20.4	5.6
LnGrp LOS	D	C	C	D	C	A
Approach Vol, veh/h	291		706			280
Approach Delay, s/veh	41.9		33.2			6.3
Approach LOS	D		C			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.1	32.0			67.1	22.9
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	6.6	34.6			46.6	31.8
Max Q Clear Time (g_c+I1), s	2.5	23.2			6.8	16.0
Green Ext Time (p_c), s	0.0	3.4			1.5	0.7

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	108	121	10	126	82	504	0	0	487	16
Future Volume (veh/h)	20	0	108	121	10	126	82	504	0	0	487	16
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	1826	0	1826	1826	1826	1826	1826	1826	0	0	1826	1826
Adj Flow Rate, veh/h	22	0	117	132	11	137	89	548	0	0	529	17
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, %	5	0	5	5	5	5	5	5	0	0	5	5
Cap, veh/h	95	0	0	406	14	172	188	1223	0	0	643	21
Arrive On Green	0.05	0.00	0.00	0.23	0.12	0.12	0.13	0.13	0.00	0.00	0.06	0.06
Sat Flow, veh/h	1739	22		1739	116	1445	472	3156	0	0	3522	110
Grp Volume(v), veh/h	22	42.0		132	0	148	340	297	0	0	267	279
Grp Sat Flow(s),veh/h/ln	1739	D		1739	0	1561	1802	1735	0	0	1735	1806
Q Serve(g_s), s	1.1			5.7	0.0	8.3	15.7	14.2	0.0	0.0	13.7	13.7
Cycle Q Clear(g_c), s	1.1			5.7	0.0	8.3	15.7	14.2	0.0	0.0	13.7	13.7
Prop In Lane	1.00			1.00		0.93	0.26		0.00	0.00		0.06
Lane Grp Cap(c), veh/h	95			406	0	186	719	692	0	0	325	339
V/C Ratio(X)	0.23			0.33	0.00	0.80	0.47	0.43	0.00	0.00	0.82	0.82
Avail Cap(c_a), veh/h	106			406	0	285	719	692	0	0	378	393
HCM Platoon Ratio	1.00			1.00	1.00	1.00	0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.87	0.87
Uniform Delay (d), s/veh	40.8			28.6	0.0	38.6	30.3	29.6	0.0	0.0	40.7	40.7
Incr Delay (d2), s/veh	1.2			0.5	0.0	8.6	2.2	1.9	0.0	0.0	10.6	10.3
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
%ile BackOfQ(50%),veh/ln	0.5			2.3	0.0	3.5	7.9	6.9	0.0	0.0	7.3	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0			29.1	0.0	47.2	32.5	31.6	0.0	0.0	51.3	51.1
LnGrp LOS	D			C	A	D	C	C	A	A	D	D
Approach Vol, veh/h					280			637			546	
Approach Delay, s/veh					38.7			32.1			51.2	
Approach LOS					D			C			D	

Timer - Assigned Phs	2	3	6	7	8
Phs Duration (G+Y+Rc), s	41.3	26.4	22.3	10.3	16.1
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	* 5.4
Max Green Setting (Gmax), s	27.6	15.6	19.6	5.5	* 16
Max Q Clear Time (g_c+I1), s	17.7	7.7	15.7	3.1	10.3
Green Ext Time (p_c), s	2.6	0.2	1.1	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	486	192	134	33	438	106	270	131	155	144	114
Future Volume (veh/h)	344	486	192	134	33	438	106	270	131	155	144	114
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	374	528	209	146	36	476	115	293	142	168	157	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	606	597	266	172	166	469	480	631	298	195	182	
Arrive On Green	0.18	0.17	0.17	0.10	0.09	0.09	0.28	0.28	0.28	0.21	0.21	0.00
Sat Flow, veh/h	3374	3469	1547	1739	1826	1547	1739	2286	1080	920	860	0
Grp Volume(v), veh/h	374	528	209	146	36	476	115	221	214	325	0	0
Grp Sat Flow(s),veh/h/ln	1687	1735	1547	1739	1826	1547	1739	1735	1631	1780	0	0
Q Serve(g_s), s	9.2	13.4	11.6	7.4	1.6	8.2	4.6	9.5	9.9	15.8	0.0	0.0
Cycle Q Clear(g_c), s	9.2	13.4	11.6	7.4	1.6	8.2	4.6	9.5	9.9	15.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.66	0.52		0.00
Lane Grp Cap(c), veh/h	606	597	266	172	166	469	480	479	450	377	0	
V/C Ratio(X)	0.62	0.88	0.79	0.85	0.22	1.01	0.24	0.46	0.48	0.86	0.00	
Avail Cap(c_a), veh/h	611	601	268	172	166	469	480	479	450	526	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.0	36.4	35.7	39.9	37.9	24.7	25.3	27.0	27.2	34.2	0.0	0.0
Incr Delay (d2), s/veh	1.9	14.6	14.1	30.9	0.6	45.3	1.2	3.2	3.6	10.2	0.0	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	3.8	6.6	5.2	4.6	0.7	16.2	2.0	4.3	4.2	7.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	51.0	49.8	70.8	38.6	70.0	26.4	30.2	30.7	44.4	0.0	0.0
LnGrp LOS	D	D	D	E	D	F	C	C	C	D	A	
Approach Vol, veh/h		1111			658			550			325	
Approach Delay, s/veh		45.7			68.4			29.6			44.4	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	30.6	14.0	20.9	24.5	21.6	13.3
Change Period (Y+Rc), s	5.8	5.1	5.4	5.4	5.4	5.1
Max Green Setting (Gmax), s	17.2	8.9	15.6	26.6	16.3	8.2
Max Q Clear Time (g_c+I1), s	11.9	9.4	15.4	17.8	11.2	10.2
Green Ext Time (p_c), s	1.4	0.0	0.1	1.1	0.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

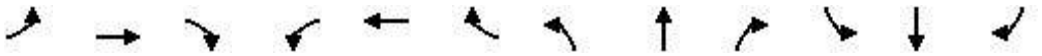
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	15	0	0	39	0	468	14	0	440	30
Future Vol, veh/h	0	0	15	0	0	39	0	468	14	0	440	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	0	16	0	0	42	0	509	15	0	478	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	495	-	-	262	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.29	-	-	6.99	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.357	-	-	3.357	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	564	0	0	727	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	564	-	-	727	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	10.3	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	564	727	-	-
HCM Lane V/C Ratio	-	-	0.029	0.058	-	-
HCM Control Delay (s)	-	-	11.6	10.3	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	27	128	36	10	24	67	219	15	40	253	157
Future Volume (veh/h)	234	27	128	36	10	24	67	219	15	40	253	157
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	254	29	139	39	11	26	73	238	16	43	275	171
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	292	36	171	160	26	62	93	290	19	683	538	335
Arrive On Green	0.17	0.13	0.13	0.09	0.06	0.06	0.05	0.17	0.17	0.40	0.52	0.52
Sat Flow, veh/h	1711	270	1294	1711	474	1121	1711	1664	112	1711	1036	644
Grp Volume(v), veh/h	254	0	168	39	0	37	73	0	254	43	0	446
Grp Sat Flow(s),veh/h/ln	1711	0	1563	1711	0	1595	1711	0	1776	1711	0	1680
Q Serve(g_s), s	13.0	0.0	9.4	1.9	0.0	2.0	3.8	0.0	12.4	1.4	0.0	15.6
Cycle Q Clear(g_c), s	13.0	0.0	9.4	1.9	0.0	2.0	3.8	0.0	12.4	1.4	0.0	15.6
Prop In Lane	1.00		0.83	1.00		0.70	1.00		0.06	1.00		0.38
Lane Grp Cap(c), veh/h	292	0	207	160	0	88	93	0	310	683	0	873
V/C Ratio(X)	0.87	0.00	0.81	0.24	0.00	0.42	0.79	0.00	0.82	0.06	0.00	0.51
Avail Cap(c_a), veh/h	409	0	356	160	0	97	162	0	754	683	0	873
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	37.9	37.8	0.0	41.1	42.0	0.0	35.8	16.6	0.0	14.1
Incr Delay (d2), s/veh	13.6	0.0	7.4	0.8	0.0	3.1	13.5	0.0	21.1	0.0	0.0	2.1
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	6.2	0.0	3.8	0.8	0.0	0.9	1.9	0.0	6.9	0.5	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	0.0	45.4	38.6	0.0	44.2	55.6	0.0	56.9	16.7	0.0	16.3
LnGrp LOS	D	A	D	D	A	D	E	A	E	B	A	B
Approach Vol, veh/h		422			76			327			489	
Approach Delay, s/veh		48.1			41.3			56.6			16.3	
Approach LOS		D			D			E			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.5	20.2	19.9	9.5	9.4	51.3	12.9	16.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.8	38.2	21.5	5.5	8.5	36.5	6.5	20.5
Max Q Clear Time (g_c+I1), s	3.4	14.4	15.0	4.0	5.8	17.6	3.9	11.4
Green Ext Time (p_c), s	0.0	1.3	0.4	0.0	0.0	2.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	477	450	0
Future Vol, veh/h	0	0	0	477	450	0
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	-	100	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	0	0	0	518	489	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1007	489	489	0	-	0
Stage 1	489	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.17	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	267	579	1049	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	267	579	1049	-	-	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	598	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1049	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	317	21	617	176	13	459
Future Volume (veh/h)	317	21	617	176	13	459
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	345	23	671	191	14	499
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	389	347	1521	433	29	1182
Arrive On Green	0.22	0.22	1.00	1.00	0.02	0.65
Sat Flow, veh/h	1739	1547	2757	758	1739	1826
Grp Volume(v), veh/h	345	23	436	426	14	499
Grp Sat Flow(s),veh/h/ln	1739	1547	1735	1689	1739	1826
Q Serve(g_s), s	17.3	1.1	0.0	0.0	0.7	11.9
Cycle Q Clear(g_c), s	17.3	1.1	0.0	0.0	0.7	11.9
Prop In Lane	1.00	1.00		0.45	1.00	
Lane Grp Cap(c), veh/h	389	347	990	964	29	1182
V/C Ratio(X)	0.89	0.07	0.44	0.44	0.49	0.42
Avail Cap(c_a), veh/h	614	547	990	964	108	1182
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.69	0.69	1.00	1.00
Uniform Delay (d), s/veh	33.8	27.5	0.0	0.0	43.9	7.7
Incr Delay (d2), s/veh	9.5	0.1	1.0	1.0	12.5	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.4	0.3	0.3	0.4	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.3	27.6	1.0	1.0	56.3	8.8
LnGrp LOS	D	C	A	A	E	A
Approach Vol, veh/h	368		862			513
Approach Delay, s/veh	42.3		1.0			10.1
Approach LOS	D		A			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	56.8			63.6	26.4
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	5.6	35.6			46.6	31.8
Max Q Clear Time (g_c+I1), s	2.7	2.0			13.9	19.3
Green Ext Time (p_c), s	0.0	5.9			3.2	0.9

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	57	114	10	198	79	586	0	0	754	22
Future Volume (veh/h)	9	0	57	114	10	198	79	586	0	0	754	22
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	1811	0	1811	1811	1811	1811	1811	1811	0	0	1811	1811
Adj Flow Rate, veh/h	10	0	62	124	11	215	86	637	0	0	820	24
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, %	6	0	6	6	6	6	6	6	0	0	6	6
Cap, veh/h	92	0	0	393	9	180	124	969	0	0	958	28
Arrive On Green	0.05	0.00	0.00	0.23	0.12	0.12	0.10	0.10	0.00	0.00	0.28	0.28
Sat Flow, veh/h	1725	10		1725	75	1471	399	3203	0	0	3504	100
Grp Volume(v), veh/h	10	41.0		124	0	226	386	337	0	0	413	431
Grp Sat Flow(s),veh/h/ln	1725	D		1725	0	1546	1791	1721	0	0	1721	1793
Q Serve(g_s), s	0.5			5.4	0.0	11.0	18.7	16.9	0.0	0.0	20.5	20.5
Cycle Q Clear(g_c), s	0.5			5.4	0.0	11.0	18.7	16.9	0.0	0.0	20.5	20.5
Prop In Lane	1.00			1.00		0.95	0.22		0.00	0.00		0.06
Lane Grp Cap(c), veh/h	92			393	0	189	558	536	0	0	483	503
V/C Ratio(X)	0.11			0.32	0.00	1.20	0.69	0.63	0.00	0.00	0.86	0.86
Avail Cap(c_a), veh/h	98			393	0	189	558	536	0	0	562	586
HCM Platoon Ratio	1.00			1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.79	0.79
Uniform Delay (d), s/veh	40.5			28.9	0.0	39.5	36.2	35.4	0.0	0.0	30.6	30.6
Incr Delay (d2), s/veh	0.5			0.5	0.0	128.1	6.9	5.5	0.0	0.0	9.0	8.7
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
%ile BackOfQ(50%),veh/ln	0.2			2.2	0.0	10.7	9.9	8.5	0.0	0.0	9.2	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0			29.3	0.0	167.6	43.1	40.9	0.0	0.0	39.6	39.3
LnGrp LOS	D			C	A	F	D	D	A	A	D	D
Approach Vol, veh/h					350			723			844	
Approach Delay, s/veh					118.6			42.1			39.5	
Approach LOS					F			D			D	

Timer - Assigned Phs	2	3		6	7	8
Phs Duration (G+Y+Rc), s	33.4	25.9		30.7	9.5	16.4
Change Period (Y+Rc), s	5.4	5.4		5.4	* 4.7	5.4
Max Green Setting (Gmax), s	23.6	10.6		29.4	* 5.1	11.0
Max Q Clear Time (g_c+I1), s	20.7	7.4		22.5	2.5	13.0
Green Ext Time (p_c), s	1.2	0.1		2.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	408	125	138	17	521	84	317	78	191	144	129
Future Volume (veh/h)	369	408	125	138	17	521	84	317	78	191	144	129
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	401	443	136	150	18	566	91	345	85	208	157	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, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	627	513	229	181	121	465	463	736	179	237	179	
Arrive On Green	0.19	0.15	0.15	0.11	0.07	0.07	0.27	0.27	0.27	0.24	0.24	0.00
Sat Flow, veh/h	3346	3441	1535	1725	1811	1535	1725	2744	667	1003	757	0
Grp Volume(v), veh/h	401	443	136	150	18	566	91	215	215	365	0	0
Grp Sat Flow(s),veh/h/ln	1673	1721	1535	1725	1811	1535	1725	1721	1691	1761	0	0
Q Serve(g_s), s	10.0	11.3	7.4	7.7	0.8	6.0	3.7	9.4	9.6	18.0	0.0	0.0
Cycle Q Clear(g_c), s	10.0	11.3	7.4	7.7	0.8	6.0	3.7	9.4	9.6	18.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	0.57		0.00
Lane Grp Cap(c), veh/h	627	513	229	181	121	465	463	461	454	417	0	
V/C Ratio(X)	0.64	0.86	0.59	0.83	0.15	1.22	0.20	0.47	0.47	0.88	0.00	
Avail Cap(c_a), veh/h	651	520	232	190	121	465	463	461	454	560	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.8	37.4	35.7	39.5	39.6	23.9	25.4	27.5	27.6	33.1	0.0	0.0
Incr Delay (d2), s/veh	2.0	13.9	4.0	24.4	0.6	115.6	1.0	3.3	3.5	11.5	0.0	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	4.0	5.5	2.9	4.4	0.4	25.1	1.6	4.2	4.3	8.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	51.3	39.7	63.9	40.2	139.5	26.4	30.9	31.2	44.6	0.0	0.0
LnGrp LOS	D	D	D	E	D	F	C	C	C	D	A	
Approach Vol, veh/h		980			734			521			365	
Approach Delay, s/veh		43.3			121.6			30.2			44.6	
Approach LOS		D			F			C			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	29.9	14.6	18.8	26.7	22.3	11.1
Change Period (Y+Rc), s	5.8	5.1	5.4	5.4	5.4	5.1
Max Green Setting (Gmax), s	16.2	9.9	13.6	28.6	17.5	6.0
Max Q Clear Time (g_c+I1), s	11.6	9.7	13.3	20.0	12.0	8.0
Green Ext Time (p_c), s	1.2	0.0	0.1	1.3	0.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	63.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

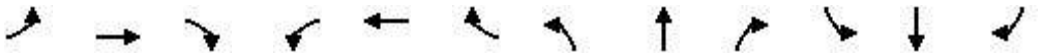
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	24	0	0	30	0	449	19	0	363	44
Future Vol, veh/h	0	0	24	0	0	30	0	449	19	0	363	44
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	0	26	0	0	33	0	488	21	0	395	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	420	-	-	255	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.305	-	-	7.005	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3665	-	-	3.3665	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	620	0	0	732	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	619	-	-	732	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	10.1	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	619	732	-	-
HCM Lane V/C Ratio	-	-	0.042	0.045	-	-
HCM Control Delay (s)	-	-	11.1	10.1	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	11	36	26	10	10	61	293	49	10	194	172
Future Volume (veh/h)	144	11	36	26	10	10	61	293	49	10	194	172
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	157	12	39	28	11	11	66	318	53	11	211	187
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	191	21	67	184	42	42	84	936	156	23	516	457
Arrive On Green	0.11	0.06	0.06	0.11	0.05	0.05	0.05	0.62	0.62	0.01	0.59	0.59
Sat Flow, veh/h	1711	372	1207	1711	824	824	1711	1501	250	1711	878	778
Grp Volume(v), veh/h	157	0	51	28	0	22	66	0	371	11	0	398
Grp Sat Flow(s),veh/h/ln	1711	0	1579	1711	0	1648	1711	0	1751	1711	0	1656
Q Serve(g_s), s	8.1	0.0	2.8	1.3	0.0	1.2	3.4	0.0	9.1	0.6	0.0	11.7
Cycle Q Clear(g_c), s	8.1	0.0	2.8	1.3	0.0	1.2	3.4	0.0	9.1	0.6	0.0	11.7
Prop In Lane	1.00		0.76	1.00		0.50	1.00		0.14	1.00		0.47
Lane Grp Cap(c), veh/h	191	0	87	184	0	84	84	0	1092	23	0	974
V/C Ratio(X)	0.82	0.00	0.58	0.15	0.00	0.26	0.78	0.00	0.34	0.48	0.00	0.41
Avail Cap(c_a), veh/h	314	0	289	184	0	119	200	0	1092	105	0	974
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	41.5	36.4	0.0	41.1	42.3	0.0	8.1	44.1	0.0	10.1
Incr Delay (d2), s/veh	8.4	0.0	6.0	0.4	0.0	1.6	14.6	0.0	0.8	14.9	0.0	1.3
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	3.7	0.0	1.2	0.6	0.0	0.5	1.7	0.0	3.0	0.3	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	0.0	47.5	36.8	0.0	42.7	57.0	0.0	8.9	58.9	0.0	11.3
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	A	B
Approach Vol, veh/h		208			50			437			409	
Approach Delay, s/veh		47.5			39.4			16.2			12.6	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	60.6	14.6	9.1	8.9	57.4	14.2	9.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	43.5	16.5	6.5	10.5	38.5	6.5	16.5
Max Q Clear Time (g_c+I1), s	2.6	11.1	10.1	3.2	5.4	13.7	3.3	4.8
Green Ext Time (p_c), s	0.0	2.2	0.2	0.0	0.0	2.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	71	41	50	397	335	52
Future Vol, veh/h	71	41	50	397	335	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	-	100	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	77	45	54	432	364	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	904	364	421	0	-	0
Stage 1	364	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.17	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	307	681	1112	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	292	681	1112	-	-	-
Mov Cap-2 Maneuver	417	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	584	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1112	-	486	-	-
HCM Lane V/C Ratio	0.049	-	0.25	-	-
HCM Control Delay (s)	8.4	-	14.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	258	11	280	373	12	249
Future Volume (veh/h)	258	11	280	373	12	249
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	280	12	304	405	13	271
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	324	288	514	458	571	1251
Arrive On Green	0.19	0.19	0.49	0.49	0.33	0.68
Sat Flow, veh/h	1739	1547	1826	1545	1739	1826
Grp Volume(v), veh/h	280	12	304	405	13	271
Grp Sat Flow(s),veh/h/ln	1739	1547	1735	1545	1739	1826
Q Serve(g_s), s	14.1	0.6	11.3	21.2	0.5	4.9
Cycle Q Clear(g_c), s	14.1	0.6	11.3	21.2	0.5	4.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	324	288	514	458	571	1251
V/C Ratio(X)	0.86	0.04	0.59	0.88	0.02	0.22
Avail Cap(c_a), veh/h	614	547	667	594	571	1251
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	35.5	30.0	18.8	21.4	20.4	5.2
Incr Delay (d2), s/veh	6.9	0.1	4.2	18.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.2	4.1	7.5	0.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.4	30.1	23.0	40.0	20.5	5.6
LnGrp LOS	D	C	C	D	C	A
Approach Vol, veh/h	292		709			284
Approach Delay, s/veh	41.9		32.7			6.3
Approach LOS	D		C			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.0	32.1			67.0	23.0
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	6.6	34.6			46.6	31.8
Max Q Clear Time (g_c+I1), s	2.5	23.2			6.9	16.1
Green Ext Time (p_c), s	0.0	3.4			1.6	0.7

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	109	144	10	126	83	507	0	0	491	16
Future Volume (veh/h)	20	0	109	144	10	126	83	507	0	0	491	16
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	1826	0	1826	1826	1826	1826	1826	1826	0	0	1826	1826
Adj Flow Rate, veh/h	22	0	118	157	11	137	90	551	0	0	534	17
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, %	5	0	5	5	5	5	5	5	0	0	5	5
Cap, veh/h	96	0	0	407	14	172	188	1217	0	0	648	21
Arrive On Green	0.05	0.00	0.00	0.23	0.12	0.12	0.13	0.13	0.00	0.00	0.06	0.06
Sat Flow, veh/h	1739	22		1739	116	1445	474	3154	0	0	3523	109
Grp Volume(v), veh/h	22	41.9		157	0	148	342	299	0	0	270	281
Grp Sat Flow(s),veh/h/ln	1739	D		1739	0	1561	1802	1735	0	0	1735	1806
Q Serve(g_s), s	1.1			6.8	0.0	8.3	15.8	14.3	0.0	0.0	13.8	13.9
Cycle Q Clear(g_c), s	1.1			6.8	0.0	8.3	15.8	14.3	0.0	0.0	13.8	13.9
Prop In Lane	1.00			1.00		0.93	0.26		0.00	0.00		0.06
Lane Grp Cap(c), veh/h	96			407	0	186	716	689	0	0	327	341
V/C Ratio(X)	0.23			0.39	0.00	0.80	0.48	0.43	0.00	0.00	0.82	0.83
Avail Cap(c_a), veh/h	106			407	0	285	716	689	0	0	378	393
HCM Platoon Ratio	1.00			1.00	1.00	1.00	0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.87	0.87
Uniform Delay (d), s/veh	40.7			29.0	0.0	38.6	30.4	29.8	0.0	0.0	40.7	40.7
Incr Delay (d2), s/veh	1.2			0.6	0.0	8.6	2.3	2.0	0.0	0.0	10.8	10.6
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
%ile BackOfQ(50%),veh/ln	0.5			2.8	0.0	3.5	8.0	6.9	0.0	0.0	7.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9			29.6	0.0	47.2	32.7	31.8	0.0	0.0	51.5	51.3
LnGrp LOS	D			C	A	D	C	C	A	A	D	D
Approach Vol, veh/h					305			641			551	
Approach Delay, s/veh					38.1			32.3			51.4	
Approach LOS					D			C			D	

Timer - Assigned Phs	2	3	6	7	8
Phs Duration (G+Y+Rc), s	41.2	26.5	22.4	10.3	16.1
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	* 5.4
Max Green Setting (Gmax), s	27.6	15.6	19.6	5.5	* 16
Max Q Clear Time (g_c+I1), s	17.8	8.8	15.9	3.1	10.3
Green Ext Time (p_c), s	2.6	0.2	1.1	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	486	214	121	33	438	128	296	134	155	172	114
Future Volume (veh/h)	344	486	214	121	33	438	128	296	134	155	172	114
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	374	528	233	132	36	476	139	322	146	168	187	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	587	597	266	162	166	493	463	621	276	192	214	
Arrive On Green	0.17	0.17	0.17	0.09	0.09	0.09	0.27	0.27	0.27	0.23	0.23	0.00
Sat Flow, veh/h	3374	3469	1547	1739	1826	1547	1739	2336	1038	844	940	0
Grp Volume(v), veh/h	374	528	233	132	36	476	139	237	231	355	0	0
Grp Sat Flow(s),veh/h/ln	1687	1735	1547	1739	1826	1547	1739	1735	1639	1784	0	0
Q Serve(g_s), s	9.3	13.4	13.2	6.7	1.6	8.2	5.7	10.5	10.8	17.3	0.0	0.0
Cycle Q Clear(g_c), s	9.3	13.4	13.2	6.7	1.6	8.2	5.7	10.5	10.8	17.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	0.47		0.00
Lane Grp Cap(c), veh/h	587	597	266	162	166	493	463	461	436	406	0	
V/C Ratio(X)	0.64	0.88	0.88	0.81	0.22	0.96	0.30	0.51	0.53	0.87	0.00	
Avail Cap(c_a), veh/h	611	601	268	172	166	493	463	461	436	527	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.5	36.4	36.3	40.0	37.9	23.7	26.4	28.1	28.2	33.5	0.0	0.0
Incr Delay (d2), s/veh	2.1	14.6	25.8	24.1	0.6	31.6	1.7	4.1	4.5	12.3	0.0	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	3.8	6.6	6.7	3.9	0.7	14.7	2.5	4.8	4.7	8.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	51.0	62.1	64.1	38.6	55.3	28.0	32.1	32.8	45.8	0.0	0.0
LnGrp LOS	D	D	E	E	D	E	C	C	C	D	A	
Approach Vol, veh/h		1135			644			607			355	
Approach Delay, s/veh		48.5			56.1			31.4			45.8	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	29.7	13.5	20.9	25.9	21.1	13.3
Change Period (Y+Rc), s	5.8	5.1	5.4	5.4	5.4	5.1
Max Green Setting (Gmax), s	17.2	8.9	15.6	26.6	16.3	8.2
Max Q Clear Time (g_c+I1), s	12.8	8.7	15.4	19.3	11.3	10.2
Green Ext Time (p_c), s	1.4	0.0	0.1	1.1	0.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	46.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

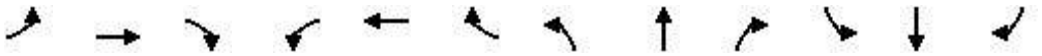
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	24	0	0	39	0	519	14	0	455	52
Future Vol, veh/h	0	0	24	0	0	39	0	519	14	0	455	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	0	26	0	0	42	0	564	15	0	495	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	524	-	-	290	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.29	-	-	6.99	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.357	-	-	3.357	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	543	0	0	697	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	543	-	-	697	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	10.5	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	543	697	-	-
HCM Lane V/C Ratio	-	-	0.048	0.061	-	-
HCM Control Delay (s)	-	-	12	10.5	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	12	128	36	10	24	67	222	15	40	261	160
Future Volume (veh/h)	251	12	128	36	10	24	67	222	15	40	261	160
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	273	13	139	39	11	26	73	241	16	43	284	174
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	311	16	174	194	26	62	93	293	19	662	530	325
Arrive On Green	0.18	0.12	0.12	0.11	0.06	0.06	0.05	0.18	0.18	0.39	0.51	0.51
Sat Flow, veh/h	1711	132	1410	1711	474	1121	1711	1666	111	1711	1043	639
Grp Volume(v), veh/h	273	0	152	39	0	37	73	0	257	43	0	458
Grp Sat Flow(s),veh/h/ln	1711	0	1542	1711	0	1595	1711	0	1776	1711	0	1681
Q Serve(g_s), s	14.0	0.0	8.6	1.9	0.0	2.0	3.8	0.0	12.5	1.4	0.0	16.6
Cycle Q Clear(g_c), s	14.0	0.0	8.6	1.9	0.0	2.0	3.8	0.0	12.5	1.4	0.0	16.6
Prop In Lane	1.00		0.91	1.00		0.70	1.00		0.06	1.00		0.38
Lane Grp Cap(c), veh/h	311	0	190	194	0	88	93	0	313	662	0	855
V/C Ratio(X)	0.88	0.00	0.80	0.20	0.00	0.42	0.79	0.00	0.82	0.06	0.00	0.54
Avail Cap(c_a), veh/h	409	0	351	194	0	97	162	0	754	662	0	855
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	38.4	36.2	0.0	41.1	42.0	0.0	35.7	17.3	0.0	14.9
Incr Delay (d2), s/veh	15.6	0.0	7.5	0.5	0.0	3.1	13.5	0.0	21.0	0.0	0.0	2.4
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	6.8	0.0	3.5	0.8	0.0	0.9	1.9	0.0	6.9	0.5	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	0.0	45.8	36.7	0.0	44.2	55.6	0.0	56.8	17.4	0.0	17.3
LnGrp LOS	D	A	D	D	A	D	E	A	E	B	A	B
Approach Vol, veh/h		425			76			330			501	
Approach Delay, s/veh		49.5			40.4			56.5			17.3	
Approach LOS		D			D			E			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.3	20.3	20.8	9.5	9.4	50.3	14.7	15.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.8	38.2	21.5	5.5	8.5	36.5	6.5	20.5
Max Q Clear Time (g_c+I1), s	3.4	14.5	16.0	4.0	5.8	18.6	3.9	10.6
Green Ext Time (p_c), s	0.0	1.3	0.4	0.0	0.0	2.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	41	49	448	420	59
Future Vol, veh/h	85	41	49	448	420	59
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	-	100	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	92	45	53	487	457	64

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1050	457	521	0	-	0
Stage 1	457	-	-	-	-	-
Stage 2	593	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.17	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	252	604	1020	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	239	604	1020	-	-	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	552	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.4	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1020	-	425	-	-
HCM Lane V/C Ratio	0.052	-	0.322	-	-
HCM Control Delay (s)	8.7	-	17.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.4	-	-

ARCO Shingle Springs TIS

1: Ponderosa Road & North Shingle Road

Cumulative AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	449	30	890	409	19	583
Future Volume (veh/h)	449	30	890	409	19	583
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	488	33	967	445	21	634
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	577	265	1432	649	39	2428
Arrive On Green	0.17	0.17	0.82	0.82	0.02	0.70
Sat Flow, veh/h	3374	1547	2412	1051	1739	3561
Grp Volume(v), veh/h	488	33	719	693	21	634
Grp Sat Flow(s),veh/h/ln	1687	1547	1735	1637	1739	1735
Q Serve(g_s), s	12.6	1.6	14.9	15.6	1.1	6.0
Cycle Q Clear(g_c), s	12.6	1.6	14.9	15.6	1.1	6.0
Prop In Lane	1.00	1.00		0.64	1.00	
Lane Grp Cap(c), veh/h	577	265	1071	1010	39	2428
V/C Ratio(X)	0.85	0.12	0.67	0.69	0.53	0.26
Avail Cap(c_a), veh/h	705	323	1071	1010	100	2428
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.87	0.87	1.00	1.00
Uniform Delay (d), s/veh	36.1	31.6	4.4	4.5	43.5	5.0
Incr Delay (d2), s/veh	7.9	0.2	2.9	3.3	10.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.6	3.5	3.4	0.6	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.1	31.8	7.3	7.8	54.2	5.2
LnGrp LOS	D	C	A	A	D	A
Approach Vol, veh/h	521		1412			655
Approach Delay, s/veh	43.3		7.6			6.8
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.4	61.0			68.4	21.6
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	5.2	49.0			59.6	18.8
Max Q Clear Time (g_c+I1), s	3.1	17.6			8.0	14.6
Green Ext Time (p_c), s	0.0	12.2			4.6	0.8

Intersection Summary			
HCM 6th Ctrl Delay		14.6	
HCM 6th LOS		B	

2: Ponderosa Road & Wild Chaparral Drive/US-50 Westbound Ramps

Cumulative AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	0	141	93	21	296	179	965	429	0	968	65
Future Volume (veh/h)	38	0	141	93	21	296	179	965	429	0	968	65
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	1811	0	1811	1811	1811	1811	1811	1811	1811	0	1811	1811
Adj Flow Rate, veh/h	41	0	153	101	23	322	195	1049	466	0	1052	71
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, %	6	0	6	6	6	6	6	6	6	0	6	6
Cap, veh/h	93	0	0	1010	20	283	225	1990	887	0	1268	86
Arrive On Green	0.05	0.00	0.00	0.30	0.20	0.20	0.26	1.00	1.00	0.00	0.13	0.13
Sat Flow, veh/h	1725	41		3346	103	1447	1725	3441	1533	0	3362	221
Grp Volume(v), veh/h	41	44.5		101	0	345	195	1049	466	0	553	570
Grp Sat Flow(s),veh/h/ln	1725	D		1673	0	1551	1725	1721	1533	0	1721	1771
Q Serve(g_s), s	2.1			2.0	0.0	17.6	9.7	0.0	0.0	0.0	28.2	28.2
Cycle Q Clear(g_c), s	2.1			2.0	0.0	17.6	9.7	0.0	0.0	0.0	28.2	28.2
Prop In Lane	1.00			1.00		0.93	1.00		1.00	0.00		0.12
Lane Grp Cap(c), veh/h	93			1010	0	303	225	1990	887	0	667	687
V/C Ratio(X)	0.44			0.10	0.00	1.14	0.87	0.53	0.53	0.00	0.83	0.83
Avail Cap(c_a), veh/h	98			1010	0	303	241	1990	887	0	667	687
HCM Platoon Ratio	1.00			1.00	1.00	1.00	2.00	2.00	2.00	1.00	0.33	0.33
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.87	0.87
Uniform Delay (d), s/veh	41.3			22.6	0.0	36.2	32.5	0.0	0.0	0.0	36.3	36.4
Incr Delay (d2), s/veh	3.2			0.0	0.0	94.2	25.3	1.0	2.2	0.0	7.6	7.4
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
%ile BackOfQ(50%),veh/ln	1.0			0.7	0.0	14.2	5.0	0.3	0.5	0.0	14.2	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5			22.7	0.0	130.4	57.8	1.0	2.2	0.0	44.0	43.8
LnGrp LOS	D			C	A	F	E	A	A	A	D	D
Approach Vol, veh/h					446			1710			1123	
Approach Delay, s/veh					106.0			7.8			43.9	
Approach LOS					F			A			D	

Timer - Assigned Phs	2	3	5	6	7	8
Phs Duration (G+Y+Rc), s	57.4	32.6	17.2	40.3	9.6	23.0
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	* 4.7	5.4
Max Green Setting (Gmax), s	51.8	6.7	12.6	33.8	* 5.1	17.6
Max Q Clear Time (g_c+I1), s	2.0	4.0	11.7	30.2	4.1	19.6
Green Ext Time (p_c), s	12.2	0.1	0.0	2.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	507	559	182	188	18	602	112	524	134	304	236	183
Future Volume (veh/h)	507	559	182	188	18	602	112	524	134	304	236	183
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	551	608	198	204	20	654	122	570	146	330	257	199
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, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	644	635	419	217	207	500	153	671	171	365	1225	842
Arrive On Green	0.19	0.18	0.18	0.13	0.11	0.11	0.09	0.25	0.25	0.21	0.36	0.36
Sat Flow, veh/h	3346	3441	1535	1725	1811	1535	1725	2714	693	1725	3441	1535
Grp Volume(v), veh/h	551	608	198	204	20	654	122	361	355	330	257	199
Grp Sat Flow(s),veh/h/ln	1673	1721	1535	1725	1811	1535	1725	1721	1686	1725	1721	1535
Q Serve(g_s), s	14.3	15.8	9.7	10.6	0.9	10.3	6.2	18.0	18.1	16.8	4.7	6.1
Cycle Q Clear(g_c), s	14.3	15.8	9.7	10.6	0.9	10.3	6.2	18.0	18.1	16.8	4.7	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	644	635	419	217	207	500	153	426	417	365	1225	842
V/C Ratio(X)	0.86	0.96	0.47	0.94	0.10	1.31	0.80	0.85	0.85	0.90	0.21	0.24
Avail Cap(c_a), veh/h	796	635	419	217	207	500	253	426	417	404	1225	842
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	35.1	36.4	27.3	39.0	35.7	30.3	40.2	32.2	32.3	34.6	20.2	10.5
Incr Delay (d2), s/veh	7.6	25.6	0.8	45.0	0.2	152.8	9.2	18.5	19.2	22.0	0.4	0.7
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	6.2	8.5	3.5	7.0	0.4	31.4	3.0	9.5	9.4	8.9	1.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	62.0	28.1	84.1	35.9	183.1	49.5	50.8	51.5	56.6	20.6	11.2
LnGrp LOS	D	E	C	F	D	F	D	D	D	E	C	B
Approach Vol, veh/h		1357			878			838			786	
Approach Delay, s/veh		49.2			156.8			50.9			33.3	
Approach LOS		D			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	28.1	16.4	22.0	13.8	37.8	22.7	15.7
Change Period (Y+Rc), s	4.5	5.8	5.1	5.4	5.8	* 5.8	5.4	* 5.4
Max Green Setting (Gmax), s	21.1	20.2	11.3	16.6	13.2	* 27	21.4	* 6.5
Max Q Clear Time (g_c+I1), s	18.8	20.1	12.6	17.8	8.2	8.1	16.3	12.3
Green Ext Time (p_c), s	0.2	0.1	0.0	0.0	0.1	2.1	1.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	70.8
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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	0	15	0	0	30	0	739	19	0	577	30
Future Vol, veh/h	0	0	15	0	0	30	0	739	19	0	577	30
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	0	16	0	0	33	0	803	21	0	627	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	331	-	-	412	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.04	-	-	7.04	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.37	-	-	3.37	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	650	0	0	575	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	649	-	-	575	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	11.6	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	649	575	-	-
HCM Lane V/C Ratio	-	-	0.025	0.057	-	-
HCM Control Delay (s)	-	-	10.7	11.6	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	314	35	45	43	26	34	66	405	80	30	242	325
Future Volume (veh/h)	314	35	45	43	26	34	66	405	80	30	242	325
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	341	38	49	47	28	37	72	440	87	33	263	353
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	430	117	151	66	43	57	92	1480	290	53	894	758
Arrive On Green	0.13	0.16	0.16	0.04	0.06	0.06	0.05	0.52	0.52	0.03	0.50	0.50
Sat Flow, veh/h	3319	712	919	1711	702	927	1711	2844	558	1711	1796	1522
Grp Volume(v), veh/h	341	0	87	47	0	65	72	263	264	33	263	353
Grp Sat Flow(s),veh/h/ln	1659	0	1631	1711	0	1629	1711	1706	1696	1711	1796	1522
Q Serve(g_s), s	9.0	0.0	4.2	2.4	0.0	3.5	3.7	7.9	8.0	1.7	7.8	13.6
Cycle Q Clear(g_c), s	9.0	0.0	4.2	2.4	0.0	3.5	3.7	7.9	8.0	1.7	7.8	13.6
Prop In Lane	1.00		0.56	1.00		0.57	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	430	0	268	66	0	100	92	888	882	53	894	758
V/C Ratio(X)	0.79	0.00	0.32	0.72	0.00	0.65	0.78	0.30	0.30	0.62	0.29	0.47
Avail Cap(c_a), veh/h	671	0	312	158	0	132	213	888	882	137	894	758
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	38.0	0.0	33.2	42.8	0.0	41.3	42.1	12.2	12.3	43.1	13.3	14.8
Incr Delay (d2), s/veh	3.5	0.0	0.7	13.5	0.0	7.0	13.4	0.9	0.9	11.1	0.8	2.1
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	3.7	0.0	1.6	1.3	0.0	1.6	1.9	2.8	2.8	0.9	3.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	0.0	33.9	56.3	0.0	48.3	55.5	13.1	13.1	54.1	14.1	16.8
LnGrp LOS	D	A	C	E	A	D	E	B	B	D	B	B
Approach Vol, veh/h		428			112			599			649	
Approach Delay, s/veh		40.0			51.6			18.2			17.6	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	52.6	17.5	11.3	10.6	50.6	8.2	20.6
Change Period (Y+Rc), s	5.8	5.8	5.8	* 5.8	5.8	5.8	* 4.7	5.8
Max Green Setting (Gmax), s	7.2	35.2	18.2	* 7.3	11.2	31.2	* 8.3	17.2
Max Q Clear Time (g_c+I1), s	3.7	10.0	11.0	5.5	5.7	15.6	4.4	6.2
Green Ext Time (p_c), s	0.0	2.9	0.7	0.0	0.1	2.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	753	591	0
Future Vol, veh/h	0	0	0	753	591	0
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	-	100	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	0	0	0	818	642	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1051	321	642	0	-	0
Stage 1	642	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.24	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.27	-	-	-
Pot Cap-1 Maneuver	222	675	905	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	222	675	905	-	-	-
Mov Cap-2 Maneuver	350	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	639	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	905	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

ARCO Shingle Springs TIS

1: Ponderosa Road & North Shingle Road

Cumulative PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	431	17	453	682	19	351
Future Volume (veh/h)	431	17	453	682	19	351
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	468	18	492	741	21	382
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	559	257	1114	993	38	2492
Arrive On Green	0.17	0.17	1.00	1.00	0.02	0.72
Sat Flow, veh/h	3374	1547	1826	1546	1739	3561
Grp Volume(v), veh/h	468	18	492	741	21	382
Grp Sat Flow(s),veh/h/ln	1687	1547	1735	1546	1739	1735
Q Serve(g_s), s	13.4	1.0	0.0	0.0	1.2	3.5
Cycle Q Clear(g_c), s	13.4	1.0	0.0	0.0	1.2	3.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	559	257	1114	993	38	2492
V/C Ratio(X)	0.84	0.07	0.44	0.75	0.55	0.15
Avail Cap(c_a), veh/h	803	368	1114	993	115	2492
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	40.4	35.2	0.0	0.0	48.4	4.5
Incr Delay (d2), s/veh	5.3	0.1	1.1	4.6	11.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.4	0.4	1.3	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.7	35.3	1.1	4.6	59.9	4.6
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	486		1233			403
Approach Delay, s/veh	45.3		3.2			7.5
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.6	69.6			77.2	22.8
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	6.6	52.6			64.6	23.8
Max Q Clear Time (g_c+I1), s	3.2	2.0			5.5	15.4
Green Ext Time (p_c), s	0.0	11.7			2.6	1.1

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	0	230	94	25	248	177	766	509	0	701	81
Future Volume (veh/h)	121	0	230	94	25	248	177	766	509	0	701	81
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	1826	0	1826	1826	1826	1826	1826	1826	1826	0	1826	1826
Adj Flow Rate, veh/h	132	0	250	102	27	270	192	833	553	0	762	88
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, %	5	0	5	5	5	5	5	5	5	0	5	5
Cap, veh/h	165	0	0	1107	26	265	221	1957	873	0	1200	138
Arrive On Green	0.10	0.00	0.00	0.33	0.19	0.19	0.25	1.00	1.00	0.00	0.51	0.51
Sat Flow, veh/h	1739	132		3374	142	1424	1739	3469	1547	0	3224	362
Grp Volume(v), veh/h	132	59.2		102	0	297	192	833	553	0	422	428
Grp Sat Flow(s),veh/h/ln	1739	E		1687	0	1567	1739	1735	1547	0	1735	1760
Q Serve(g_s), s	7.4			2.1	0.0	18.6	10.6	0.0	0.0	0.0	17.6	17.7
Cycle Q Clear(g_c), s	7.4			2.1	0.0	18.6	10.6	0.0	0.0	0.0	17.6	17.7
Prop In Lane	1.00			1.00		0.91	1.00		1.00	0.00		0.21
Lane Grp Cap(c), veh/h	165			1107	0	291	221	1957	873	0	664	674
V/C Ratio(X)	0.80			0.09	0.00	1.02	0.87	0.43	0.63	0.00	0.64	0.64
Avail Cap(c_a), veh/h	214			1107	0	291	271	1957	873	0	664	674
HCM Platoon Ratio	1.00			1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.33	1.33
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.88	0.88
Uniform Delay (d), s/veh	44.3			23.3	0.0	40.7	36.5	0.0	0.0	0.0	19.5	19.5
Incr Delay (d2), s/veh	14.9			0.0	0.0	57.7	21.4	0.7	3.5	0.0	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
%ile BackOfQ(50%),veh/ln	3.9			0.8	0.0	11.6	5.1	0.2	0.8	0.0	6.1	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2			23.3	0.0	98.4	57.9	0.7	3.5	0.0	21.2	21.2
LnGrp LOS	E			C	A	F	E	A	A	A	C	C
Approach Vol, veh/h					399			1578			850	
Approach Delay, s/veh					79.2			8.6			21.2	
Approach LOS					E			A			C	

Timer - Assigned Phs	2	3		5	6	7	8
Phs Duration (G+Y+Rc), s	61.8	38.2		18.1	43.7	14.2	24.0
Change Period (Y+Rc), s	5.4	5.4		5.4	5.4	* 4.7	5.4
Max Green Setting (Gmax), s	53.6	8.4		15.6	32.6	* 12	18.6
Max Q Clear Time (g_c+I1), s	2.0	4.1		12.6	19.7	9.4	20.6
Green Ext Time (p_c), s	9.9	0.1		0.1	4.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	497	525	319	269	90	592	167	555	202	229	332	171
Future Volume (veh/h)	497	525	319	269	90	592	167	555	202	229	332	171
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	540	571	347	292	98	643	182	603	220	249	361	186
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	612	586	454	299	286	494	217	718	262	283	1087	765
Arrive On Green	0.18	0.17	0.17	0.17	0.16	0.16	0.12	0.29	0.29	0.16	0.31	0.31
Sat Flow, veh/h	3374	3469	1547	1739	1826	1547	1739	2490	907	1739	3469	1545
Grp Volume(v), veh/h	540	571	347	292	98	643	182	420	403	249	361	186
Grp Sat Flow(s),veh/h/ln	1687	1735	1547	1739	1826	1547	1739	1735	1663	1739	1735	1545
Q Serve(g_s), s	15.6	16.4	16.9	16.7	4.8	15.7	10.2	22.7	22.8	14.0	8.0	6.9
Cycle Q Clear(g_c), s	15.6	16.4	16.9	16.7	4.8	15.7	10.2	22.7	22.8	14.0	8.0	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	612	586	454	299	286	494	217	500	479	283	1087	765
V/C Ratio(X)	0.88	0.97	0.76	0.98	0.34	1.30	0.84	0.84	0.84	0.88	0.33	0.24
Avail Cap(c_a), veh/h	675	586	454	299	286	494	360	500	479	358	1087	765
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	39.9	41.3	32.2	41.2	37.6	34.0	42.8	33.4	33.4	40.9	26.3	14.5
Incr Delay (d2), s/veh	12.3	30.5	7.5	45.4	0.7	149.9	8.8	15.5	16.2	18.2	0.8	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	7.3	9.2	8.3	10.7	2.2	32.0	4.9	11.5	11.1	7.2	3.3	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	71.9	39.7	86.6	38.3	184.0	51.6	48.9	49.6	59.1	27.1	15.3
LnGrp LOS	D	E	D	F	D	F	D	D	D	E	C	B
Approach Vol, veh/h		1458			1033			1005			796	
Approach Delay, s/veh		56.9			142.6			49.7			34.4	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	34.6	22.3	22.3	18.3	37.1	23.5	21.1
Change Period (Y+Rc), s	4.5	5.8	5.1	5.4	5.8	* 5.8	5.4	* 5.4
Max Green Setting (Gmax), s	20.6	24.5	17.2	16.9	20.7	* 24	20.0	* 14
Max Q Clear Time (g_c+I1), s	16.3	24.8	18.7	18.9	12.2	10.0	17.6	17.7
Green Ext Time (p_c), s	0.3	0.0	0.0	0.0	0.3	2.4	0.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	71.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

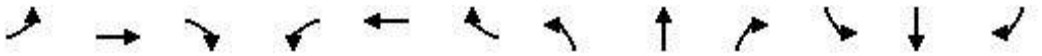
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	15	0	0	39	0	884	14	0	790	30
Future Vol, veh/h	0	0	15	0	0	39	0	884	14	0	790	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	0	16	0	0	42	0	961	15	0	859	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	446	-	-	488	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.02	-	-	7.02	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.36	-	-	3.36	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	549	0	0	515	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	549	-	-	515	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	12.6	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	549	515	-	-
HCM Lane V/C Ratio	-	-	0.03	0.082	-	-
HCM Control Delay (s)	-	-	11.8	12.6	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	500	29	166	69	30	78	92	324	23	108	339	358
Future Volume (veh/h)	500	29	166	69	30	78	92	324	23	108	339	358
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	543	32	180	75	33	85	100	352	25	117	368	389
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	627	56	313	95	41	106	125	1299	92	145	742	629
Arrive On Green	0.19	0.24	0.24	0.06	0.09	0.09	0.07	0.40	0.40	0.08	0.41	0.41
Sat Flow, veh/h	3319	235	1323	1711	445	1145	1711	3233	229	1711	1796	1522
Grp Volume(v), veh/h	543	0	212	75	0	118	100	185	192	117	368	389
Grp Sat Flow(s),veh/h/ln	1659	0	1558	1711	0	1590	1711	1706	1755	1711	1796	1522
Q Serve(g_s), s	15.9	0.0	12.0	4.3	0.0	7.3	5.8	7.3	7.3	6.7	15.1	20.1
Cycle Q Clear(g_c), s	15.9	0.0	12.0	4.3	0.0	7.3	5.8	7.3	7.3	6.7	15.1	20.1
Prop In Lane	1.00		0.85	1.00		0.72	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	627	0	369	95	0	147	125	685	705	145	742	629
V/C Ratio(X)	0.87	0.00	0.57	0.79	0.00	0.80	0.80	0.27	0.27	0.81	0.50	0.62
Avail Cap(c_a), veh/h	770	0	369	174	0	148	192	685	705	234	742	629
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	39.3	0.0	33.7	46.6	0.0	44.5	45.6	20.1	20.1	45.0	21.7	23.1
Incr Delay (d2), s/veh	8.8	0.0	2.2	13.2	0.0	25.9	12.5	1.0	1.0	10.0	2.4	4.5
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	6.9	0.0	4.6	2.2	0.0	3.9	2.8	2.9	3.0	3.1	6.4	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	35.9	59.8	0.0	70.4	58.1	21.0	21.0	55.0	24.0	27.6
LnGrp LOS	D	A	D	E	A	E	E	C	C	D	C	C
Approach Vol, veh/h		755			193			477			874	
Approach Delay, s/veh		44.7			66.3			28.8			29.8	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	46.0	24.7	15.1	13.1	47.1	10.3	29.5
Change Period (Y+Rc), s	5.8	5.8	5.8	* 5.8	5.8	5.8	* 4.7	5.8
Max Green Setting (Gmax), s	13.7	31.7	23.2	* 9.3	11.2	34.2	* 10	22.3
Max Q Clear Time (g_c+I1), s	8.7	9.3	17.9	9.3	7.8	22.1	6.3	14.0
Green Ext Time (p_c), s	0.1	1.9	1.0	0.0	0.1	2.8	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	37.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	902	804	0
Future Vol, veh/h	0	0	0	902	804	0
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	-	100	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	7
Mvmt Flow	0	0	0	980	874	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1364	437	874	0	-	0
Stage 1	874	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.24	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.27	-	-	-
Pot Cap-1 Maneuver	139	567	737	-	-	-
Stage 1	369	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	139	567	737	-	-	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	369	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	737	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	450	30	894	410	19	587
Future Volume (veh/h)	450	30	894	410	19	587
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	489	33	972	446	21	638
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	578	265	1433	647	39	2427
Arrive On Green	0.17	0.17	0.82	0.82	0.02	0.70
Sat Flow, veh/h	3374	1547	2414	1049	1739	3561
Grp Volume(v), veh/h	489	33	722	696	21	638
Grp Sat Flow(s),veh/h/ln	1687	1547	1735	1637	1739	1735
Q Serve(g_s), s	12.6	1.6	15.0	15.8	1.1	6.1
Cycle Q Clear(g_c), s	12.6	1.6	15.0	15.8	1.1	6.1
Prop In Lane	1.00	1.00		0.64	1.00	
Lane Grp Cap(c), veh/h	578	265	1070	1010	39	2427
V/C Ratio(X)	0.85	0.12	0.67	0.69	0.53	0.26
Avail Cap(c_a), veh/h	705	323	1070	1010	100	2427
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.87	0.87	1.00	1.00
Uniform Delay (d), s/veh	36.1	31.6	4.4	4.5	43.5	5.0
Incr Delay (d2), s/veh	8.0	0.2	3.0	3.4	10.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.6	3.5	3.5	0.6	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.1	31.8	7.4	7.9	54.2	5.2
LnGrp LOS	D	C	A	A	D	A
Approach Vol, veh/h	522		1418			659
Approach Delay, s/veh	43.3		7.6			6.8
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.4	60.9			68.4	21.6
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	5.2	49.0			59.6	18.8
Max Q Clear Time (g_c+I1), s	3.1	17.8			8.1	14.6
Green Ext Time (p_c), s	0.0	12.2			4.7	0.8

Intersection Summary	
HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	0	142	108	21	296	180	970	443	0	973	65
Future Volume (veh/h)	38	0	142	108	21	296	180	970	443	0	973	65
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	1811	0	1811	1811	1811	1811	1811	1811	1811	0	1811	1811
Adj Flow Rate, veh/h	41	0	154	117	23	322	196	1054	482	0	1058	71
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, %	6	0	6	6	6	6	6	6	6	0	6	6
Cap, veh/h	94	0	0	1011	20	283	226	1988	886	0	1265	85
Arrive On Green	0.05	0.00	0.00	0.30	0.20	0.20	0.26	1.00	1.00	0.00	0.13	0.13
Sat Flow, veh/h	1725	41		3346	103	1447	1725	3441	1533	0	3363	220
Grp Volume(v), veh/h	41	44.4		117	0	345	196	1054	482	0	556	573
Grp Sat Flow(s),veh/h/ln	1725	D		1673	0	1551	1725	1721	1533	0	1721	1772
Q Serve(g_s), s	2.1			2.3	0.0	17.6	9.8	0.0	0.0	0.0	28.4	28.4
Cycle Q Clear(g_c), s	2.1			2.3	0.0	17.6	9.8	0.0	0.0	0.0	28.4	28.4
Prop In Lane	1.00			1.00		0.93	1.00		1.00	0.00		0.12
Lane Grp Cap(c), veh/h	94			1011	0	303	226	1988	886	0	665	685
V/C Ratio(X)	0.44			0.12	0.00	1.14	0.87	0.53	0.54	0.00	0.84	0.84
Avail Cap(c_a), veh/h	98			1011	0	303	241	1988	886	0	665	685
HCM Platoon Ratio	1.00			1.00	1.00	1.00	2.00	2.00	2.00	1.00	0.33	0.33
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.87	0.87
Uniform Delay (d), s/veh	41.2			22.7	0.0	36.2	32.4	0.0	0.0	0.0	36.5	36.5
Incr Delay (d2), s/veh	3.2			0.1	0.0	94.2	25.5	1.0	2.4	0.0	8.1	7.9
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
%ile BackOfQ(50%),veh/ln	1.0			0.9	0.0	14.2	5.0	0.3	0.6	0.0	14.4	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4			22.8	0.0	130.4	57.9	1.0	2.4	0.0	44.5	44.4
LnGrp LOS	D			C	A	F	E	A	A	A	D	D
Approach Vol, veh/h					462			1732			1129	
Approach Delay, s/veh					103.2			7.8			44.4	
Approach LOS					F			A			D	

Timer - Assigned Phs	2	3	5	6	7	8
Phs Duration (G+Y+Rc), s	57.4	32.6	17.2	40.2	9.6	23.0
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	* 4.7	5.4
Max Green Setting (Gmax), s	51.8	6.7	12.6	33.8	* 5.1	17.6
Max Q Clear Time (g_c+I1), s	2.0	4.3	11.8	30.4	4.1	19.6
Green Ext Time (p_c), s	12.4	0.1	0.0	2.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	507	559	196	189	18	602	126	544	137	304	257	183
Future Volume (veh/h)	507	559	196	189	18	602	126	544	137	304	257	183
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	551	608	213	205	20	654	137	591	149	330	279	199
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, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	644	635	434	217	207	500	169	674	169	365	1192	827
Arrive On Green	0.19	0.18	0.18	0.13	0.11	0.11	0.10	0.25	0.25	0.21	0.35	0.35
Sat Flow, veh/h	3346	3441	1535	1725	1811	1535	1725	2723	685	1725	3441	1535
Grp Volume(v), veh/h	551	608	213	205	20	654	137	373	367	330	279	199
Grp Sat Flow(s),veh/h/ln	1673	1721	1535	1725	1811	1535	1725	1721	1688	1725	1721	1535
Q Serve(g_s), s	14.3	15.8	10.4	10.6	0.9	10.3	7.0	18.7	18.8	16.8	5.2	6.2
Cycle Q Clear(g_c), s	14.3	15.8	10.4	10.6	0.9	10.3	7.0	18.7	18.8	16.8	5.2	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	644	635	434	217	207	500	169	426	418	365	1192	827
V/C Ratio(X)	0.86	0.96	0.49	0.95	0.10	1.31	0.81	0.88	0.88	0.90	0.23	0.24
Avail Cap(c_a), veh/h	796	635	434	217	207	500	253	426	418	404	1192	827
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	35.1	36.4	26.9	39.1	35.7	30.3	39.8	32.5	32.6	34.6	20.9	11.0
Incr Delay (d2), s/veh	7.6	25.6	0.9	46.2	0.2	152.8	11.3	21.5	22.3	22.0	0.5	0.7
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	6.2	8.5	3.8	7.1	0.4	31.4	3.5	10.1	10.1	8.9	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	62.0	27.8	85.2	35.9	183.1	51.0	54.1	54.8	56.6	21.4	11.7
LnGrp LOS	D	E	C	F	D	F	D	D	D	E	C	B
Approach Vol, veh/h		1372			879			877			808	
Approach Delay, s/veh		49.0			157.0			53.9			33.4	
Approach LOS		D			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	28.1	16.4	22.0	14.6	37.0	22.7	15.7
Change Period (Y+Rc), s	4.5	5.8	5.1	5.4	5.8	* 5.8	5.4	* 5.4
Max Green Setting (Gmax), s	21.1	20.2	11.3	16.6	13.2	* 27	21.4	* 6.5
Max Q Clear Time (g_c+I1), s	18.8	20.8	12.6	17.8	9.0	8.2	16.3	12.3
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.1	2.2	1.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	71.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

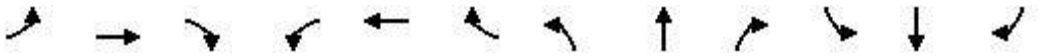
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	24	0	0	30	0	776	19	0	586	44
Future Vol, veh/h	0	0	24	0	0	30	0	776	19	0	586	44
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	0	26	0	0	33	0	843	21	0	637	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	344	-	-	432	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.04	-	-	7.04	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.37	-	-	3.37	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	638	0	0	558	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	637	-	-	558	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	11.9	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	637	558	-	-
HCM Lane V/C Ratio	-	-	0.041	0.058	-	-
HCM Control Delay (s)	-	-	10.9	11.9	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	32	45	43	26	34	66	408	80	30	247	328
Future Volume (veh/h)	320	32	45	43	26	34	66	408	80	30	247	328
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	348	35	49	47	28	37	72	443	87	33	268	357
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	437	113	158	66	43	57	92	1475	288	53	890	755
Arrive On Green	0.13	0.17	0.17	0.04	0.06	0.06	0.05	0.52	0.52	0.03	0.50	0.50
Sat Flow, veh/h	3319	677	948	1711	702	927	1711	2847	555	1711	1796	1522
Grp Volume(v), veh/h	348	0	84	47	0	65	72	264	266	33	268	357
Grp Sat Flow(s),veh/h/ln	1659	0	1626	1711	0	1629	1711	1706	1696	1711	1796	1522
Q Serve(g_s), s	9.2	0.0	4.1	2.4	0.0	3.5	3.7	7.9	8.1	1.7	8.0	13.9
Cycle Q Clear(g_c), s	9.2	0.0	4.1	2.4	0.0	3.5	3.7	7.9	8.1	1.7	8.0	13.9
Prop In Lane	1.00		0.58	1.00		0.57	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	437	0	271	66	0	100	92	884	879	53	890	755
V/C Ratio(X)	0.80	0.00	0.31	0.72	0.00	0.65	0.78	0.30	0.30	0.62	0.30	0.47
Avail Cap(c_a), veh/h	671	0	311	158	0	132	213	884	879	137	890	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	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	37.9	0.0	33.0	42.8	0.0	41.3	42.1	12.4	12.4	43.1	13.5	15.0
Incr Delay (d2), s/veh	3.8	0.0	0.6	13.5	0.0	7.0	13.4	0.9	0.9	11.1	0.9	2.1
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	3.8	0.0	1.6	1.3	0.0	1.6	1.9	2.9	2.9	0.9	3.1	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	33.6	56.3	0.0	48.3	55.5	13.2	13.3	54.1	14.3	17.1
LnGrp LOS	D	A	C	E	A	D	E	B	B	D	B	B
Approach Vol, veh/h		432			112			602			658	
Approach Delay, s/veh		40.1			51.7			18.3			17.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	52.4	17.7	11.3	10.6	50.4	8.2	20.8
Change Period (Y+Rc), s	5.8	5.8	5.8	* 5.8	5.8	5.8	* 4.7	5.8
Max Green Setting (Gmax), s	7.2	35.2	18.2	* 7.3	11.2	31.2	* 8.3	17.2
Max Q Clear Time (g_c+I1), s	3.7	10.1	11.2	5.5	5.7	15.9	4.4	6.1
Green Ext Time (p_c), s	0.0	2.9	0.7	0.0	0.1	2.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	71	41	50	724	562	52
Future Vol, veh/h	71	41	50	724	562	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	-	100	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	7
Mvmt Flow	77	45	54	787	611	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1113	306	668	0	-	0
Stage 1	611	-	-	-	-	-
Stage 2	502	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.24	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.27	-	-	-
Pot Cap-1 Maneuver	203	690	885	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	191	690	885	-	-	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	473	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	885	-	400	-	-
HCM Lane V/C Ratio	0.061	-	0.304	-	-
HCM Control Delay (s)	9.3	-	17.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	432	17	455	683	19	354
Future Volume (veh/h)	432	17	455	683	19	354
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	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	470	18	495	742	21	385
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	561	257	1113	992	38	2490
Arrive On Green	0.17	0.17	1.00	1.00	0.02	0.72
Sat Flow, veh/h	3374	1547	1826	1546	1739	3561
Grp Volume(v), veh/h	470	18	495	742	21	385
Grp Sat Flow(s),veh/h/ln	1687	1547	1735	1546	1739	1735
Q Serve(g_s), s	13.5	1.0	0.0	0.0	1.2	3.5
Cycle Q Clear(g_c), s	13.5	1.0	0.0	0.0	1.2	3.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	561	257	1113	992	38	2490
V/C Ratio(X)	0.84	0.07	0.44	0.75	0.55	0.15
Avail Cap(c_a), veh/h	803	368	1113	992	115	2490
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.89	0.89	1.00	1.00
Uniform Delay (d), s/veh	40.4	35.2	0.0	0.0	48.4	4.5
Incr Delay (d2), s/veh	5.4	0.1	1.1	4.6	11.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.4	0.4	1.3	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.7	35.3	1.1	4.6	59.9	4.6
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	488		1237			406
Approach Delay, s/veh	45.4		3.2			7.5
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.6	69.6			77.2	22.8
Change Period (Y+Rc), s	5.4	5.4			5.4	6.2
Max Green Setting (Gmax), s	6.6	52.6			64.6	23.8
Max Q Clear Time (g_c+I1), s	3.2	2.0			5.5	15.5
Green Ext Time (p_c), s	0.0	11.8			2.6	1.1

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	0	231	117	25	248	178	769	531	0	705	81
Future Volume (veh/h)	121	0	231	117	25	248	178	769	531	0	705	81
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	1826	0	1826	1826	1826	1826	1826	1826	1826	0	1826	1826
Adj Flow Rate, veh/h	132	0	251	127	27	270	193	836	577	0	766	88
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, %	5	0	5	5	5	5	5	5	5	0	5	5
Cap, veh/h	165	0	0	1107	26	265	222	1956	873	0	1198	138
Arrive On Green	0.10	0.00	0.00	0.33	0.19	0.19	0.26	1.00	1.00	0.00	0.51	0.51
Sat Flow, veh/h	1739	132		3374	142	1424	1739	3469	1547	0	3226	360
Grp Volume(v), veh/h	132	59.1		127	0	297	193	836	577	0	424	430
Grp Sat Flow(s),veh/h/ln	1739	E		1687	0	1567	1739	1735	1547	0	1735	1761
Q Serve(g_s), s	7.4			2.6	0.0	18.6	10.6	0.0	0.0	0.0	17.8	17.8
Cycle Q Clear(g_c), s	7.4			2.6	0.0	18.6	10.6	0.0	0.0	0.0	17.8	17.8
Prop In Lane	1.00			1.00		0.91	1.00		1.00	0.00		0.20
Lane Grp Cap(c), veh/h	165			1107	0	291	222	1956	873	0	663	673
V/C Ratio(X)	0.80			0.11	0.00	1.02	0.87	0.43	0.66	0.00	0.64	0.64
Avail Cap(c_a), veh/h	214			1107	0	291	271	1956	873	0	663	673
HCM Platoon Ratio	1.00			1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.33	1.33
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.88	0.88
Uniform Delay (d), s/veh	44.3			23.5	0.0	40.7	36.4	0.0	0.0	0.0	19.6	19.6
Incr Delay (d2), s/veh	14.8			0.0	0.0	57.7	21.6	0.7	3.9	0.0	1.8	1.8
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
%ile BackOfQ(50%),veh/ln	3.9			1.0	0.0	11.6	5.1	0.2	1.0	0.0	6.1	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1			23.5	0.0	98.4	58.1	0.7	3.9	0.0	21.4	21.4
LnGrp LOS	E			C	A	F	E	A	A	A	C	C
Approach Vol, veh/h					424			1606			854	
Approach Delay, s/veh					76.0			8.7			21.4	
Approach LOS					E			A			C	

Timer - Assigned Phs	2	3		5	6	7	8
Phs Duration (G+Y+Rc), s	61.8	38.2		18.2	43.6	14.2	24.0
Change Period (Y+Rc), s	5.4	5.4		5.4	5.4	* 4.7	5.4
Max Green Setting (Gmax), s	53.6	8.4		15.6	32.6	* 12	18.6
Max Q Clear Time (g_c+I1), s	2.0	4.6		12.6	19.8	9.4	20.6
Green Ext Time (p_c), s	10.1	0.1		0.1	4.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	497	525	341	268	90	592	189	581	205	229	360	171
Future Volume (veh/h)	497	525	341	268	90	592	189	581	205	229	360	171
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	540	571	371	291	98	643	205	632	223	249	391	186
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	612	586	475	299	286	494	240	725	256	283	1041	744
Arrive On Green	0.18	0.17	0.17	0.17	0.16	0.16	0.14	0.29	0.29	0.16	0.30	0.30
Sat Flow, veh/h	3374	3469	1547	1739	1826	1547	1739	2514	886	1739	3469	1545
Grp Volume(v), veh/h	540	571	371	291	98	643	205	436	419	249	391	186
Grp Sat Flow(s),veh/h/ln	1687	1735	1547	1739	1826	1547	1739	1735	1666	1739	1735	1545
Q Serve(g_s), s	15.6	16.4	16.9	16.6	4.8	15.7	11.5	23.9	23.9	14.0	8.9	7.1
Cycle Q Clear(g_c), s	15.6	16.4	16.9	16.6	4.8	15.7	11.5	23.9	23.9	14.0	8.9	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	612	586	475	299	286	494	240	500	480	283	1041	744
V/C Ratio(X)	0.88	0.97	0.78	0.97	0.34	1.30	0.85	0.87	0.87	0.88	0.38	0.25
Avail Cap(c_a), veh/h	675	586	475	299	286	494	360	500	480	358	1041	744
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	39.9	41.3	31.6	41.2	37.6	34.0	42.1	33.8	33.8	40.9	27.6	15.3
Incr Delay (d2), s/veh	12.3	30.5	8.2	44.5	0.7	149.9	12.1	18.5	19.2	18.2	1.0	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	7.3	9.2	9.0	10.6	2.2	32.0	5.7	12.4	12.0	7.2	3.7	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	71.9	39.8	85.7	38.3	184.0	54.2	52.3	53.1	59.1	28.6	16.1
LnGrp LOS	D	E	D	F	D	F	D	D	D	E	C	B
Approach Vol, veh/h		1482			1032			1060			826	
Approach Delay, s/veh		56.7			142.4			53.0			35.0	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	34.6	22.3	22.3	19.6	35.8	23.5	21.1
Change Period (Y+Rc), s	4.5	5.8	5.1	5.4	5.8	* 5.8	5.4	* 5.4
Max Green Setting (Gmax), s	20.6	24.5	17.2	16.9	20.7	* 24	20.0	* 14
Max Q Clear Time (g_c+I1), s	16.0	25.9	18.6	18.9	13.5	10.9	17.6	17.7
Green Ext Time (p_c), s	0.3	0.0	0.0	0.0	0.3	2.5	0.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	71.8
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

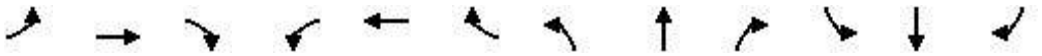
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	24	0	0	39	0	935	14	0	805	52
Future Vol, veh/h	0	0	24	0	0	39	0	935	14	0	805	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	0	26	0	0	42	0	1016	15	0	875	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	466	-	-	516	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.02	-	-	7.02	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.36	-	-	3.36	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	533	0	0	494	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	533	-	-	494	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	13	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	533	494	-	-
HCM Lane V/C Ratio	-	-	0.049	0.086	-	-
HCM Control Delay (s)	-	-	12.1	13	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	27	166	69	30	78	92	327	23	108	343	361
Future Volume (veh/h)	505	27	166	69	30	78	92	327	23	108	343	361
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	549	29	180	75	33	85	100	355	25	117	373	392
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	632	51	319	95	41	106	125	1294	91	145	739	626
Arrive On Green	0.19	0.24	0.24	0.06	0.09	0.09	0.07	0.40	0.40	0.08	0.41	0.41
Sat Flow, veh/h	3319	216	1339	1711	445	1145	1711	3235	227	1711	1796	1522
Grp Volume(v), veh/h	549	0	209	75	0	118	100	187	193	117	373	392
Grp Sat Flow(s),veh/h/ln	1659	0	1555	1711	0	1590	1711	1706	1755	1711	1796	1522
Q Serve(g_s), s	16.0	0.0	11.8	4.3	0.0	7.3	5.8	7.4	7.4	6.7	15.4	20.4
Cycle Q Clear(g_c), s	16.0	0.0	11.8	4.3	0.0	7.3	5.8	7.4	7.4	6.7	15.4	20.4
Prop In Lane	1.00		0.86	1.00		0.72	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	632	0	371	95	0	147	125	683	702	145	739	626
V/C Ratio(X)	0.87	0.00	0.56	0.79	0.00	0.80	0.80	0.27	0.28	0.81	0.50	0.63
Avail Cap(c_a), veh/h	770	0	371	174	0	148	192	683	702	234	739	626
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	39.3	0.0	33.5	46.6	0.0	44.5	45.6	20.2	20.2	45.0	21.9	23.3
Incr Delay (d2), s/veh	9.0	0.0	2.0	13.2	0.0	25.9	12.5	1.0	1.0	10.0	2.5	4.7
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	7.0	0.0	4.4	2.2	0.0	3.9	2.8	2.9	3.0	3.1	6.5	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	0.0	35.5	59.8	0.0	70.4	58.1	21.2	21.2	55.0	24.3	28.0
LnGrp LOS	D	A	D	E	A	E	E	C	C	D	C	C
Approach Vol, veh/h		758			193			480			882	
Approach Delay, s/veh		44.7			66.3			28.9			30.0	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	45.8	24.8	15.1	13.1	47.0	10.3	29.6
Change Period (Y+Rc), s	5.8	5.8	5.8	* 5.8	5.8	5.8	* 4.7	5.8
Max Green Setting (Gmax), s	13.7	31.7	23.2	* 9.3	11.2	34.2	* 10	22.3
Max Q Clear Time (g_c+I1), s	8.7	9.4	18.0	9.3	7.8	22.4	6.3	13.8
Green Ext Time (p_c), s	0.1	1.9	1.0	0.0	0.1	2.8	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	41	49	873	774	59
Future Vol, veh/h	85	41	49	873	774	59
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	-	100	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	7	7	2
Mvmt Flow	92	45	53	949	841	64

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1422	421	905	0	-	0
Stage 1	841	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.24	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.27	-	-	-
Pot Cap-1 Maneuver	127	581	717	-	-	-
Stage 1	383	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	581	717	-	-	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	355	-	-	-	-	-
Stage 2	522	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.6	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	717	-	301	-	-
HCM Lane V/C Ratio	0.074	-	0.455	-	-
HCM Control Delay (s)	10.4	-	26.6	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.2	-	2.3	-	-

ARCO Shingle Springs TIS

1: Ponderosa Road & Wild Chaparral Drive/N Shingle Rd — Existing AM Peak Hour

Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	10	62	374	952	520
v/c Ratio	0.13	0.40	0.79	0.96	0.62
Control Delay	51.2	11.5	47.1	51.4	40.3
Queue Delay	0.0	0.0	6.5	44.0	0.0
Total Delay	51.2	11.5	53.6	95.4	40.3
Queue Length 50th (ft)	7	0	225	271	165
Queue Length 95th (ft)	24	20	325	#453	#254
Internal Link Dist (ft)	819		1401	97	353
Turn Bay Length (ft)					
Base Capacity (vph)	236	289	479	994	842
Starvation Cap Reductn	0	0	0	311	0
Spillback Cap Reductn	0	3	67	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.22	0.91	1.39	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	105	211	1257	366	490
v/c Ratio	0.60	0.61	0.47	0.25	0.37
Control Delay	58.5	14.0	3.2	4.3	3.1
Queue Delay	0.0	10.1	1.9	3.2	2.9
Total Delay	58.5	24.1	5.2	7.5	6.1
Queue Length 50th (ft)	68	0	77	87	45
Queue Length 95th (ft)	119	66	158	m112	m53
Internal Link Dist (ft)			732	97	
Turn Bay Length (ft)		130			
Base Capacity (vph)	442	551	2658	1470	1338
Starvation Cap Reductn	0	0	0	985	718
Spillback Cap Reductn	0	303	1189	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.85	0.86	0.75	0.79

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	393	552	129	18	554	385	80	471
v/c Ratio	0.87	0.62	0.74	0.10	0.78	0.62	0.23	0.93
Control Delay	57.8	35.1	70.9	43.5	21.2	29.0	10.6	53.1
Queue Delay	0.0	0.1	7.7	0.0	0.0	1.3	0.5	0.0
Total Delay	57.8	35.1	78.5	43.5	21.2	30.3	11.1	53.1
Queue Length 50th (ft)	237	152	83	11	128	120	18	93
Queue Length 95th (ft)	#448	226	#196	34	#353	173	m46	#495
Internal Link Dist (ft)		1356		275		101		732
Turn Bay Length (ft)	400		75		215			
Base Capacity (vph)	455	904	179	188	706	843	446	504
Starvation Cap Reductn	0	0	0	0	0	266	168	0
Spillback Cap Reductn	0	25	25	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.63	0.84	0.10	0.78	0.67	0.29	0.93

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	186	47	388	382
v/c Ratio	0.76	0.36	0.77	0.46
Control Delay	58.9	30.6	52.0	16.3
Queue Delay	2.1	0.0	1.1	1.8
Total Delay	61.0	30.6	53.0	18.1
Queue Length 50th (ft)	113	10	130	86
Queue Length 95th (ft)	177	46	173	m253
Internal Link Dist (ft)	162	140	295	101
Turn Bay Length (ft)				
Base Capacity (vph)	337	145	636	845
Starvation Cap Reductn	0	0	0	303
Spillback Cap Reductn	63	1	91	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.33	0.71	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

ARCO Shingle Springs TIS

1: Ponderosa Road & Wild Chaparral Drive/N Shingle Rd

Existing PM Peak Hour

Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	22	116	288	765	278
v/c Ratio	0.23	0.60	0.80	0.88	0.23
Control Delay	51.4	21.9	54.7	30.5	27.1
Queue Delay	0.0	0.2	16.9	10.8	0.1
Total Delay	51.4	22.1	71.6	41.3	27.3
Queue Length 50th (ft)	14	0	182	185	65
Queue Length 95th (ft)	38	53	254	247	126
Internal Link Dist (ft)	819		1401	97	353
Turn Bay Length (ft)					
Base Capacity (vph)	239	310	440	1028	1230
Starvation Cap Reductn	0	0	0	242	0
Spillback Cap Reductn	0	21	138	0	337
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.40	0.95	0.97	0.31

Intersection Summary



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	127	2	133	1102	307	319
v/c Ratio	0.21	no cap	0.21	0.55	0.30	0.32
Control Delay	20.7		3.4	10.9	20.7	9.3
Queue Delay	0.0		0.0	0.1	0.2	0.3
Total Delay	20.7	Error	3.4	11.1	20.9	9.6
Queue Length 50th (ft)	34	0	0	116	210	108
Queue Length 95th (ft)	82	0	32	235	294	87
Internal Link Dist (ft)		442		732	97	
Turn Bay Length (ft)			130			
Base Capacity (vph)	720	1	721	2503	1349	1203
Starvation Cap Reductn	0	0	0	0	436	380
Spillback Cap Reductn	0	0	18	456	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	2.00	0.19	0.54	0.34	0.39

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	358	706	109	34	456	386	136	430
v/c Ratio	0.86	0.85	0.72	0.21	0.68	0.44	0.27	0.94
Control Delay	58.5	45.4	73.1	47.1	14.5	22.3	9.8	55.5
Queue Delay	0.0	0.1	6.0	0.0	0.0	1.0	0.9	50.8
Total Delay	58.5	45.4	79.1	47.1	14.5	23.2	10.7	106.3
Queue Length 50th (ft)	221	213	71	21	61	102	20	85
Queue Length 95th (ft)	#390	#316	#171	53	170	m124	m40	#454
Internal Link Dist (ft)		1356		275		101		732
Turn Bay Length (ft)	400		75		215			
Base Capacity (vph)	438	873	157	166	697	969	537	493
Starvation Cap Reductn	0	0	0	0	0	336	215	0
Spillback Cap Reductn	0	3	20	0	0	0	0	121
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.81	0.80	0.20	0.65	0.61	0.42	1.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	394	55	327	464
v/c Ratio	0.91	0.42	0.77	0.65
Control Delay	61.1	30.6	56.5	22.1
Queue Delay	11.4	1.7	0.0	7.5
Total Delay	72.4	32.2	56.5	29.6
Queue Length 50th (ft)	234	9	110	113
Queue Length 95th (ft)	#382	49	158	m165
Internal Link Dist (ft)	162	140	295	101
Turn Bay Length (ft)				
Base Capacity (vph)	486	132	464	724
Starvation Cap Reductn	0	0	0	214
Spillback Cap Reductn	74	20	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.96	0.49	0.70	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	10	63	375	960	523
v/c Ratio	0.13	0.40	0.79	0.96	0.63
Control Delay	51.2	11.9	46.9	51.2	40.8
Queue Delay	0.0	0.0	7.6	43.4	0.0
Total Delay	51.2	11.9	54.6	94.6	40.8
Queue Length 50th (ft)	7	0	226	275	166
Queue Length 95th (ft)	24	21	326	#458	#256
Internal Link Dist (ft)	819		1401	97	353
Turn Bay Length (ft)					
Base Capacity (vph)	236	289	481	998	830
Starvation Cap Reductn	0	0	0	306	0
Spillback Cap Reductn	0	4	73	0	9
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.22	0.92	1.39	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	120	211	1280	371	490
v/c Ratio	0.64	0.59	0.49	0.25	0.37
Control Delay	59.1	13.1	3.5	5.1	3.4
Queue Delay	0.0	21.6	2.3	3.5	3.2
Total Delay	59.1	34.7	5.8	8.6	6.6
Queue Length 50th (ft)	78	0	78	97	50
Queue Length 95th (ft)	131	65	157	m107	m53
Internal Link Dist (ft)			732	97	
Turn Bay Length (ft)		130			
Base Capacity (vph)	442	551	2635	1456	1330
Starvation Cap Reductn	0	0	0	975	719
Spillback Cap Reductn	0	328	1172	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.95	0.87	0.77	0.80

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	393	568	132	18	554	422	83	491
v/c Ratio	0.88	0.64	0.74	0.10	0.78	0.71	0.24	0.95
Control Delay	59.2	35.5	70.0	43.2	21.1	33.1	10.1	55.5
Queue Delay	0.0	0.1	7.6	0.0	0.0	2.4	0.6	0.5
Total Delay	59.2	35.6	77.7	43.2	21.1	35.5	10.7	56.0
Queue Length 50th (ft)	237	155	85	11	134	112	18	~160
Queue Length 95th (ft)	#448	231	#202	34	#364	199	m24	#529
Internal Link Dist (ft)		1356		275		101		732
Turn Bay Length (ft)	400		75		215			
Base Capacity (vph)	451	898	182	192	713	843	446	518
Starvation Cap Reductn	0	0	0	0	0	288	177	0
Spillback Cap Reductn	0	25	25	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.65	0.84	0.09	0.78	0.76	0.31	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	251	47	364	421
v/c Ratio	0.84	0.36	0.75	0.53
Control Delay	63.8	30.6	52.1	20.0
Queue Delay	4.2	0.0	1.4	5.1
Total Delay	68.0	30.6	53.5	25.1
Queue Length 50th (ft)	156	10	122	100
Queue Length 95th (ft)	#266	46	165	m256
Internal Link Dist (ft)	162	140	295	101
Turn Bay Length (ft)				
Base Capacity (vph)	341	145	632	800
Starvation Cap Reductn	0	0	0	307
Spillback Cap Reductn	42	1	119	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.33	0.71	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	22	117	289	770	280
v/c Ratio	0.23	0.60	0.80	0.88	0.23
Control Delay	51.2	21.9	54.7	30.5	27.3
Queue Delay	0.0	0.2	18.0	11.2	0.1
Total Delay	51.2	22.1	72.7	41.7	27.4
Queue Length 50th (ft)	14	0	182	181	66
Queue Length 95th (ft)	38	54	256	248	128
Internal Link Dist (ft)	819		1401	97	353
Turn Bay Length (ft)					
Base Capacity (vph)	239	311	440	1028	1222
Starvation Cap Reductn	0	0	0	239	0
Spillback Cap Reductn	0	21	139	0	331
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.40	0.96	0.98	0.31

Intersection Summary



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	151	2	133	1130	312	319
v/c Ratio	0.25	no cap	0.21	0.56	0.30	0.32
Control Delay	21.9		3.5	10.6	20.6	9.2
Queue Delay	0.0		0.0	0.1	0.2	0.3
Total Delay	21.9	Error	3.5	10.8	20.8	9.5
Queue Length 50th (ft)	42	0	0	137	213	108
Queue Length 95th (ft)	99	0	33	247	298	86
Internal Link Dist (ft)		442		732	97	
Turn Bay Length (ft)			130			
Base Capacity (vph)	711	1	714	2498	1344	1200
Starvation Cap Reductn	0	0	0	0	448	391
Spillback Cap Reductn	0	0	18	459	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	2.00	0.19	0.55	0.35	0.39

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	358	730	113	34	456	437	139	457
v/c Ratio	0.87	0.88	0.72	0.21	0.66	0.54	0.30	0.94
Control Delay	60.1	47.9	71.6	46.7	14.4	24.3	9.2	56.0
Queue Delay	0.0	0.2	133.0	0.0	0.0	1.2	0.8	50.6
Total Delay	60.1	48.1	204.6	46.7	14.4	25.5	10.0	106.7
Queue Length 50th (ft)	221	219	73	21	67	128	20	102
Queue Length 95th (ft)	#390	#330	#178	53	184	m133	m35	#494
Internal Link Dist (ft)		1356		275		101		732
Turn Bay Length (ft)	400		75		215			
Base Capacity (vph)	431	865	162	170	699	924	520	505
Starvation Cap Reductn	0	0	0	0	0	273	188	0
Spillback Cap Reductn	0	7	142	0	0	0	0	185
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.85	5.65	0.20	0.65	0.67	0.42	1.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	470	55	305	519
v/c Ratio	0.94	0.42	0.76	0.79
Control Delay	63.3	30.6	56.5	29.0
Queue Delay	46.0	0.9	0.0	52.5
Total Delay	109.2	31.4	56.5	81.5
Queue Length 50th (ft)	289	9	102	240
Queue Length 95th (ft)	#507	49	148	m#319
Internal Link Dist (ft)	162	140	295	101
Turn Bay Length (ft)				
Base Capacity (vph)	503	132	456	665
Starvation Cap Reductn	0	0	0	195
Spillback Cap Reductn	115	12	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.21	0.46	0.67	1.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	343	23	856	14	495
v/c Ratio	0.77	0.06	0.44	0.12	0.45
Control Delay	42.5	9.0	3.9	41.3	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	9.0	3.9	41.3	12.0
Queue Length 50th (ft)	180	0	31	8	137
Queue Length 95th (ft)	249	16	58	26	257
Internal Link Dist (ft)	1213		433		313
Turn Bay Length (ft)		325		200	
Base Capacity (vph)	607	558	1967	118	1109
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.04	0.44	0.12	0.45

Intersection Summary



Lane Group	EBL	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	10	61	108	226	717	838
v/c Ratio	0.10	0.25	0.59	0.51	0.65	0.82
Control Delay	42.4	2.4	51.9	10.4	31.7	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	2.4	51.9	10.4	31.7	35.5
Queue Length 50th (ft)	6	0	58	5	199	171
Queue Length 95th (ft)	22	0	112	73	#272	326
Internal Link Dist (ft)				1441	97	433
Turn Bay Length (ft)	185		275			
Base Capacity (vph)	103	245	202	459	1095	1110
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.25	0.53	0.49	0.65	0.75

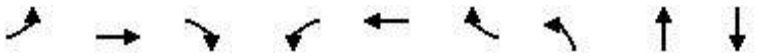
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

ARCO Shingle Springs TIS

3: South Shingle Road & US-50 Eastbound Ramps/Mother Lode Drive

Near-Term AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	401	443	121	163	18	566	76	405	482
v/c Ratio	0.45	0.87	0.33	0.86	0.16	0.92	0.24	0.64	0.89
Control Delay	30.8	55.9	5.1	79.2	42.9	43.6	29.2	31.7	47.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	55.9	5.1	79.2	42.9	43.6	29.2	31.7	47.8
Queue Length 50th (ft)	90	131	0	93	10	~305	35	89	245
Queue Length 95th (ft)	156	#213	26	#206	31	#375	68	133	#426
Internal Link Dist (ft)		1352			442			101	732
Turn Bay Length (ft)	610		350	265		335			
Base Capacity (vph)	888	514	366	189	119	630	323	652	562
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.86	0.33	0.86	0.15	0.90	0.24	0.62	0.86

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	137	67	28	22	66	368	11	385
v/c Ratio	0.59	0.31	0.15	0.16	0.41	0.31	0.10	0.39
Control Delay	45.8	23.5	35.2	28.2	45.7	9.8	39.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	23.5	35.2	28.2	45.7	9.8	39.3	18.4
Queue Length 50th (ft)	74	14	15	6	36	48	5	152
Queue Length 95th (ft)	125	53	36	28	76	224	m12	m181
Internal Link Dist (ft)		1038		923		484		156
Turn Bay Length (ft)	135		115		135		155	
Base Capacity (vph)	312	329	189	146	196	1204	109	999
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.20	0.15	0.15	0.34	0.31	0.10	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



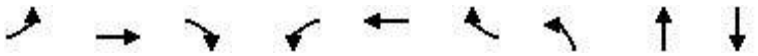
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	279	12	706	13	267
v/c Ratio	0.73	0.03	0.34	0.11	0.23
Control Delay	43.4	12.5	1.3	41.3	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	12.5	1.3	41.3	8.0
Queue Length 50th (ft)	148	0	4	7	56
Queue Length 95th (ft)	212	13	1	25	114
Internal Link Dist (ft)	1213		433		313
Turn Bay Length (ft)		325		200	
Base Capacity (vph)	607	551	2085	126	1174
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.02	0.34	0.10	0.23

Intersection Summary



Lane Group	EBL	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	117	132	148	637	546
v/c Ratio	0.17	0.38	0.57	0.40	0.48	0.77
Control Delay	41.7	3.6	45.9	11.0	24.4	39.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	3.6	45.9	11.0	24.4	39.4
Queue Length 50th (ft)	12	0	71	5	150	97
Queue Length 95th (ft)	36	0	123	56	219	223
Internal Link Dist (ft)				1441	97	433
Turn Bay Length (ft)	185		275			
Base Capacity (vph)	131	316	300	423	1322	768
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.37	0.44	0.35	0.48	0.71

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	374	528	209	146	36	476	115	435	449
v/c Ratio	0.45	0.89	0.48	0.79	0.26	0.74	0.35	0.63	0.89
Control Delay	32.4	55.7	8.9	70.3	43.2	25.0	30.1	29.0	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	55.7	8.9	70.3	43.2	25.0	30.1	29.0	50.2
Queue Length 50th (ft)	100	155	0	83	20	155	66	114	225
Queue Length 95th (ft)	148	#246	58	#191	49	265	m79	94	#402
Internal Link Dist (ft)		1352			442			101	732
Turn Bay Length (ft)	610		350	265		335			
Base Capacity (vph)	836	595	439	185	164	660	346	723	525
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.89	0.48	0.79	0.22	0.72	0.33	0.60	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	254	168	39	37	73	254	43	446
v/c Ratio	0.76	0.52	0.17	0.29	0.46	0.30	0.17	0.51
Control Delay	48.5	16.1	34.2	26.4	48.3	21.7	28.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	16.1	34.2	26.4	48.3	21.7	28.0	15.5
Queue Length 50th (ft)	136	16	18	6	40	106	24	143
Queue Length 95th (ft)	211	72	49	36	84	194	m38	m320
Internal Link Dist (ft)		1038		923		484		156
Turn Bay Length (ft)	135		115		135		155	
Base Capacity (vph)	403	461	233	129	170	974	254	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.36	0.17	0.29	0.43	0.26	0.17	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



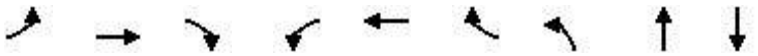
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	345	23	862	14	499
v/c Ratio	0.78	0.06	0.44	0.12	0.45
Control Delay	42.5	9.0	3.9	41.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	9.0	3.9	41.5	12.2
Queue Length 50th (ft)	181	0	30	8	139
Queue Length 95th (ft)	249	16	58	27	262
Internal Link Dist (ft)	1213		433		313
Turn Bay Length (ft)		325		200	
Base Capacity (vph)	607	558	1965	117	1107
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.04	0.44	0.12	0.45

Intersection Summary

Lane Group	EBL	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	10	62	124	226	723	844
v/c Ratio	0.10	0.26	0.66	0.50	0.68	0.82
Control Delay	42.4	2.5	55.3	10.2	32.6	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	2.5	55.3	10.2	32.6	35.5
Queue Length 50th (ft)	6	0	67	5	203	173
Queue Length 95th (ft)	22	0	#138	73	#278	328
Internal Link Dist (ft)				1441	97	433
Turn Bay Length (ft)	185		275			
Base Capacity (vph)	102	243	203	463	1068	1110
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.26	0.61	0.49	0.68	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	401	443	136	150	18	566	91	430	505
v/c Ratio	0.46	0.87	0.37	0.82	0.16	0.92	0.29	0.68	0.92
Control Delay	30.9	55.9	7.1	72.2	42.9	43.1	30.3	33.1	53.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	55.9	7.1	72.2	42.9	43.1	30.3	33.1	53.6
Queue Length 50th (ft)	90	131	0	85	10	~305	43	101	264
Queue Length 95th (ft)	156	#213	36	#186	31	#375	83	142	#458
Internal Link Dist (ft)		1352			442			101	732
Turn Bay Length (ft)	610		350	265		335			
Base Capacity (vph)	879	514	366	187	119	627	322	649	559
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.86	0.37	0.80	0.15	0.90	0.28	0.66	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	157	51	28	22	66	371	11	398
v/c Ratio	0.62	0.24	0.15	0.17	0.41	0.32	0.10	0.41
Control Delay	45.9	19.6	34.6	29.6	45.7	9.8	38.7	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	19.6	34.6	29.6	45.7	9.8	38.7	17.8
Queue Length 50th (ft)	85	6	15	6	36	52	6	151
Queue Length 95th (ft)	138	40	36	29	76	219	m14	m184
Internal Link Dist (ft)		1038		923		484		156
Turn Bay Length (ft)	135		115		135		155	
Base Capacity (vph)	317	319	197	136	196	1190	109	986
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.16	0.14	0.16	0.34	0.31	0.10	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

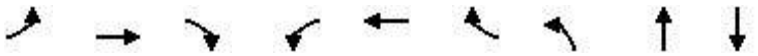


Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	280	12	709	13	271
v/c Ratio	0.73	0.03	0.34	0.11	0.23
Control Delay	43.4	12.4	1.8	41.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	12.4	1.8	41.3	8.1
Queue Length 50th (ft)	148	0	5	7	57
Queue Length 95th (ft)	212	13	1	25	116
Internal Link Dist (ft)	1213		433		313
Turn Bay Length (ft)		325		200	
Base Capacity (vph)	607	551	2083	126	1173
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.02	0.34	0.10	0.23

Intersection Summary

Lane Group	EBL	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	118	157	148	641	551
v/c Ratio	0.16	0.39	0.64	0.36	0.53	0.77
Control Delay	41.1	3.7	47.6	10.3	26.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	3.7	47.6	10.3	26.2	38.1
Queue Length 50th (ft)	12	0	85	5	155	96
Queue Length 95th (ft)	36	0	143	56	220	225
Internal Link Dist (ft)				1441	97	433
Turn Bay Length (ft)	185		275			
Base Capacity (vph)	136	316	300	437	1219	767
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.37	0.52	0.34	0.53	0.72

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	374	528	233	132	36	476	139	468	479
v/c Ratio	0.47	0.89	0.51	0.79	0.26	0.73	0.42	0.68	0.92
Control Delay	33.1	55.7	9.0	72.1	43.2	25.2	32.0	31.1	55.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.1	55.7	9.0	72.1	43.2	25.2	32.0	31.1	55.7
Queue Length 50th (ft)	100	155	0	75	20	165	78	123	253
Queue Length 95th (ft)	148	#246	62	#170	49	271	m101	142	#445
Internal Link Dist (ft)		1352			442			101	732
Turn Bay Length (ft)	610		350	265		335			
Base Capacity (vph)	802	595	459	169	164	655	339	705	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.89	0.51	0.78	0.22	0.73	0.41	0.66	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	273	152	39	37	73	257	43	458
v/c Ratio	0.78	0.48	0.16	0.29	0.46	0.31	0.17	0.53
Control Delay	49.5	13.9	32.6	26.4	48.3	22.5	29.1	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	13.9	32.6	26.4	48.3	22.5	29.1	17.6
Queue Length 50th (ft)	145	7	18	6	40	111	24	216
Queue Length 95th (ft)	229	61	48	36	84	196	m38	m322
Internal Link Dist (ft)		1038		923		484		156
Turn Bay Length (ft)	135		115		135		155	
Base Capacity (vph)	406	456	253	129	170	967	259	876
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.33	0.15	0.29	0.43	0.27	0.17	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	488	33	1412	21	634
v/c Ratio	0.77	0.10	0.66	0.20	0.27
Control Delay	43.2	11.3	7.9	44.7	6.2
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	43.2	11.3	8.0	44.7	6.2
Queue Length 50th (ft)	134	0	140	11	67
Queue Length 95th (ft)	187	24	101	35	94
Internal Link Dist (ft)	1189		432		313
Turn Bay Length (ft)	325	325		200	
Base Capacity (vph)	696	347	2124	107	2340
Starvation Cap Reductn	0	0	116	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.10	0.70	0.20	0.27

Intersection Summary



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	41	153	101	345	195	1049	466	1123
v/c Ratio	0.40	0.43	0.41	0.90	0.82	0.49	0.42	0.77
Control Delay	52.7	9.8	45.2	49.3	65.3	10.8	2.2	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	9.8	45.2	49.3	65.3	10.8	2.2	31.0
Queue Length 50th (ft)	23	0	28	121	109	178	0	220
Queue Length 95th (ft)	#57	51	54	#274	#223	231	39	#446
Internal Link Dist (ft)				1433		182		432
Turn Bay Length (ft)	185		275		235		235	
Base Capacity (vph)	103	396	249	405	244	2156	1114	1467
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.39	0.41	0.85	0.80	0.49	0.42	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	551	608	198	204	20	654	122	716	330	257	199
v/c Ratio	0.53	0.97	0.29	0.96	0.17	1.19	0.59	0.93	0.83	0.23	0.18
Control Delay	29.0	66.8	4.0	93.3	42.6	125.8	49.4	46.5	51.8	23.4	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	66.8	4.0	93.3	42.6	125.8	49.4	46.5	51.8	23.4	1.6
Queue Length 50th (ft)	120	182	0	117	11	~422	71	221	179	56	0
Queue Length 95th (ft)	205	#292	41	#252	33	#538	95	#295	#320	89	25
Internal Link Dist (ft)		1361			443			101		646	
Turn Bay Length (ft)	610		350	265		335			300		110
Base Capacity (vph)	1041	628	716	213	129	550	249	766	399	1112	1128
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.97	0.28	0.96	0.16	1.19	0.49	0.93	0.83	0.23	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	341	87	47	65	72	527	33	263	353
v/c Ratio	0.64	0.26	0.31	0.39	0.42	0.31	0.25	0.32	0.40
Control Delay	40.8	18.4	43.2	27.3	44.8	16.1	42.8	14.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	18.4	43.2	27.3	44.8	16.1	42.8	14.3	5.9
Queue Length 50th (ft)	94	19	26	15	39	96	14	84	0
Queue Length 95th (ft)	131	58	58	53	78	162	m40	m187	m72
Internal Link Dist (ft)		1052		923		484		175	
Turn Bay Length (ft)	135		115		135		155		
Base Capacity (vph)	663	374	167	181	214	1714	142	830	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.23	0.28	0.36	0.34	0.31	0.23	0.32	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	468	18	1233	21	382
v/c Ratio	0.73	0.06	0.57	0.18	0.16
Control Delay	44.9	13.5	4.1	47.0	5.9
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	44.9	13.5	4.2	47.0	5.9
Queue Length 50th (ft)	145	0	42	13	38
Queue Length 95th (ft)	188	18	74	36	65
Internal Link Dist (ft)	1189		432		313
Turn Bay Length (ft)	325	325		200	
Base Capacity (vph)	794	379	2191	123	2381
Starvation Cap Reductn	0	0	163	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.05	0.61	0.17	0.16

Intersection Summary



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	132	250	102	297	192	833	553	850
v/c Ratio	0.68	0.49	0.39	0.84	0.77	0.41	0.49	0.64
Control Delay	60.3	7.9	48.3	39.4	61.5	12.8	2.7	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	7.9	48.3	39.4	61.5	12.8	2.7	31.9
Queue Length 50th (ft)	80	0	32	84	116	152	0	133
Queue Length 95th (ft)	#154	62	58	#180	#216	210	48	354
Internal Link Dist (ft)				1433		182		432
Turn Bay Length (ft)	185		275		235		235	
Base Capacity (vph)	213	539	280	417	272	2033	1135	1330
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.46	0.36	0.71	0.71	0.41	0.49	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	540	571	347	292	98	643	182	823	249	361	186
v/c Ratio	0.68	0.98	0.52	0.99	0.43	1.06	0.68	0.97	0.70	0.37	0.21
Control Delay	41.6	75.8	16.9	92.9	45.6	79.6	56.5	50.0	48.9	30.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	75.8	16.9	92.9	45.6	79.6	56.5	50.0	48.9	30.8	2.7
Queue Length 50th (ft)	170	193	101	188	58	354	120	138	148	96	0
Queue Length 95th (ft)	#246	#305	170	#356	108	#598	m151	#370	#251	148	35
Internal Link Dist (ft)		1361			443			101		646	
Turn Bay Length (ft)	610		350	265		335			300		110
Base Capacity (vph)	795	581	736	295	257	609	355	845	354	983	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.98	0.47	0.99	0.38	1.06	0.51	0.97	0.70	0.37	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	543	212	75	118	100	377	117	368	389
v/c Ratio	0.80	0.45	0.49	0.60	0.58	0.30	0.60	0.50	0.45
Control Delay	46.7	11.0	53.9	28.8	55.9	23.6	54.7	21.9	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	11.0	53.9	28.8	55.9	23.6	54.7	21.9	6.5
Queue Length 50th (ft)	168	17	46	20	61	87	77	145	48
Queue Length 95th (ft)	224	79	92	76	115	135	m118	m263	m81
Internal Link Dist (ft)		1052		923		484		175	
Turn Bay Length (ft)	135		115		135		155		
Base Capacity (vph)	762	497	176	225	194	1282	232	750	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.43	0.43	0.52	0.52	0.29	0.50	0.49	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	489	33	1418	21	638
v/c Ratio	0.77	0.10	0.67	0.20	0.27
Control Delay	43.2	11.3	7.8	44.7	6.2
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	43.2	11.3	7.9	44.7	6.2
Queue Length 50th (ft)	135	0	128	11	68
Queue Length 95th (ft)	187	24	101	35	94
Internal Link Dist (ft)	1189		432		313
Turn Bay Length (ft)	325	325		200	
Base Capacity (vph)	696	347	2123	107	2339
Starvation Cap Reductn	0	0	90	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.10	0.70	0.20	0.27

Intersection Summary



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	41	154	117	345	196	1054	482	1129
v/c Ratio	0.40	0.44	0.47	0.90	0.82	0.49	0.43	0.77
Control Delay	52.7	9.8	46.6	49.3	65.4	10.8	2.2	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	9.8	46.6	49.3	65.4	10.8	2.2	31.6
Queue Length 50th (ft)	23	0	33	122	110	179	0	234
Queue Length 95th (ft)	#57	51	61	#275	#226	233	39	#449
Internal Link Dist (ft)				1433		182		432
Turn Bay Length (ft)	185		275		235		235	
Base Capacity (vph)	103	397	252	405	245	2153	1119	1462
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.39	0.46	0.85	0.80	0.49	0.43	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	551	608	213	205	20	654	137	740	330	279	199
v/c Ratio	0.53	0.97	0.30	0.96	0.17	1.19	0.64	0.97	0.83	0.25	0.18
Control Delay	29.0	66.8	3.9	94.4	42.6	125.8	51.6	52.9	51.8	23.8	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	66.8	3.9	94.4	42.6	125.8	51.6	52.9	51.8	23.8	1.6
Queue Length 50th (ft)	120	182	0	118	11	~422	79	228	179	62	0
Queue Length 95th (ft)	205	#292	43	#254	33	#538	113	#312	#320	96	25
Internal Link Dist (ft)		1361			443			101		646	
Turn Bay Length (ft)	610		350	265		335			300		110
Base Capacity (vph)	1041	628	725	213	129	550	249	766	399	1097	1123
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.97	0.29	0.96	0.16	1.19	0.55	0.97	0.83	0.25	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	348	84	47	65	72	530	33	268	357
v/c Ratio	0.65	0.25	0.31	0.38	0.44	0.32	0.26	0.33	0.40
Control Delay	40.8	17.6	43.2	27.0	45.8	16.1	43.4	15.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	17.6	43.2	27.0	45.8	16.1	43.4	15.1	5.7
Queue Length 50th (ft)	96	17	26	15	39	97	14	90	0
Queue Length 95th (ft)	134	54	58	52	80	162	m42	m194	m70
Internal Link Dist (ft)		1052		923		484		175	
Turn Bay Length (ft)	135		115		135		155		
Base Capacity (vph)	665	376	167	182	209	1710	137	827	894
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.22	0.28	0.36	0.34	0.31	0.24	0.32	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	470	18	1237	21	385
v/c Ratio	0.73	0.06	0.57	0.18	0.16
Control Delay	44.9	13.5	4.2	47.0	5.9
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	44.9	13.5	4.3	47.0	5.9
Queue Length 50th (ft)	146	0	43	13	39
Queue Length 95th (ft)	189	18	76	36	66
Internal Link Dist (ft)	1189		432		313
Turn Bay Length (ft)	325	325		200	
Base Capacity (vph)	794	380	2188	123	2379
Starvation Cap Reductn	0	0	165	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.05	0.61	0.17	0.16

Intersection Summary



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	132	251	127	297	193	836	577	854
v/c Ratio	0.68	0.53	0.47	0.84	0.77	0.41	0.50	0.64
Control Delay	60.3	8.7	49.7	39.6	61.6	12.8	2.7	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	8.7	49.7	39.6	61.6	12.8	2.7	32.1
Queue Length 50th (ft)	80	0	40	85	117	153	0	135
Queue Length 95th (ft)	#154	62	70	#182	#217	210	49	356
Internal Link Dist (ft)				1433		182		432
Turn Bay Length (ft)	185		275		235		235	
Base Capacity (vph)	213	540	285	416	272	2031	1145	1328
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.46	0.45	0.71	0.71	0.41	0.50	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	540	571	371	291	98	643	205	855	249	391	186
v/c Ratio	0.68	0.98	0.55	0.99	0.43	1.06	0.72	1.01	0.70	0.41	0.21
Control Delay	41.6	75.8	18.6	92.0	45.6	79.6	58.0	60.8	48.9	32.1	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	75.8	18.6	92.0	45.6	79.6	58.0	60.8	48.9	32.1	2.8
Queue Length 50th (ft)	170	193	120	187	58	354	134	~215	148	107	0
Queue Length 95th (ft)	#246	#305	197	#354	108	#598	m178	#396	#251	160	35
Internal Link Dist (ft)		1361			443			101		646	
Turn Bay Length (ft)	610		350	265		335			300		110
Base Capacity (vph)	795	581	728	295	257	609	355	844	354	950	873
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.98	0.51	0.99	0.38	1.06	0.58	1.01	0.70	0.41	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	549	209	75	118	100	380	117	373	392
v/c Ratio	0.80	0.44	0.49	0.60	0.58	0.30	0.60	0.51	0.46
Control Delay	46.8	10.7	53.9	28.8	55.9	23.7	54.3	23.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	10.7	53.9	28.8	55.9	23.7	54.3	23.5	6.4
Queue Length 50th (ft)	170	15	46	20	61	88	74	154	47
Queue Length 95th (ft)	226	76	92	76	115	136	m119	m271	m78
Internal Link Dist (ft)		1052		923		484		175	
Turn Bay Length (ft)	135		115		135		155		
Base Capacity (vph)	764	496	176	225	194	1279	232	748	863
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.42	0.43	0.52	0.52	0.30	0.50	0.50	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

ARCO Shingle Springs TIS

1: Ponderosa Road & Wild Chaparral Drive/N Shingle Rd

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2	56	309	7	21	78	606	173	13	440	15
Future Volume (veh/h)	7	2	56	309	7	21	78	606	173	13	440	15
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		0.98
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	8	2	62	343	8	23	87	673	192	14	489	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	73	18	80	366	9	25	88	708	214	25	917	33
Arrive On Green	0.05	0.05	0.05	0.23	0.23	0.23	0.10	0.10	0.10	0.27	0.27	0.27
Sat Flow, veh/h	1405	351	1547	1584	37	106	306	2454	743	93	3404	124
Grp Volume(v), veh/h	10	0	62	374	0	0	514	0	438	273	0	247
Grp Sat Flow(s),veh/h/ln	1756	0	1547	1728	0	0	1811	0	1692	1821	0	1800
Q Serve(g_s), s	0.6	0.0	4.1	22.1	0.0	0.0	29.5	0.0	26.6	13.4	0.0	12.1
Cycle Q Clear(g_c), s	0.6	0.0	4.1	22.1	0.0	0.0	29.5	0.0	26.6	13.4	0.0	12.1
Prop In Lane	0.80		1.00	0.92		0.06	0.17		0.44	0.05		0.07
Lane Grp Cap(c), veh/h	91	0	80	399	0	0	522	0	488	491	0	485
V/C Ratio(X)	0.11	0.00	0.77	0.94	0.00	0.00	0.98	0.00	0.90	0.56	0.00	0.51
Avail Cap(c_a), veh/h	238	0	210	399	0	0	522	0	488	491	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.86	0.00	0.86	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.0	0.0	48.7	39.3	0.0	0.0	46.8	0.0	45.5	32.7	0.0	32.2
Incr Delay (d2), s/veh	0.2	0.0	5.8	29.6	0.0	0.0	32.5	0.0	16.4	4.5	0.0	3.8
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	0.3	0.0	1.7	12.3	0.0	0.0	18.9	0.0	14.2	6.3	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	0.0	54.6	68.9	0.0	0.0	79.3	0.0	61.9	37.2	0.0	35.9
LnGrp LOS	D	A	D	E	A	A	E	A	E	D	A	D
Approach Vol, veh/h		72			374			952			520	
Approach Delay, s/veh		53.5			68.9			71.3			36.6	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	10.0	32.0	28.0	34.0
Change Period (Y+Rc), s	4.6	* 4	4.0	4.0
Max Green Setting (Gmax), s	14.1	* 19	24.0	30.0
Max Q Clear Time (g_c+I1), s	6.1	15.4	24.1	31.5
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	60.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	99	0	198	0	659	523	0	344	461
Future Volume (veh/h)	0	0	0	99	0	198	0	659	523	0	344	461
Initial Q (Qb), veh				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
Parking Bus, Adj				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	
Adj Sat Flow, veh/h/ln				1811	0	1811	0	1811	1811	0	1811	1811
Adj Flow Rate, veh/h				105	0	211	0	701	0	0	366	490
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				6	0	6	0	6	6	0	6	6
Cap, veh/h				269	0	239	0	2640		0	1389	1177
Arrive On Green				0.16	0.00	0.16	0.00	1.00	0.00	0.00	0.25	0.25
Sat Flow, veh/h				1725	0	1535	0	3622	0	0	1811	1535
Grp Volume(v), veh/h				105	0	211	0	701	0	0	366	490
Grp Sat Flow(s),veh/h/ln				1725	0	1535	0	1721	0	0	1811	1535
Q Serve(g_s), s				5.7	0.0	14.0	0.0	0.0	0.0	0.0	16.8	27.7
Cycle Q Clear(g_c), s				5.7	0.0	14.0	0.0	0.0	0.0	0.0	16.8	27.7
Prop In Lane				1.00		1.00	0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				269	0	239	0	2640		0	1389	1177
V/C Ratio(X)				0.39	0.00	0.88	0.00	0.27		0.00	0.26	0.42
Avail Cap(c_a), veh/h				448	0	398	0	2640		0	1389	1177
HCM Platoon Ratio				1.00	1.00	1.00	1.00	2.00	2.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.56	0.00	0.00	0.77	0.77
Uniform Delay (d), s/veh				39.5	0.0	43.0	0.0	0.0	0.0	0.0	15.3	19.4
Incr Delay (d2), s/veh				0.3	0.0	6.7	0.0	0.1	0.0	0.0	0.4	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
%ile BackOfQ(50%),veh/ln				2.4	0.0	5.7	0.0	0.1	0.0	0.0	8.2	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				39.8	0.0	49.7	0.0	0.1	0.0	0.0	15.7	20.2
LnGrp LOS				D	A	D	A	A		A	B	C
Approach Vol, veh/h					316			701			856	
Approach Delay, s/veh					46.4			0.1			18.3	
Approach LOS					D			A			B	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	83.8	20.2	83.8
Change Period (Y+Rc), s	* 4	* 4	* 4
Max Green Setting (Gmax), s	* 69	* 27	* 69
Max Q Clear Time (g_c+I1), s	29.7	16.0	2.0
Green Ext Time (p_c), s	1.2	0.2	2.1

Intersection Summary	
HCM 6th Ctrl Delay	16.2
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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	408	111	121	17	521	70	292	75	191	123	129
Future Volume (veh/h)	369	408	111	121	17	521	70	292	75	191	123	129
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	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	393	434	118	129	18	554	74	311	80	203	131	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	415	644	174	149	157	719	88	393	211	408	263	
Arrive On Green	0.24	0.24	0.24	0.09	0.09	0.09	0.14	0.14	0.14	0.13	0.13	0.00
Sat Flow, veh/h	1725	2679	722	1725	1811	1535	641	2858	1531	1068	689	0
Grp Volume(v), veh/h	393	277	275	129	18	554	205	180	80	334	0	0
Grp Sat Flow(s),veh/h/ln	1725	1721	1681	1725	1811	1535	1779	1721	1531	1758	0	0
Q Serve(g_s), s	23.3	15.2	15.4	7.7	1.0	9.0	11.7	10.5	4.9	18.4	0.0	0.0
Cycle Q Clear(g_c), s	23.3	15.2	15.4	7.7	1.0	9.0	11.7	10.5	4.9	18.4	0.0	0.0
Prop In Lane	1.00		0.43	1.00		1.00	0.36		1.00	0.61		0.00
Lane Grp Cap(c), veh/h	415	414	404	149	157	719	245	237	211	671	0	
V/C Ratio(X)	0.95	0.67	0.68	0.86	0.11	0.77	0.84	0.76	0.38	0.50	0.00	
Avail Cap(c_a), veh/h	415	414	404	149	157	719	445	430	383	671	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.55	0.55	0.55	0.95	0.00	0.00
Uniform Delay (d), s/veh	38.9	35.8	35.9	46.9	43.8	17.1	43.7	43.2	40.8	36.2	0.0	0.0
Incr Delay (d2), s/veh	30.8	3.4	3.8	36.2	0.1	4.7	17.1	11.9	2.9	0.2	0.0	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	3.0	6.5	6.5	4.7	0.4	15.2	6.3	5.2	2.0	8.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	39.2	39.6	83.1	43.9	21.8	60.8	55.1	43.7	36.4	0.0	0.0
LnGrp LOS	E	D	D	F	D	C	E	E	D	D	A	
Approach Vol, veh/h		945			701			465			334	
Approach Delay, s/veh		52.0			33.6			55.7			36.4	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	43.7	13.0	18.3	29.0
Change Period (Y+Rc), s	* 4	* 4	4.0	4.0
Max Green Setting (Gmax), s	* 28	* 9	26.0	25.0
Max Q Clear Time (g_c+I1), s	20.4	11.0	13.7	25.3
Green Ext Time (p_c), s	0.3	0.0	0.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	11	36	6	8	30	61	281	19	0	184	171
Future Volume (veh/h)	126	11	36	6	8	30	61	281	19	0	184	171
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	0	1796	1796
Adj Flow Rate, veh/h	135	12	39	6	9	32	66	302	20	0	198	184
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, %	7	7	7	7	7	7	7	7	7	0	7	7
Cap, veh/h	158	14	46	9	13	46	79	379	26	0	442	411
Arrive On Green	0.13	0.13	0.13	0.04	0.04	0.04	0.14	0.14	0.14	0.00	0.52	0.52
Sat Flow, veh/h	1214	108	351	203	305	1083	574	2765	191	0	857	796
Grp Volume(v), veh/h	186	0	0	47	0	0	203	0	185	0	0	382
Grp Sat Flow(s),veh/h/ln	1672	0	0	1591	0	0	1768	0	1762	0	0	1653
Q Serve(g_s), s	11.3	0.0	0.0	3.0	0.0	0.0	11.7	0.0	10.5	0.0	0.0	15.1
Cycle Q Clear(g_c), s	11.3	0.0	0.0	3.0	0.0	0.0	11.7	0.0	10.5	0.0	0.0	15.1
Prop In Lane	0.73		0.21	0.13		0.68	0.32		0.11	0.00		0.48
Lane Grp Cap(c), veh/h	218	0	0	68	0	0	243	0	242	0	0	852
V/C Ratio(X)	0.85	0.00	0.00	0.69	0.00	0.00	0.84	0.00	0.76	0.00	0.00	0.45
Avail Cap(c_a), veh/h	328	0	0	112	0	0	335	0	334	0	0	852
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	0.00	1.00	0.00	0.00	0.33
Uniform Delay (d), s/veh	44.3	0.0	0.0	49.1	0.0	0.0	43.7	0.0	43.2	0.0	0.0	15.9
Incr Delay (d2), s/veh	8.7	0.0	0.0	4.5	0.0	0.0	9.5	0.0	4.1	0.0	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	5.2	0.0	0.0	1.3	0.0	0.0	5.7	0.0	4.8	0.0	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	0.0	0.0	53.6	0.0	0.0	53.2	0.0	47.4	0.0	0.0	16.4
LnGrp LOS	D	A	A	D	A	A	D	A	D	A	A	B
Approach Vol, veh/h		186			47			388			382	
Approach Delay, s/veh		52.9			53.6			50.4			16.4	
Approach LOS		D			D			D			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	57.7	8.6	19.6	18.2
Change Period (Y+Rc), s	4.1	4.1	5.3	4.6
Max Green Setting (Gmax), s	38.5	7.3	19.7	20.4
Max Q Clear Time (g_c+I1), s	17.1	5.0	13.7	13.3
Green Ext Time (p_c), s	0.9	0.0	0.6	0.3

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	10	351	49	10	216
Future Vol, veh/h	26	10	351	49	10	216
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	7	7	7	7	2
Mvmt Flow	30	11	403	56	11	248

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	701	431	0	0	459	0
Stage 1	431	-	-	-	-	-
Stage 2	270	-	-	-	-	-
Critical Hdwy	6.47	6.27	-	-	4.17	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	-	-	2.263	-
Pot Cap-1 Maneuver	397	614	-	-	1076	-
Stage 1	645	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	392	614	-	-	1076	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	645	-	-	-	-	-
Stage 2	755	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0.4
HCM LOS	B		

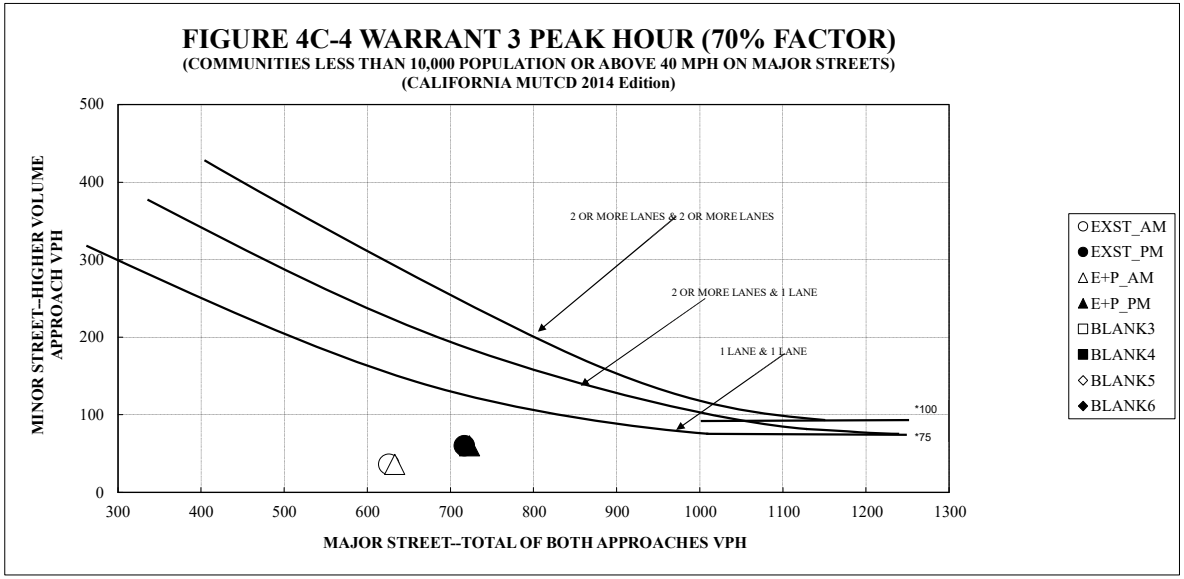
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	1076	-
HCM Lane V/C Ratio	-	-	0.095	0.011	-
HCM Control Delay (s)	-	-	14.1	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Appendix C

Signal Warrant Worksheets

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	626	36	NO
EXST_PM	717	60	NO
E+P_AM	633	36	NO
E+P_PM	723	60	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **May 23, 2024** Intersection No.: **5**

Intersection: **Sunset Ln / S Shingle Rd**

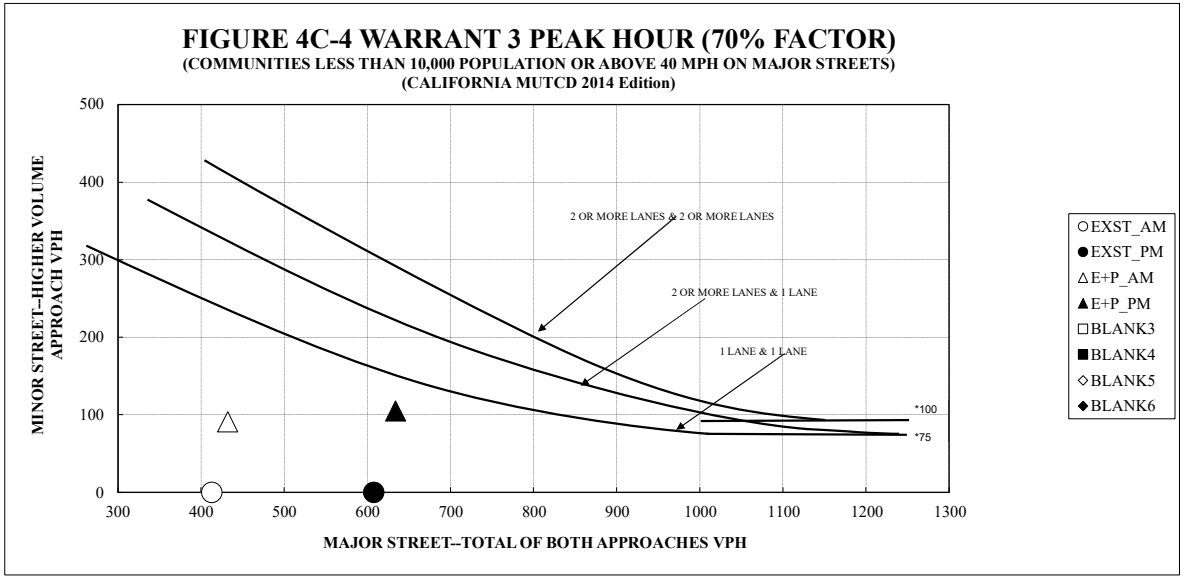
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	413	0	NO
EXST_PM	608	0	NO
E+P_AM	432	91	NO
E+P_PM	634	105	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **May 23, 2024** Intersection No.: **6**

Intersection: **Project Driveway 2 / Durock Rd**

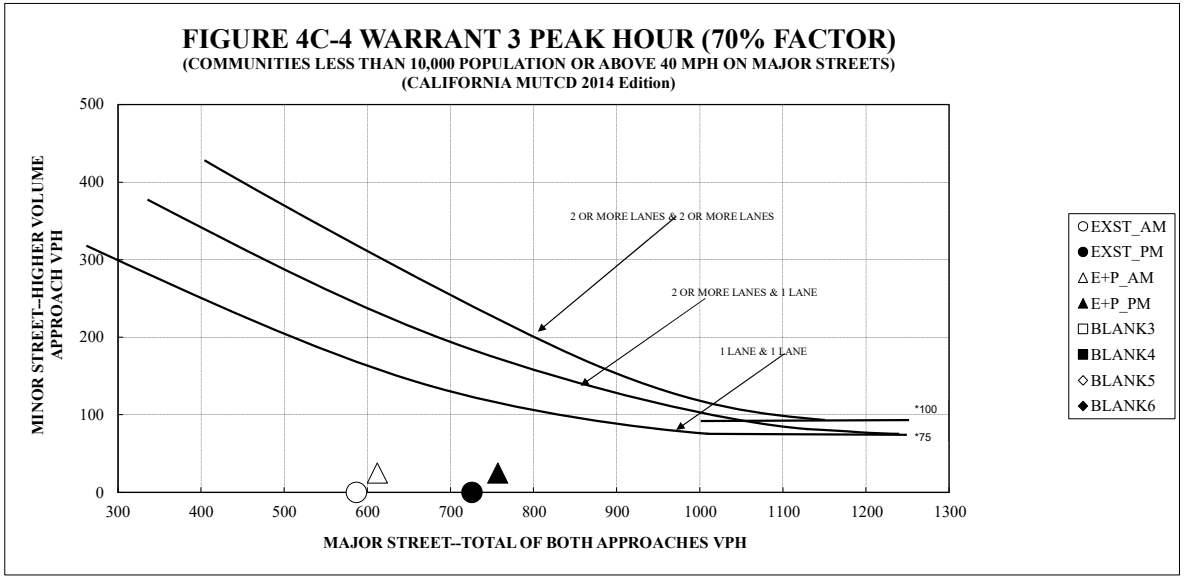
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	587	0	NO
EXST_PM	726	0	NO
E+P_AM	612	25	NO
E+P_PM	757	25	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **May 23, 2024** Intersection No.: **7**

Intersection: **S Shingle Road / Project Driveway 1**

Number of lanes on MAJOR street: **1**

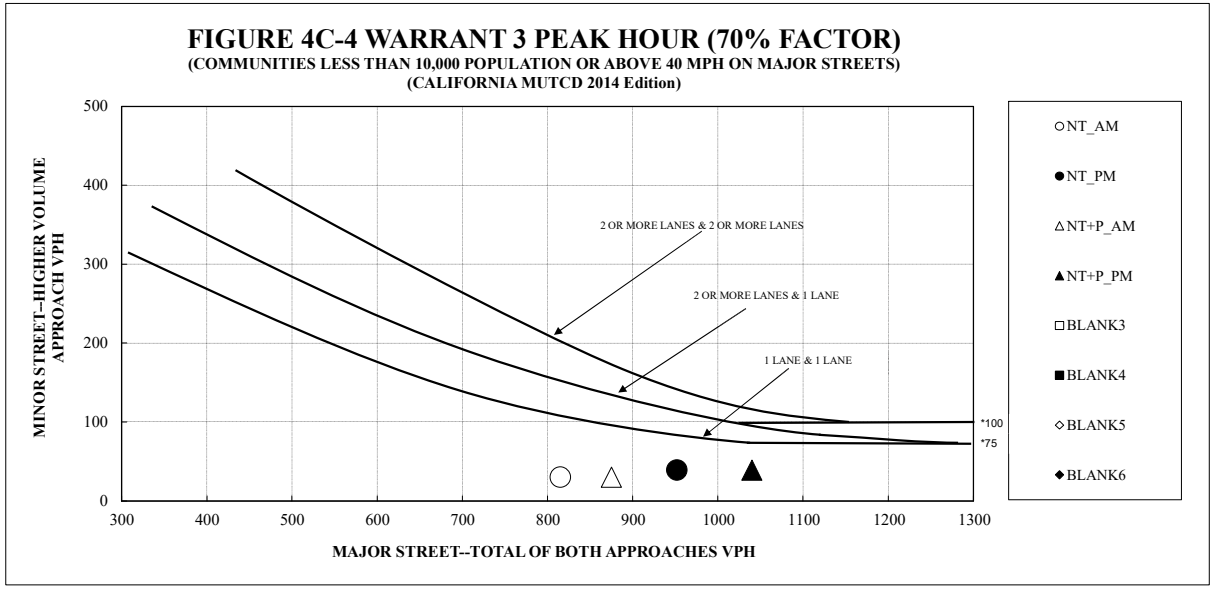
Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Attachment I

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
NT_AM	815	30	NO
NT_PM	952	39	NO
NT+P_AM	875	30	NO
NT+P_PM	1040	39	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **4**

Intersection: **S Shingle Road / Park and Ride Driveway**

Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

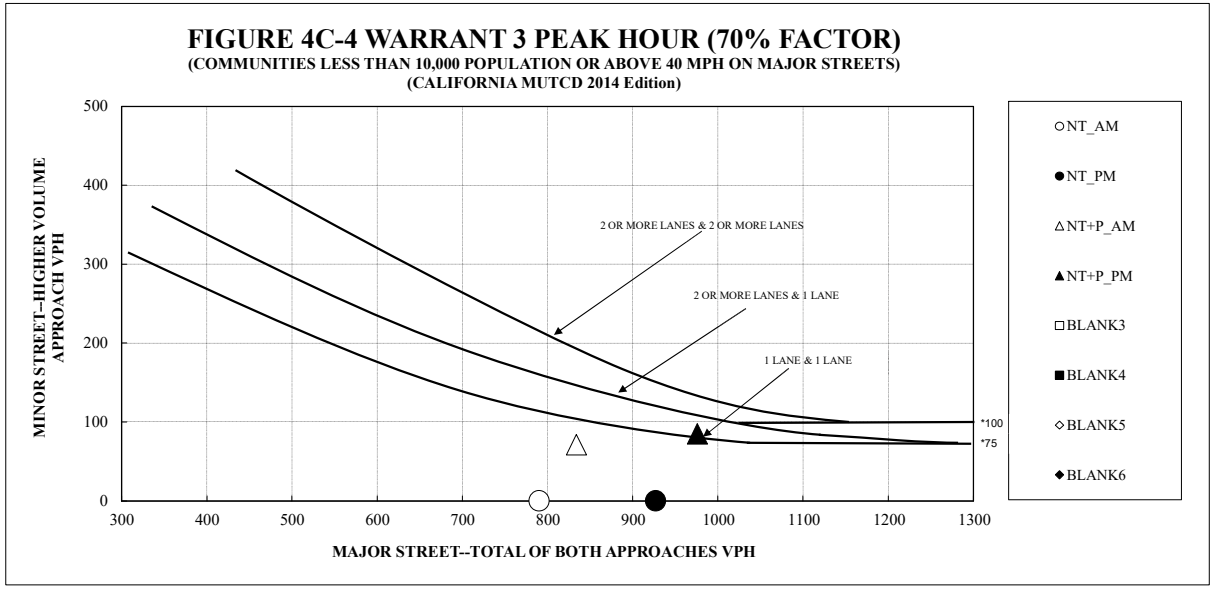
WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\Traffic\Analysis\Signal Warrants\Near-Term\CA_MUTCDSigWarrantNo3AM_PM_WAR-70%.xls
INT4

Attachment I

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
NT_AM	790	0	NO
NT_PM	927	0	NO
NT+P_AM	834	71	NO
NT+P_PM	976	85	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **7**

Intersection: **S Shingle Road / Project Driveway 2**

Number of lanes on MAJOR street: **1**

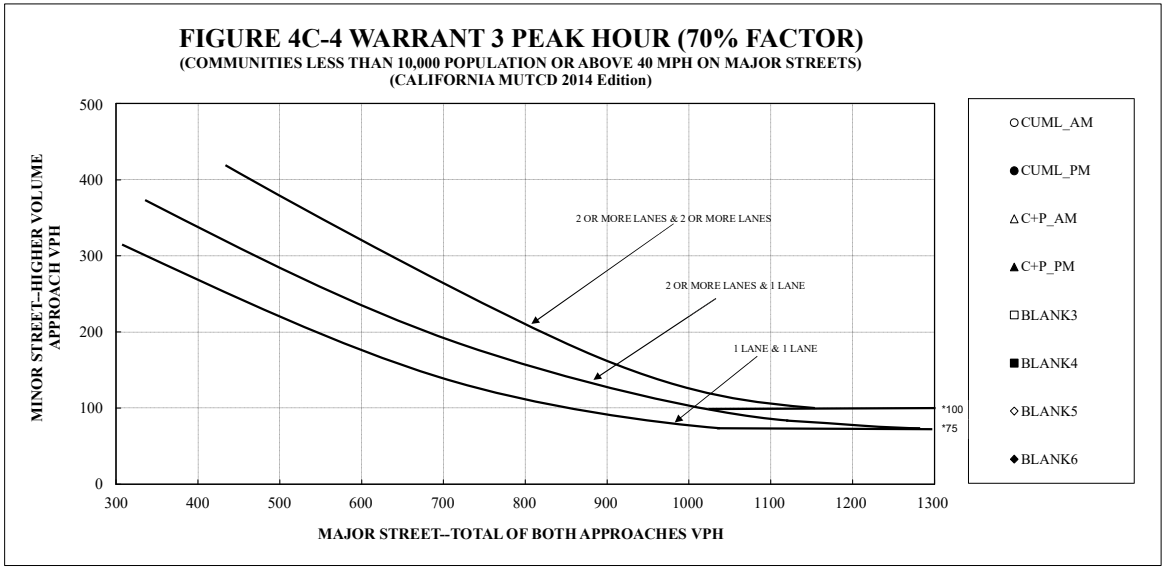
Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\Traffic\Analysis\Signal Warrants\Near-Term\CA_MUTCDSigWarrantNo3AM_PM_WAR-70%.xls
INT7

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
CUML_AM	1365	30	NO
CUML_PM	1718	39	NO
C+P_AM	1425	30	NO
C+P_PM	1806	39	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **4**

Intersection: **South Shingle Road & Park-and-Ride Driveway**

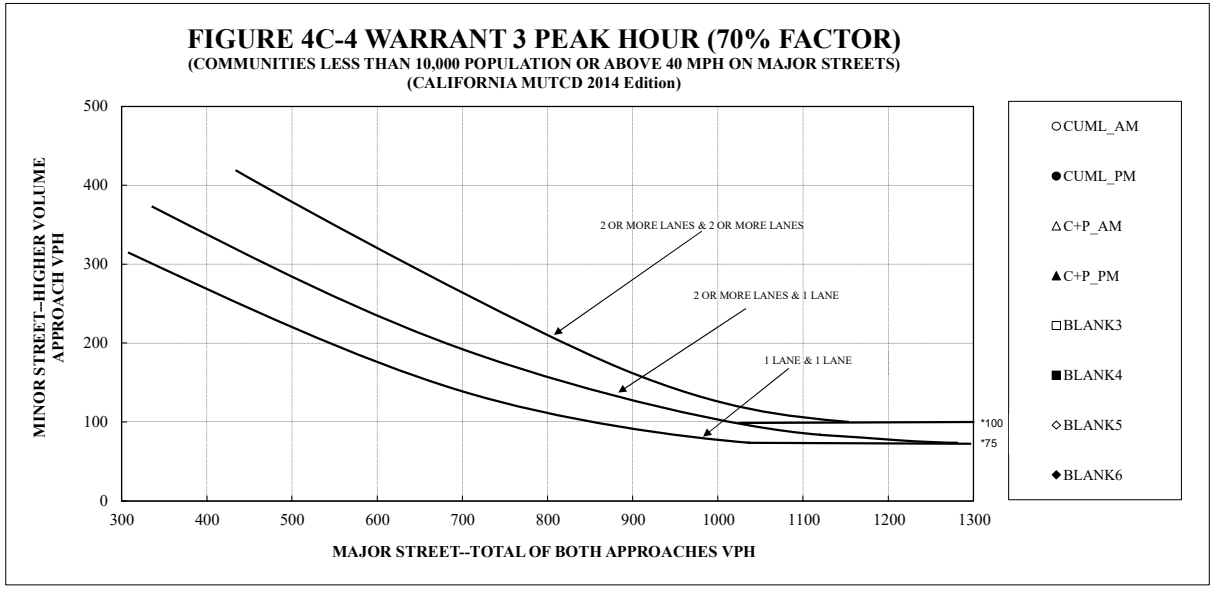
Number of lanes on MAJOR street: **2**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
CUML_AM	1344	0	NO
CUML_PM	1706	0	NO
C+P_AM	1388	71	NO
C+P_PM	1755	85	YES
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **7**

Intersection: **South Shingle Road & Project Driveway**

Number of lanes on MAJOR street: **2**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix D

Project Driveway Sight Distance Exhibit

Attachment I

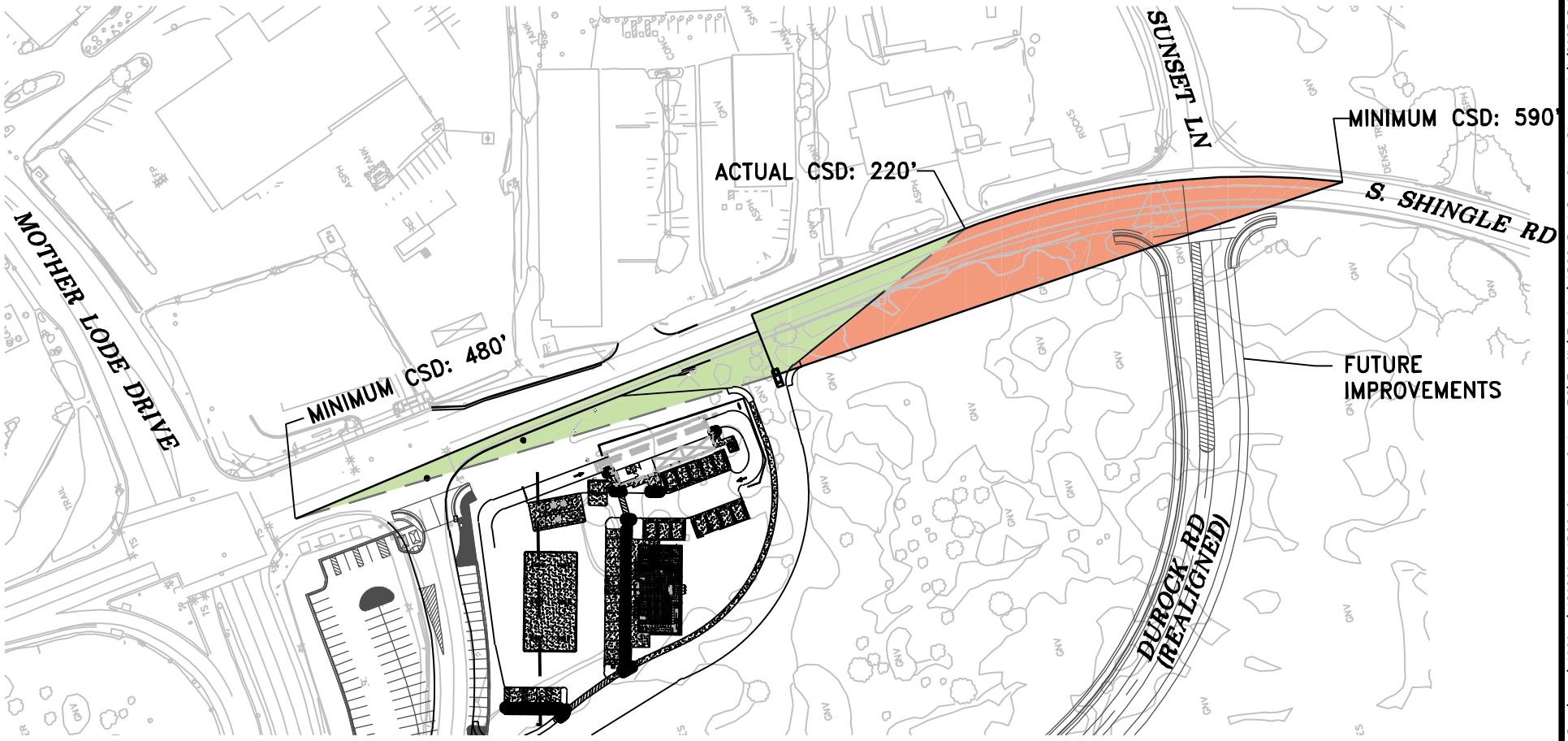
CORNER SIGHT DISTANCE (CSD) TRIANGLES - LEFT-TURN/RIGHT-TURN FROM STOP

ARCO SHINGLE SPRINGS

EL DORADO COUNTY

EL DORADO COUNTY **CALIFORNIA**

DECEMBER, 2022



150' 75' 0 150'

SCALE: 1" = 150'

LEGEND

REQUIRED CLEAR AREA

VISIBLE AREA

LINE OF SIGHT

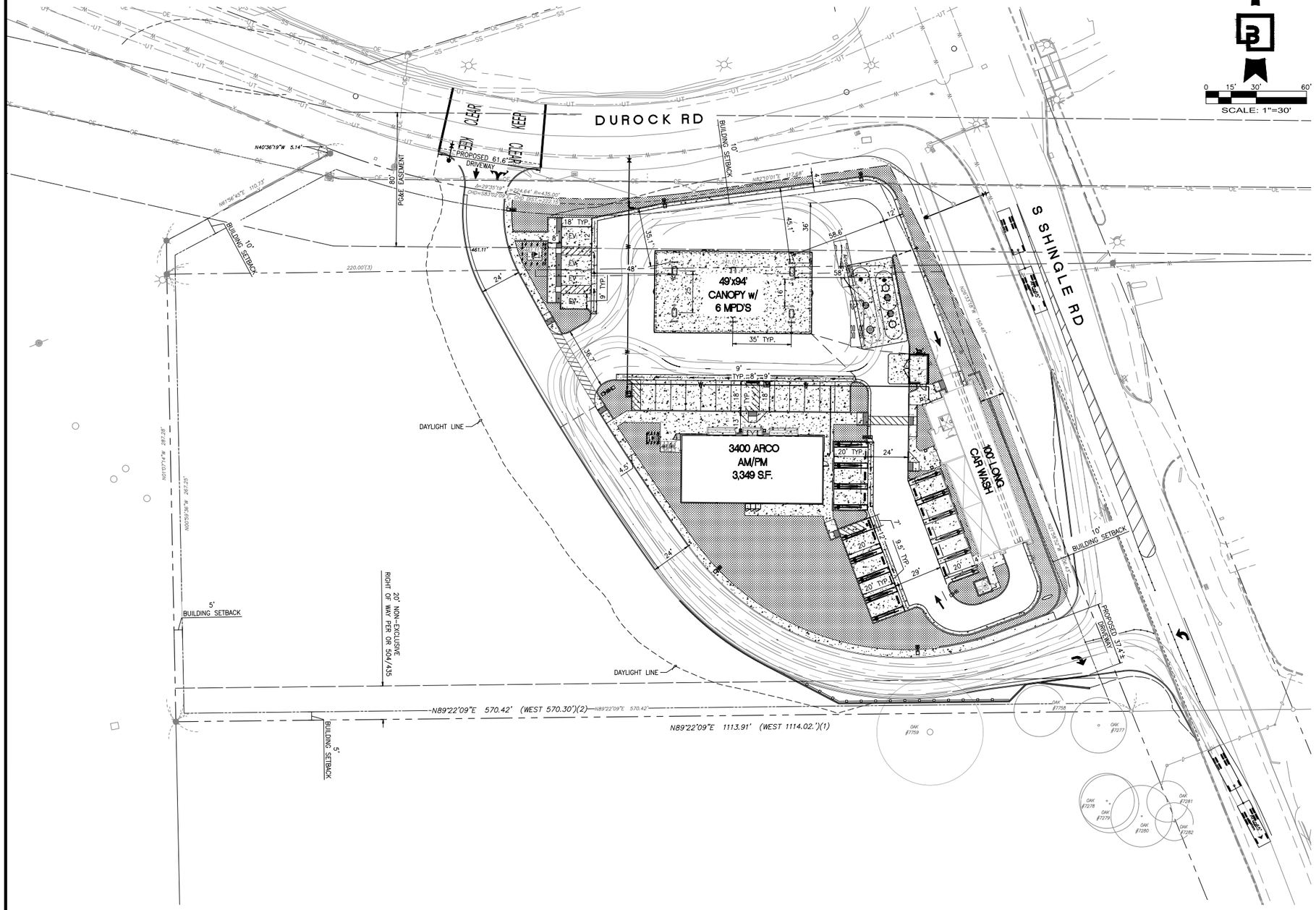
WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\Traffic\Exhibits\ARCO_Proj_Dwy_Sight_Dist.dwg 1/1/2023 5:28 PM Nicole Scappaticci

Appendix E

Existing Conditions Project Access

PRELIMINARY SITE PLAN



N

0 15' 30' 60'

SCALE: 1"=30'



VICINITY MAP

PROJECT DATA

LOCATION:	4100 DUROCK RD @ S SHINGLE RD SHINGLE SPRINGS, CALIFORNIA
APN'S:	109-080-012-000, 109-080-013-000
PROPOSED LOT AREA:	±160,986.25 S.F. (3.69 AC)
ZONING:	COMMUNITY COMMERCIAL (CC)
FLOOD ZONE:	FEMA INDICATES THAT THE MAJORITY OF THE SITE IS WITHIN FLOOD ZONE AREA X – AN AREA DETERMINED TO BE OUTSIDE OF THE 0.2% CHANCE FLOODPLAIN.

BUILDING SETBACKS:

FRONT SETBACK:	10 FEET
STREET SIDE:	10 FEET
SIDE INTERIOR:	5 FEET
REAR:	5 FEET

LANDSCAPING:

FRONT AND SIDE STREET SETBACKS MUST BE LANDSCAPED.

INTERIOR AND REAR PROPERTY LINES – MINIMUM OF 5 FOOT PLANTER

LANDSCAPING SHALL BE PROVIDED IN PAVED PARKING LOTS OF FIVE SPACES OR MORE AND SHALL PROVIDE SHADE OVER 50 PERCENT OF ALL PAVED PARKING AREAS.

LANDSCAPING AREAS WITHIN A PARKING FACILITY SHALL HAVE A MINIMUM WIDTH OF FIVE FEET AND A MINIMUM AREA OF 25 SQUARE FEET, EXCLUSIVE OF ANY CURBS.

LANDSCAPE AREA PROVIDED (SEE PRELIMINARY LANDSCAPE PLANS): 14,800 SF
SHADING COVERAGE PROVIDED (SEE PRELIMINARY LANDSCAPE PLANS): 52.3%

PARKING REQUIREMENTS (PER TABLE 130.35.030.1 OF EL DORADO COUNTY CODE):

C-STORE: 3,349 SF
(1 PER 300 S.F. OF AUA; PLUS 1 PER 600 OF STORAGE AREA):
3,349/300 = 11.2 = 12 SPACES

CARWASH: 1 WASHING STALL
(CAR WASH 2 PER WASHING STALL)
1*2 = 2 SPACES

PARKING SPACES REQUIRED: 14 SPACES
PARKING SPACES PROVIDED: 13 SPACES
VACUUM SPACES PROVIDED: 12 SPACES
FUTURE EV CHARGING SPACES: 4 SPACES

BICYCLE PARKING REQUIREMENTS:

SHORT-TERM BICYCLE PARKING SPACES REQUIRED (PER PARKING AND LOADING COMMUNITY DESIGN STANDARDS):
(1 PER EVERY 5 REQUIRED VEHICLE PARKING SPACES)
14/5 = 2.8 = 3 SPACES

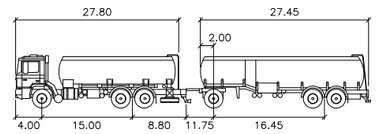
SHORT-TERM BICYCLE PARKING SPACES PROVIDED: 4 SPACES (2 PER RACK)

LONG-TERM BICYCLE PARKING SPACES REQUIRED (PER SECTION 5.106.4.1.2 OF CGBC):
(FOR NEW BUILDINGS WITH TENANT SPACES THAT HAVE 10 OR MORE TENANT-OCCUPANTS, PROVIDE PARKING FOR 5% OF TENANT-OCCUPANT VEHICULAR SPACES)
0 TENANT SPACES = 0 SPACES

LONG-TERM BICYCLE PARKING SPACES PROVIDED: 0 SPACES

DRAINAGE NOTE:

DRAINAGE REQUIREMENTS AND DISCHARGE LOCATION COORDINATION IS ON GOING. DRAINAGE DESIGN SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE.



Arco65'
feet

First Part Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 35.0
First Part Track	: 7.70	Articulating Angle	: 70.0
Trailer Track	: 7.70		

Preliminary Not For Construction

CLIENT:
bp
ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

SEAL:

LICENSED PROFESSIONAL ENGINEER
KACEY C. HELD
19465
CIVIL
STATE OF CALIFORNIA
Not for Construction

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's
CAR WASH

SITE ADDRESS:

4100 DUROCK RD
@ S SHINGLE ROAD
SHINGLE SPRINGS, CALIFORNIA

FACILITY #TBD

DESIGNED BY:	EVS	ALLIANCE Z&DM:	
CHECKED BY:	KCH	BP REPM:	
DRAWN BY:	NW	ALLIANCE PM:	
VERSION:	- -	PROJECT NO:	21863

DRAWING TITLE:

PRELIMINARY SITE PLAN

SHEET NO:

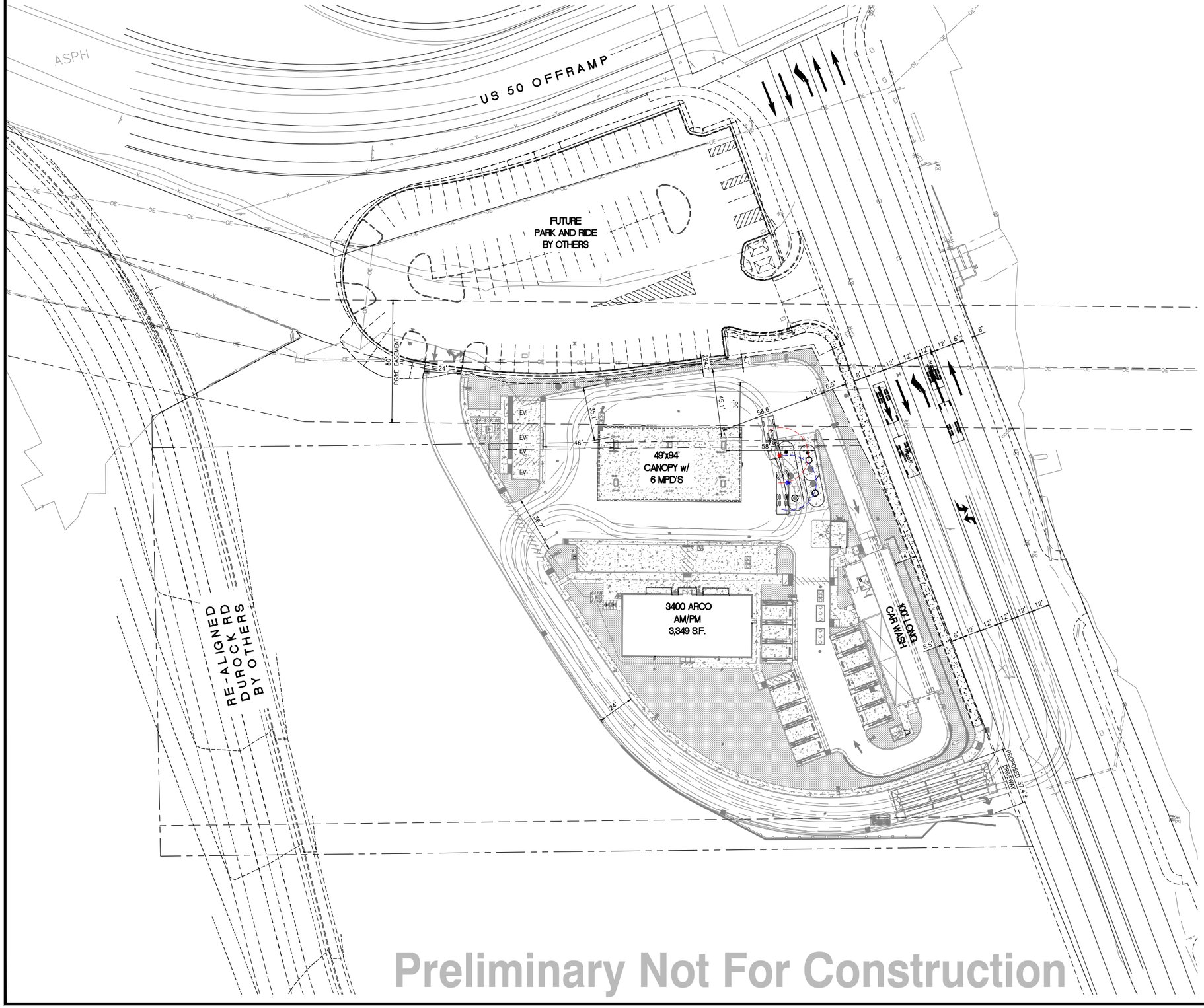
PSP

File:P:\21000s\21863\preliminary\21863 SP-2.dwg Date/Time:6/27/2025 10:19 AM Scale:1" = 1' RPADILLA Xref: ----

Appendix F

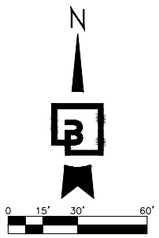
Cumulative Conditions Project Access

ULTIMATE CONDITION





VICINITY MAP



Preliminary Not For Construction

bp

ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen
Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

SEAL:

LICENSED PROFESSIONAL ENGINEER
KACEY C. FIELD
69465
CIVIL
STATE OF CALIFORNIA

Not for Construction

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's
CAR WASH

SITE ADDRESS:

4100 DUROCK RD
@ S SHINGLE ROAD
SHINGLE SPRINGS, CALIFORNIA

FACILITY #TBD

DESIGNED BY:	EVS	ALLIANCE Z&DM:	
CHECKED BY:	KCH	BP REPM:	
DRAWN BY:	NW	ALLIANCE PM:	
VERSION:	-	PROJECT NO:	21863

DRAWING TITLE:

ULTIMATE CONDITION

SHEET NO:

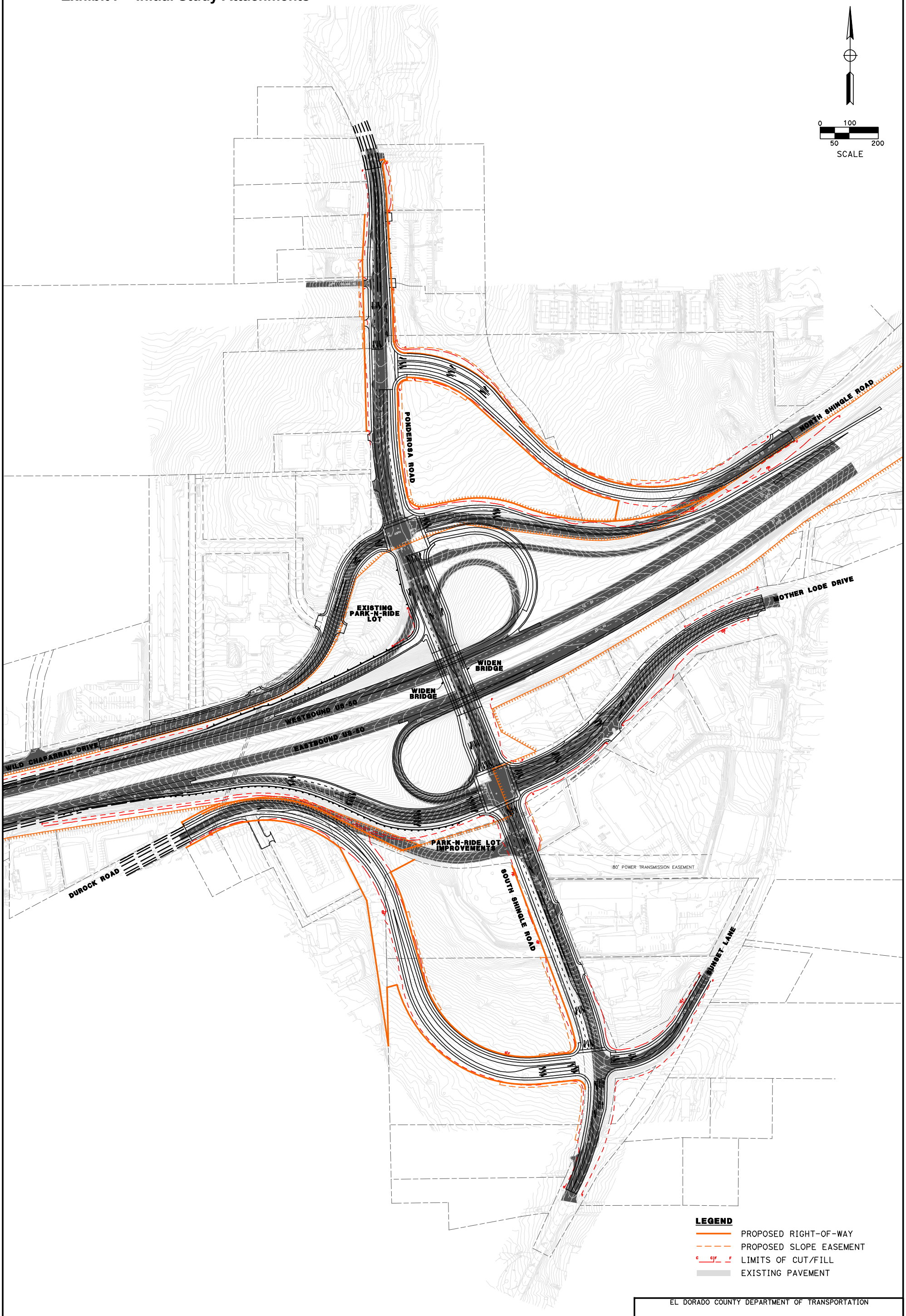
SP-2

File:P:\21000s\21863\preliminary\Civil\21863-UC EXHIBIT.dwg Date/Time:7/28/2025 9:45 AM Scale:1" = 1' EBENUTO Xref: ~~~~

Appendix G

US-50/Ponderosa Road/South Shingle Springs Road Interchange Improvements Project – Build Alternative 1 Exhibit

Attachment I



EL DORADO COUNTY DEPARTMENT OF TRANSPORTATION

Figure 2: Build Alternative 1

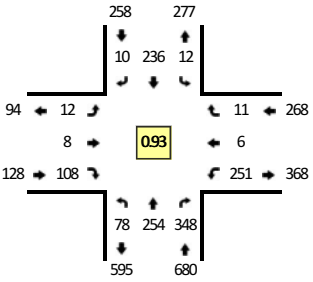
US-50/PONDEROSA ROAD INTERCHANGE

DRAWN BY: JRBI	DAVID EVANS AND ASSOCIATES INC. 1544 Eureka Road, Suite 200 Roseville California 95661 Phone: 916.781.9383	JOB NO.	SHEET 1 OF 3
CHECKED BY: JORO		FILE NO. 03-2E5500	
DATE: 9-19-08			
SCALE: 1" = 300'			

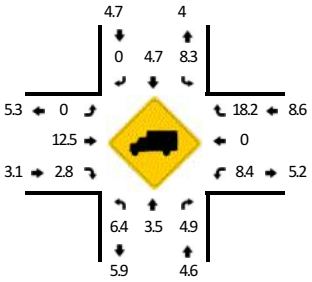
LOCATION: Ponderosa Road -- Wild Chaparral Drive-N Shingle Road
CITY/STATE: Shingle Springs, CA

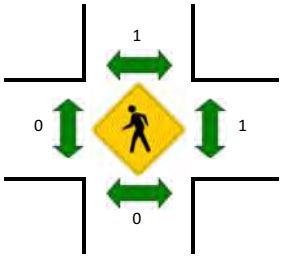
QC JOB #: 15821102
DATE: Wed, May 18 2022

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

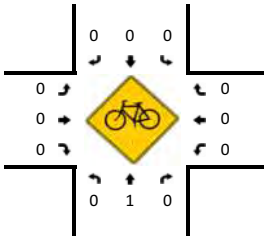


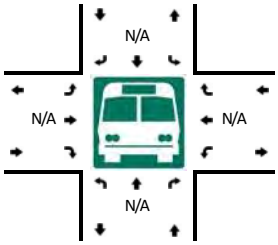


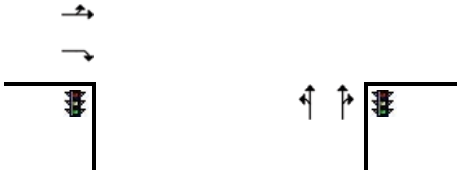


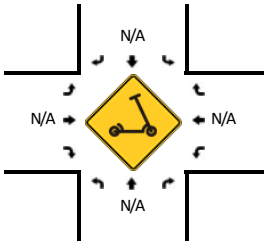












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Wild Chaparral Drive-N Shingle Road (Eastbound)				Wild Chaparral Drive-N Shingle Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	24	27	0	1	24	2	0	1	1	10	0	26	2	0	0	125	
4:05 PM	7	24	26	0	0	25	2	0	3	0	16	0	14	1	0	0	118	
4:10 PM	7	23	26	0	2	22	0	0	1	0	8	0	25	1	0	0	115	
4:15 PM	7	25	26	0	0	22	3	0	2	0	4	0	23	1	1	0	114	
4:20 PM	7	17	22	0	3	23	0	0	0	0	7	0	15	0	3	0	97	
4:25 PM	12	11	34	0	1	27	0	0	0	2	9	0	21	0	2	0	119	
4:30 PM	9	20	38	0	2	19	0	0	2	1	4	0	18	0	0	0	113	
4:35 PM	6	20	40	0	0	19	1	0	0	0	8	0	28	0	2	0	124	
4:40 PM	1	25	29	0	1	16	1	0	0	2	9	0	13	0	0	0	97	
4:45 PM	3	29	27	0	1	7	1	0	1	2	12	0	25	1	0	0	109	
4:50 PM	8	18	23	0	0	18	0	0	1	0	7	0	25	0	0	0	100	
4:55 PM	4	18	30	0	1	14	0	0	1	0	14	0	18	0	3	0	103	1334
5:00 PM	6	24	29	0	0	12	0	0	2	2	13	0	17	0	1	0	106	1315
5:05 PM	9	25	24	0	2	16	1	0	1	0	4	0	22	1	1	0	106	1303
5:10 PM	5	20	39	0	1	27	0	0	1	0	8	0	23	2	2	0	128	1316
5:15 PM	1	31	35	0	0	16	1	0	0	2	10	0	14	0	1	0	111	1313
5:20 PM	5	25	28	0	1	23	1	0	1	0	9	0	9	0	1	0	103	1319
5:25 PM	6	23	33	0	2	19	1	0	0	1	2	0	13	0	2	0	102	1302
5:30 PM	5	29	26	0	0	18	1	0	0	0	3	0	26	0	0	0	108	1297
5:35 PM	1	25	23	0	1	7	0	0	0	0	6	0	15	1	2	0	81	1254
5:40 PM	7	31	24	0	2	21	0	0	0	1	5	0	25	1	2	0	119	1276
5:45 PM	7	27	31	0	0	19	1	0	0	1	5	0	13	0	3	0	107	1274
5:50 PM	8	29	33	0	0	18	2	0	1	0	6	0	12	0	0	0	109	1283
5:55 PM	10	30	22	0	3	6	2	0	0	0	6	0	17	2	1	0	99	1279

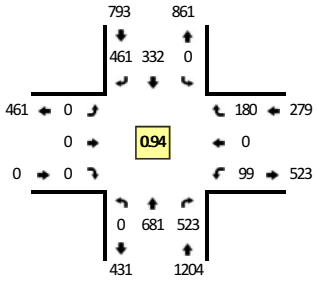
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	84	284	316	0	12	284	16	0	20	4	136	0	260	16	0	0	1432
Heavy Trucks	4	4	12		0	12	0		0	0	4		8	0	0		44
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

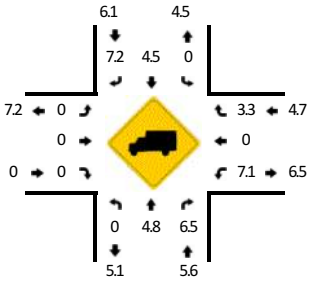
LOCATION: Ponderosa Road -- Westbound US-50 Ramps
CITY/STATE: Shingle Springs, CA

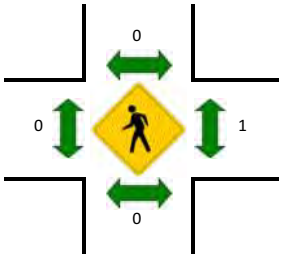
QC JOB #: 15821103
DATE: Wed, May 18 2022

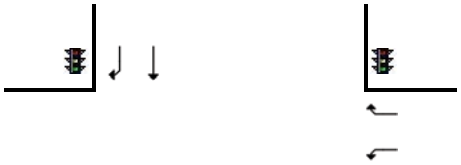
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:05 AM -- 8:20 AM

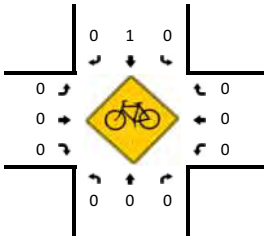


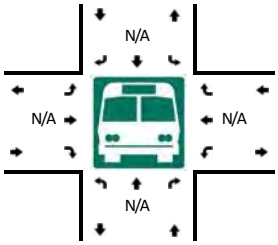


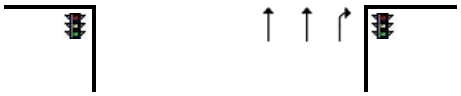


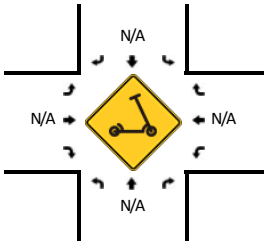












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Westbound US-50 Ramps (Eastbound)				Westbound US-50 Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	13	29	0	0	8	12	0	0	0	0	0	6	0	5	0	73	
7:05 AM	0	13	24	0	0	8	23	0	0	0	0	0	10	0	6	0	84	
7:10 AM	0	19	32	0	0	13	36	0	0	0	0	0	5	1	4	0	110	
7:15 AM	0	22	42	0	0	14	35	0	0	0	0	0	4	0	6	0	123	
7:20 AM	0	27	42	0	0	5	42	0	0	0	0	0	5	0	7	0	128	
7:25 AM	0	34	40	0	0	12	33	0	0	0	0	0	7	0	8	0	134	
7:30 AM	0	39	55	0	0	12	41	0	0	0	0	0	15	0	5	0	167	
7:35 AM	0	40	39	0	0	29	46	0	0	0	0	0	4	0	13	0	171	
7:40 AM	0	32	55	0	0	26	49	0	0	0	0	0	6	0	12	0	180	
7:45 AM	0	61	52	0	0	26	28	0	0	0	0	0	9	0	9	0	185	
7:50 AM	0	64	55	0	0	27	28	0	0	0	0	0	11	0	16	0	201	
7:55 AM	0	82	35	0	0	18	41	0	0	0	0	0	12	0	9	0	197	1753
8:00 AM	0	43	28	0	0	26	51	0	0	0	0	0	5	0	22	0	175	1855
8:05 AM	0	76	50	0	0	36	37	0	0	0	0	0	4	0	12	0	215	1986
8:10 AM	0	77	34	0	0	21	29	0	0	0	0	0	12	0	29	0	202	2078
8:15 AM	0	40	42	0	0	45	41	0	0	0	0	0	6	0	13	0	187	2142
8:20 AM	0	79	37	0	0	23	36	0	0	0	0	0	11	0	20	0	206	2220
8:25 AM	0	48	41	0	0	43	34	0	0	0	0	0	4	0	20	0	190	2276
8:30 AM	0	28	44	0	0	29	36	0	0	0	0	0	3	0	13	0	153	2262
8:35 AM	0	27	45	0	0	39	30	0	0	0	0	0	2	0	10	0	153	2244
8:40 AM	0	33	47	0	0	21	27	0	0	0	0	0	3	0	12	0	143	2207
8:45 AM	0	40	32	0	0	35	18	0	0	0	0	0	10	0	27	0	162	2184
8:50 AM	0	41	41	0	0	26	33	0	0	0	0	0	9	0	25	0	175	2158
8:55 AM	0	26	46	0	0	22	32	0	0	0	0	0	13	0	21	0	160	2121

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	772	504	0	0	408	428	0	0	0	0	0	88	0	216	0	2416
Heavy Trucks	0	44	24		0	20	36		0	0	0		0	0	12		136
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

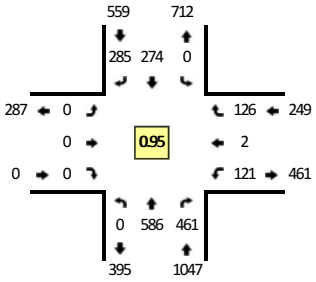
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

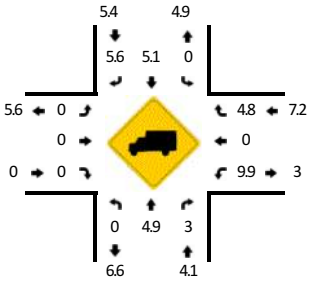
LOCATION: Ponderosa Road -- Westbound US-50 Ramps
CITY/STATE: Shingle Springs, CA

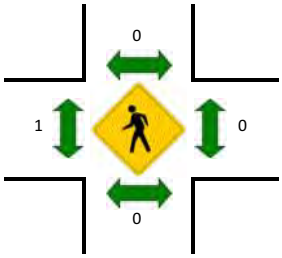
QC JOB #: 15821104
DATE: Wed, May 18 2022

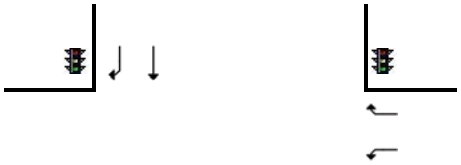
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

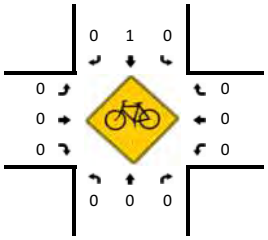


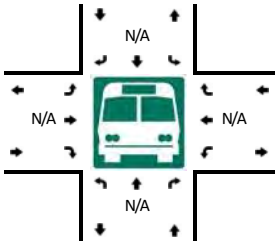


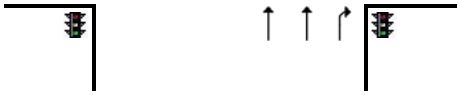


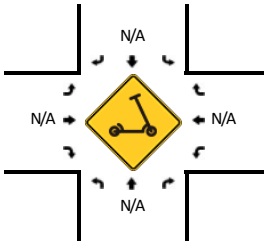












5-Min Count Period Beginning At	Ponderosa Road (Northbound)				Ponderosa Road (Southbound)				Westbound US-50 Ramps (Eastbound)				Westbound US-50 Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	47	27	0	0	28	31	0	0	0	0	0	16	0	14	0	163	
4:05 PM	0	47	36	0	0	24	34	0	0	0	0	0	10	0	9	0	160	
4:10 PM	0	45	34	0	0	27	30	0	0	0	0	0	12	0	18	0	166	
4:15 PM	0	47	39	0	0	23	27	0	0	0	0	0	6	0	10	0	152	
4:20 PM	0	31	38	0	0	22	20	0	0	0	0	0	8	0	5	0	124	
4:25 PM	0	54	39	0	0	34	25	0	0	0	0	0	7	0	6	0	165	
4:30 PM	0	54	33	0	0	16	28	0	0	0	0	0	11	0	10	0	152	
4:35 PM	0	57	39	0	0	29	24	0	0	0	0	0	7	0	8	0	164	
4:40 PM	0	48	44	0	0	22	17	0	0	0	0	0	11	1	9	0	152	
4:45 PM	0	46	33	0	0	16	30	0	0	0	0	0	10	0	13	0	148	
4:50 PM	0	42	39	0	0	18	30	0	0	0	0	0	12	0	12	0	153	
4:55 PM	0	45	31	0	0	27	19	0	0	0	0	0	9	1	8	0	140	1839
5:00 PM	0	45	40	0	0	17	24	0	0	0	0	0	15	0	12	0	153	1829
5:05 PM	0	44	37	0	0	15	27	0	0	0	0	0	10	0	12	0	145	1814
5:10 PM	0	53	49	0	0	33	26	0	0	0	0	0	8	0	10	0	179	1827
5:15 PM	0	49	46	0	0	22	17	0	0	0	0	0	12	0	19	0	165	1840
5:20 PM	0	49	31	0	0	25	18	0	0	0	0	0	9	0	7	0	139	1855
5:25 PM	0	57	24	0	0	19	15	0	0	0	0	0	11	0	5	0	131	1821
5:30 PM	0	48	28	0	0	26	20	0	0	0	0	0	10	0	11	0	143	1812
5:35 PM	0	47	25	0	0	18	10	0	0	0	0	0	9	0	9	0	118	1766
5:40 PM	0	52	33	0	0	24	27	0	0	0	0	0	8	0	12	0	156	1770
5:45 PM	0	45	35	0	0	18	9	0	0	0	0	0	10	0	12	0	129	1751
5:50 PM	0	58	25	0	0	13	23	0	0	0	0	0	10	0	18	0	147	1745
5:55 PM	0	50	19	0	0	15	14	0	0	0	0	0	5	0	5	0	108	1713

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	584	528	0	0	280	280	0	0	0	0	0	120	0	164	0	1956
Heavy Trucks	0	12	20		0	20	8		0	0	0		4	0	8		72
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

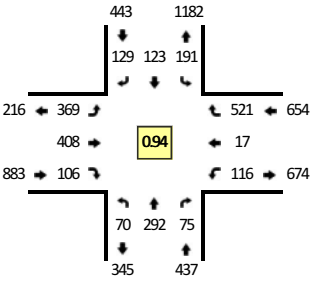
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

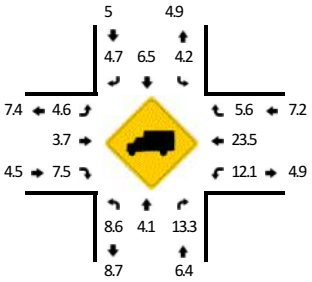
LOCATION: S Shingle Road -- Eastbound US-50 Ramps-Mother Lode Drive
CITY/STATE: Shingle Springs, CA

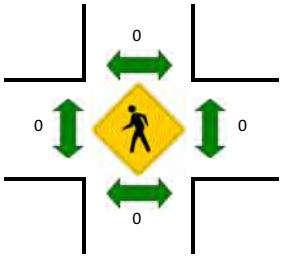
QC JOB #: 15821105
DATE: Wed, May 18 2022

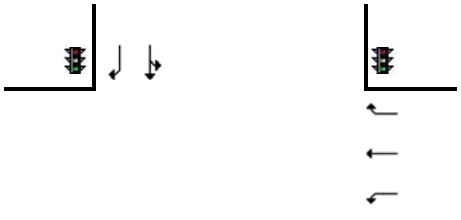
Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

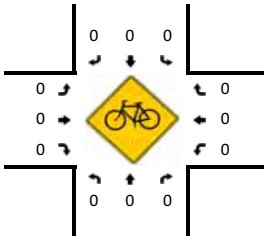


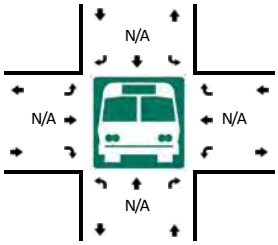


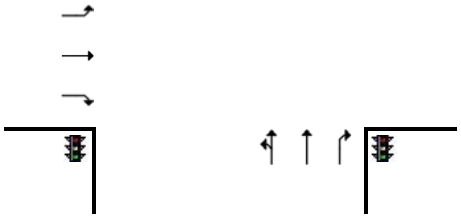


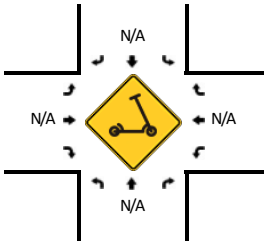












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Eastbound US-50 Ramps-Mother Lode Drive (Eastbound)				Eastbound US-50 Ramps-Mother Lode Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	11	1	0	2	9	3	0	11	10	8	0	8	2	25	0	94	
7:05 AM	4	7	0	0	4	10	3	0	11	16	4	0	8	2	22	0	91	
7:10 AM	8	13	1	0	6	9	1	0	13	14	2	0	6	1	25	0	99	
7:15 AM	4	19	4	0	5	7	5	0	12	19	7	0	10	0	32	0	124	
7:20 AM	5	20	4	0	4	3	5	0	13	26	10	0	6	2	39	0	137	
7:25 AM	6	13	4	0	6	5	3	0	31	15	7	0	8	3	28	0	129	
7:30 AM	12	22	5	0	11	12	4	0	17	20	5	0	10	0	48	0	166	
7:35 AM	12	26	3	0	10	11	10	0	22	19	11	0	10	2	38	0	174	
7:40 AM	3	27	7	0	14	5	14	0	30	21	8	0	6	1	46	0	182	
7:45 AM	7	23	7	0	15	10	8	0	34	29	7	0	6	1	48	0	195	
7:50 AM	4	28	8	0	14	10	8	0	45	29	8	0	6	2	41	0	203	
7:55 AM	7	34	9	0	13	12	10	0	38	42	7	0	11	2	44	0	229	1823
8:00 AM	8	23	5	0	13	10	7	0	39	31	9	0	11	1	44	0	201	1930
8:05 AM	5	33	0	0	12	10	5	0	40	36	9	0	12	0	49	0	211	2050
8:10 AM	3	15	2	0	21	10	13	0	29	44	10	0	9	1	39	0	196	2147
8:15 AM	7	29	7	0	17	15	12	0	25	38	11	0	7	1	53	0	222	2245
8:20 AM	10	22	7	0	20	10	13	0	30	40	12	0	12	1	38	0	215	2323
8:25 AM	3	26	6	0	15	13	14	0	26	38	10	0	12	2	36	0	201	2395
8:30 AM	5	19	9	0	17	12	12	0	11	25	9	0	10	3	40	0	172	2401
8:35 AM	8	13	8	0	20	6	13	0	22	35	6	0	14	2	43	0	190	2417
8:40 AM	6	12	10	0	16	8	10	0	18	24	9	0	13	3	47	0	176	2411
8:45 AM	7	11	11	0	13	6	17	0	25	28	10	0	8	2	38	0	176	2392
8:50 AM	3	15	4	0	13	14	7	0	29	30	8	0	17	3	44	0	187	2376
8:55 AM	7	8	5	0	17	11	9	0	15	24	5	0	14	2	47	0	164	2311

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	80	360	56	0	152	128	88	0	468	436	100	0	136	12	548	0	2564
Heavy Trucks	4	8	8		12	0	0		24	8	4		24	4	32		128
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

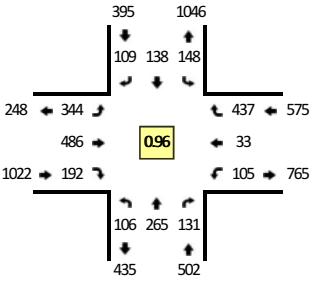
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

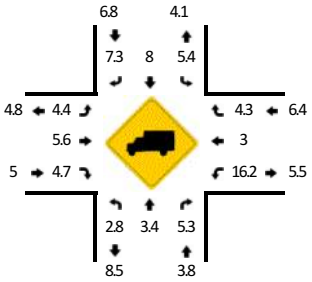
LOCATION: S Shingle Road -- Eastbound US-50 Ramps-Mother Lode Drive
CITY/STATE: Shingle Springs, CA

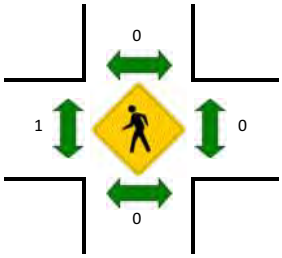
QC JOB #: 15821106
DATE: Wed, May 18 2022

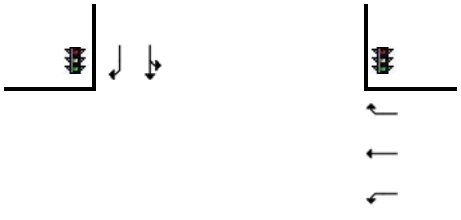
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

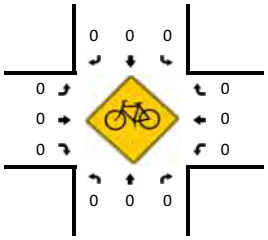


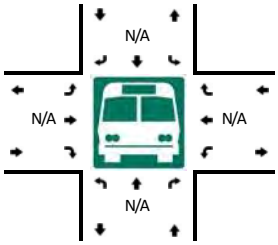


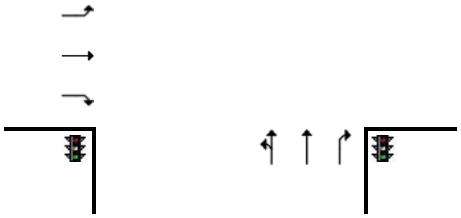


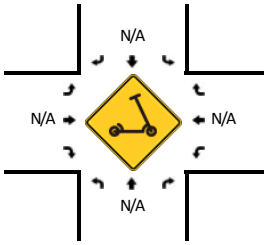












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Eastbound US-50 Ramps-Mother Lode Drive (Eastbound)				Eastbound US-50 Ramps-Mother Lode Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	19	8	0	9	19	15	0	33	42	10	0	13	0	20	0	197	
4:05 PM	4	22	14	0	15	15	11	0	25	39	18	0	5	5	32	0	205	
4:10 PM	6	23	7	0	13	17	11	0	27	26	20	0	7	4	32	0	193	
4:15 PM	15	17	9	0	8	18	10	0	26	36	18	0	10	0	47	0	214	
4:20 PM	7	16	8	0	10	12	9	0	16	23	18	0	12	3	38	0	172	
4:25 PM	13	25	17	0	12	11	5	0	36	47	16	0	8	2	40	0	232	
4:30 PM	10	22	18	0	14	16	9	0	22	30	19	0	6	3	37	0	206	
4:35 PM	8	29	5	0	15	9	12	0	32	35	19	0	11	3	34	0	212	
4:40 PM	13	19	10	0	11	12	7	0	29	42	18	0	11	1	40	0	213	
4:45 PM	6	19	9	0	7	14	8	0	28	49	16	0	10	4	34	0	204	
4:50 PM	8	22	12	0	14	11	5	0	27	48	19	0	9	6	31	0	212	
4:55 PM	7	17	3	0	16	9	11	0	25	38	18	0	5	1	41	0	191	2451
5:00 PM	6	24	14	0	12	14	9	0	22	39	10	0	9	2	37	0	198	2452
5:05 PM	8	19	8	0	10	8	4	0	30	31	7	0	9	5	39	0	178	2425
5:10 PM	9	31	11	0	17	10	12	0	36	39	20	0	4	0	32	0	221	2453
5:15 PM	10	17	13	0	11	17	10	0	29	40	17	0	15	4	39	0	222	2461
5:20 PM	8	21	11	0	9	7	17	0	28	48	13	0	8	2	33	0	205	2494
5:25 PM	7	13	12	0	13	12	8	0	40	51	15	0	9	6	27	0	213	2475
5:30 PM	5	14	10	0	15	13	8	0	33	36	19	0	3	2	32	0	190	2459
5:35 PM	5	8	7	0	12	13	3	0	37	33	16	0	8	2	31	0	175	2422
5:40 PM	5	26	6	0	12	7	22	0	30	35	12	0	3	1	26	0	185	2394
5:45 PM	2	20	5	0	9	8	8	0	34	33	5	0	5	3	35	0	167	2357
5:50 PM	6	15	4	0	8	12	9	0	30	37	13	0	4	3	34	0	175	2320
5:55 PM	3	14	5	0	8	8	6	0	30	41	19	0	4	0	22	0	160	2289

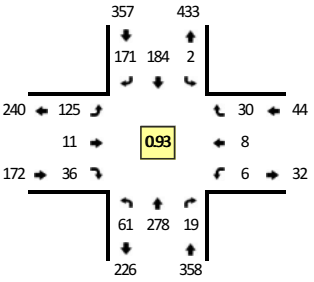
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	124	304	160	0	164	144	104	0	360	448	216	0	100	32	444	0	2600
Heavy Trucks	8	20	12		4	16	8		16	28	8		12	0	20		152
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

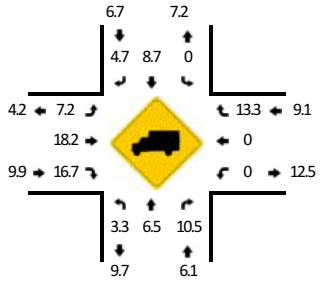
LOCATION: S Shingle Road -- Durock Road
CITY/STATE: Shingle Springs, CA

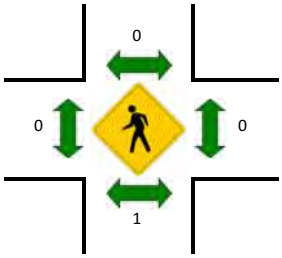
QC JOB #: 15821107
DATE: Wed, May 18 2022

Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

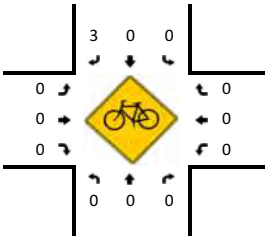


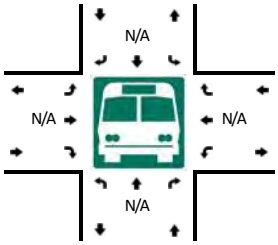




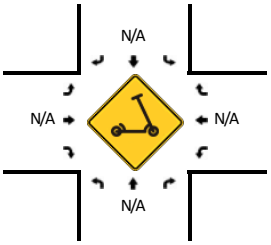












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Durock Road (Eastbound)				Durock Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	4	2	0	0	8	22	0	3	2	2	0	0	1	2	0	50	
7:05 AM	4	8	0	0	0	6	13	0	2	1	2	0	0	0	4	0	40	
7:10 AM	2	13	1	0	0	6	13	0	5	0	1	0	0	0	1	0	42	
7:15 AM	2	17	2	0	0	12	10	0	8	1	3	0	0	0	3	0	58	
7:20 AM	2	18	1	0	0	12	7	0	8	1	1	0	0	1	3	0	54	
7:25 AM	4	30	0	0	0	12	10	0	10	0	5	0	0	1	2	0	74	
7:30 AM	3	31	2	0	0	8	14	0	4	0	4	0	0	0	2	0	68	
7:35 AM	3	21	1	0	0	17	14	0	10	1	3	0	0	0	1	0	71	
7:40 AM	6	24	0	0	0	10	10	0	6	1	4	0	0	1	3	0	65	
7:45 AM	5	27	1	0	1	10	15	0	11	0	1	0	1	0	1	0	73	
7:50 AM	5	32	1	0	0	9	20	0	9	4	4	0	0	0	2	0	86	
7:55 AM	8	27	4	0	0	16	14	0	11	0	2	0	0	0	2	0	84	765
8:00 AM	3	22	1	0	0	19	11	0	12	1	4	0	1	2	4	0	80	795
8:05 AM	2	29	4	0	0	13	14	0	7	1	5	0	2	1	2	0	80	835
8:10 AM	5	18	3	0	0	16	13	0	13	0	5	0	1	0	4	0	78	871
8:15 AM	9	27	1	0	0	20	10	0	12	2	2	0	0	0	3	0	86	899
8:20 AM	4	15	2	0	0	18	17	0	13	1	1	0	1	1	4	0	77	922
8:25 AM	4	17	0	0	0	20	16	0	8	0	3	0	0	2	3	0	73	921
8:30 AM	7	19	1	0	1	16	17	0	13	0	2	0	0	1	1	0	78	931
8:35 AM	5	15	0	0	0	7	22	0	13	1	1	0	0	0	0	0	64	924
8:40 AM	4	18	0	0	0	11	19	0	10	1	1	0	1	0	2	0	67	926
8:45 AM	6	13	1	0	0	11	12	0	12	2	2	0	1	0	1	0	61	914
8:50 AM	5	16	0	0	1	17	17	0	4	0	0	0	0	1	1	0	62	890
8:55 AM	6	12	2	0	0	7	20	0	14	0	3	0	0	0	0	0	64	870

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	64	324	24	0	0	176	180	0	128	20	40	0	4	8	32	0	1000
Heavy Trucks	0	24	4		0	8	4		8	8	8		0	0	8		72
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

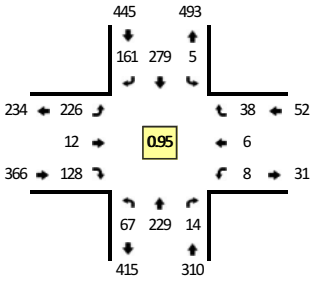
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

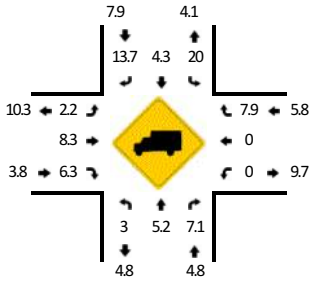
LOCATION: S Shingle Road -- Durock Road
CITY/STATE: Shingle Springs, CA

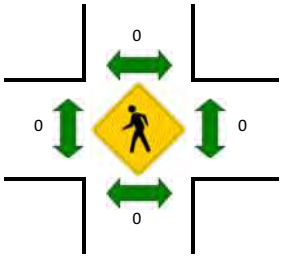
QC JOB #: 15821108
DATE: Wed, May 18 2022

Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

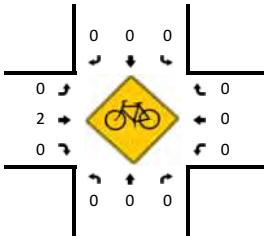


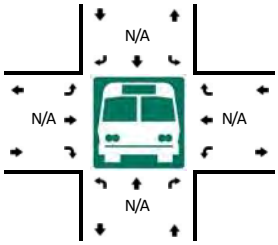




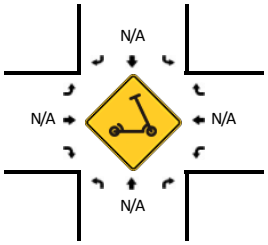












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Durock Road (Eastbound)				Durock Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	17	0	0	0	19	22	0	15	1	6	0	2	0	3	0	89	
4:05 PM	5	19	3	0	1	22	10	0	20	0	5	0	1	0	4	0	90	
4:10 PM	9	18	3	0	0	24	16	0	22	2	7	0	0	0	3	0	104	
4:15 PM	3	20	1	0	1	26	18	0	15	2	3	0	3	1	1	0	94	
4:20 PM	4	12	1	0	0	24	21	0	13	0	2	0	1	0	5	0	83	
4:25 PM	4	24	0	0	1	25	16	0	27	1	12	0	0	0	0	0	110	
4:30 PM	8	19	1	0	0	28	12	0	19	1	10	0	0	0	9	0	107	
4:35 PM	7	25	0	0	0	19	19	0	15	1	4	0	1	1	1	0	93	
4:40 PM	4	17	2	0	1	23	17	0	22	2	16	0	1	1	4	0	110	
4:45 PM	7	17	2	0	0	24	15	0	18	1	14	0	0	0	5	0	103	
4:50 PM	5	27	2	0	0	22	12	0	11	1	6	0	0	1	4	0	91	
4:55 PM	5	24	1	0	1	24	6	0	10	0	10	0	1	1	1	0	84	1158
5:00 PM	8	11	2	0	1	22	14	0	23	1	12	0	0	2	3	0	99	1168
5:05 PM	5	14	1	0	1	11	10	0	15	1	10	0	1	0	3	0	72	1150
5:10 PM	4	22	2	0	0	28	12	0	19	0	18	0	0	0	4	0	109	1155
5:15 PM	7	11	0	0	0	30	19	0	26	1	10	0	0	0	1	0	105	1166
5:20 PM	3	18	1	0	0	23	9	0	21	2	6	0	4	0	3	0	90	1173
5:25 PM	3	14	3	0	0	21	13	0	14	1	7	0	0	0	4	0	80	1143
5:30 PM	4	12	1	0	1	20	12	0	17	1	3	0	0	0	1	0	72	1108
5:35 PM	7	23	1	0	0	23	6	0	12	1	4	0	3	0	2	0	82	1097
5:40 PM	0	17	3	0	2	15	8	0	12	0	11	0	0	0	2	0	70	1057
5:45 PM	6	8	0	0	0	12	7	0	3	0	8	0	1	0	4	0	49	1003
5:50 PM	3	11	0	0	0	24	10	0	14	1	2	0	1	0	0	0	66	978
5:55 PM	4	7	1	0	1	18	13	0	13	0	5	0	0	0	1	0	63	957

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	76	272	4	0	4	288	188	0	244	12	104	0	4	4	40	0	1240
Heavy Trucks	0	32	0		0	20	36		0	4	8		0	0	12		112
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

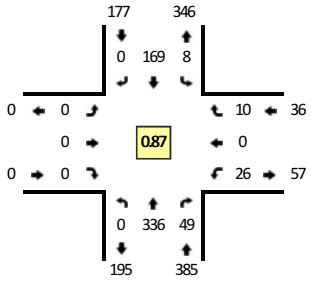
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

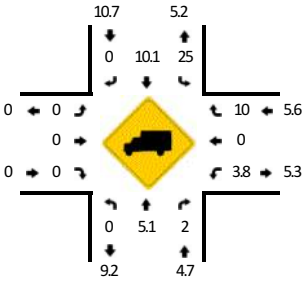
LOCATION: S Shingle Road -- Sunset Lane
CITY/STATE: Shingle Springs, CA

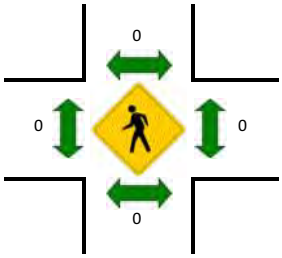
QC JOB #: 15821109
DATE: Wed, May 18 2022

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:05 AM -- 8:20 AM

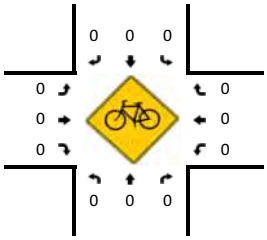


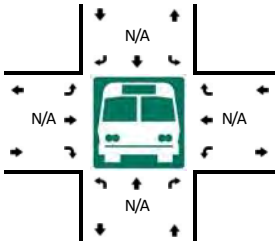




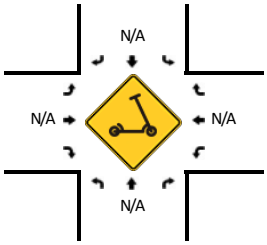












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Sunset Lane (Eastbound)				Sunset Lane (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	15	2	0	0	8	0	0	0	0	0	0	0	0	1	0	26	
7:05 AM	0	11	3	0	0	3	0	0	0	0	0	0	1	0	1	0	19	
7:10 AM	0	12	0	0	0	3	0	0	0	0	0	0	1	0	0	0	16	
7:15 AM	0	16	0	0	0	11	0	0	0	0	0	0	2	0	2	0	31	
7:20 AM	0	18	1	0	0	11	0	0	0	0	0	0	2	0	0	0	32	
7:25 AM	0	29	1	0	0	7	0	0	0	0	0	0	2	0	0	0	39	
7:30 AM	0	29	2	0	1	9	0	0	0	0	0	0	2	0	2	0	45	
7:35 AM	0	29	1	0	1	14	0	0	0	0	0	0	1	0	1	0	47	
7:40 AM	0	29	3	0	2	5	0	0	0	0	0	0	2	0	0	0	41	
7:45 AM	0	32	6	0	0	6	0	0	0	0	0	0	3	0	0	0	47	
7:50 AM	0	37	4	0	0	9	0	0	0	0	0	0	1	0	0	0	51	
7:55 AM	0	30	6	0	0	12	0	0	0	0	0	0	2	0	1	0	51	445
8:00 AM	0	23	2	0	0	25	0	0	0	0	0	0	3	0	1	0	54	473
8:05 AM	0	32	6	0	1	20	0	0	0	0	0	0	2	0	0	0	61	515
8:10 AM	0	21	4	0	1	19	0	0	0	0	0	0	3	0	1	0	49	548
8:15 AM	0	33	6	0	0	20	0	0	0	0	0	0	1	0	1	0	61	578
8:20 AM	0	19	5	0	0	13	0	0	0	0	0	0	2	0	2	0	41	587
8:25 AM	0	22	4	0	2	17	0	0	0	0	0	0	4	0	1	0	50	598
8:30 AM	0	22	4	0	0	12	0	0	0	0	0	0	3	0	3	0	44	597
8:35 AM	0	13	5	0	0	11	0	0	0	0	0	0	6	0	0	0	35	585
8:40 AM	0	17	5	0	1	3	0	0	0	0	0	0	3	0	1	0	30	574
8:45 AM	0	17	7	0	1	10	0	0	0	0	0	0	3	0	0	0	38	565
8:50 AM	0	18	7	0	0	13	0	0	0	0	0	0	3	0	0	0	41	555
8:55 AM	0	14	3	0	0	6	0	0	0	0	0	0	2	0	2	0	27	531

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	344	64	0	8	236	0	0	0	0	0	0	24	0	8	0	684
Heavy Trucks	0	12	0		4	24	0		0	0	0		0	0	0		40
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

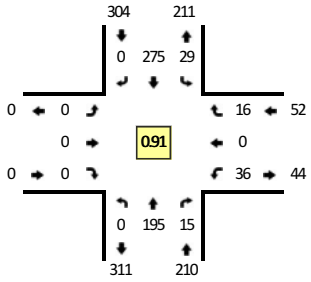
Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

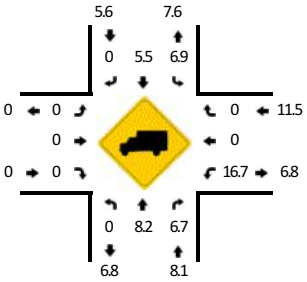
LOCATION: S Shingle Road -- Sunset Lane
CITY/STATE: Shingle Springs, CA

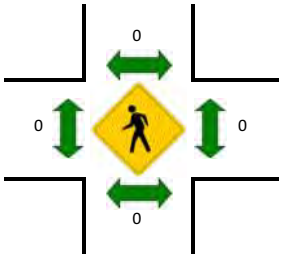
QC JOB #: 15821110
DATE: Wed, May 18 2022

Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

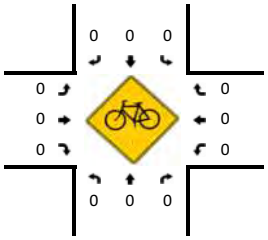


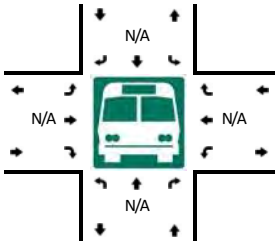




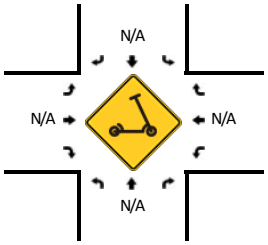












5-Min Count Period Beginning At	S Shingle Road (Northbound)				S Shingle Road (Southbound)				Sunset Lane (Eastbound)				Sunset Lane (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	7	3	0	1	22	0	0	0	0	0	0	5	0	0	0	38	
4:05 PM	0	18	1	0	0	20	0	0	0	0	0	0	6	0	1	0	46	
4:10 PM	0	17	5	0	2	20	0	0	0	0	0	0	3	0	2	0	49	
4:15 PM	0	12	4	0	1	22	0	0	0	0	0	0	4	0	4	0	47	
4:20 PM	0	17	2	0	1	16	0	0	0	0	0	0	5	0	0	0	41	
4:25 PM	0	20	2	0	1	24	0	0	0	0	0	0	2	0	1	0	50	
4:30 PM	0	17	0	0	1	23	0	0	0	0	0	0	4	0	0	0	45	
4:35 PM	0	24	2	0	5	17	0	0	0	0	0	0	2	0	3	0	53	
4:40 PM	0	12	3	0	4	25	0	0	0	0	0	0	2	0	0	0	46	
4:45 PM	0	9	0	0	2	23	0	0	0	0	0	0	5	0	0	0	39	
4:50 PM	0	22	1	0	3	22	0	0	0	0	0	0	1	0	2	0	51	
4:55 PM	0	17	0	0	1	20	0	0	0	0	0	0	1	0	5	0	44	549
5:00 PM	0	16	2	0	3	23	0	0	0	0	0	0	5	0	1	0	50	561
5:05 PM	0	14	2	0	3	10	0	0	0	0	0	0	3	0	0	0	32	547
5:10 PM	0	20	0	0	3	25	0	0	0	0	0	0	3	0	0	0	51	549
5:15 PM	0	12	2	0	2	35	0	0	0	0	0	0	4	0	3	0	58	560
5:20 PM	0	12	1	0	1	28	0	0	0	0	0	0	4	0	1	0	47	566
5:25 PM	0	14	3	0	0	20	0	0	0	0	0	0	2	0	1	0	40	556
5:30 PM	0	10	6	0	1	21	0	0	0	0	0	0	2	0	0	0	40	551
5:35 PM	0	21	1	0	0	23	0	0	0	0	0	0	4	0	0	0	49	547
5:40 PM	0	13	5	0	3	18	0	0	0	0	0	0	3	0	2	0	44	545
5:45 PM	0	10	2	0	1	22	0	0	0	0	0	0	5	0	0	0	40	546
5:50 PM	0	15	3	0	0	12	0	0	0	0	0	0	2	0	1	0	33	528
5:55 PM	0	10	1	0	1	23	0	0	0	0	0	0	3	0	1	0	39	523

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	176	12	0	24	352	0	0	0	0	0	0	44	0	16	0	624
Heavy Trucks	0	4	0		0	12	0		0	0	0		8	0	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

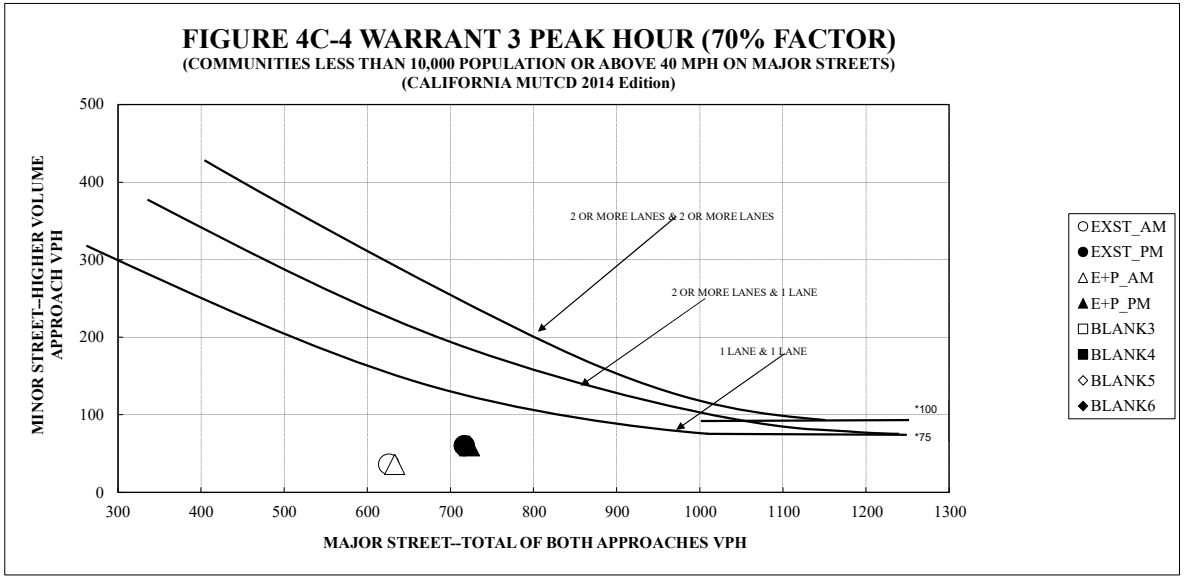
Comments:

Report generated on 5/26/2022 4:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	626	36	NO
EXST_PM	717	60	NO
E+P_AM	633	36	NO
E+P_PM	723	60	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **May 23, 2024** Intersection No.: **5**

Intersection: **Sunset Ln / S Shingle Rd**

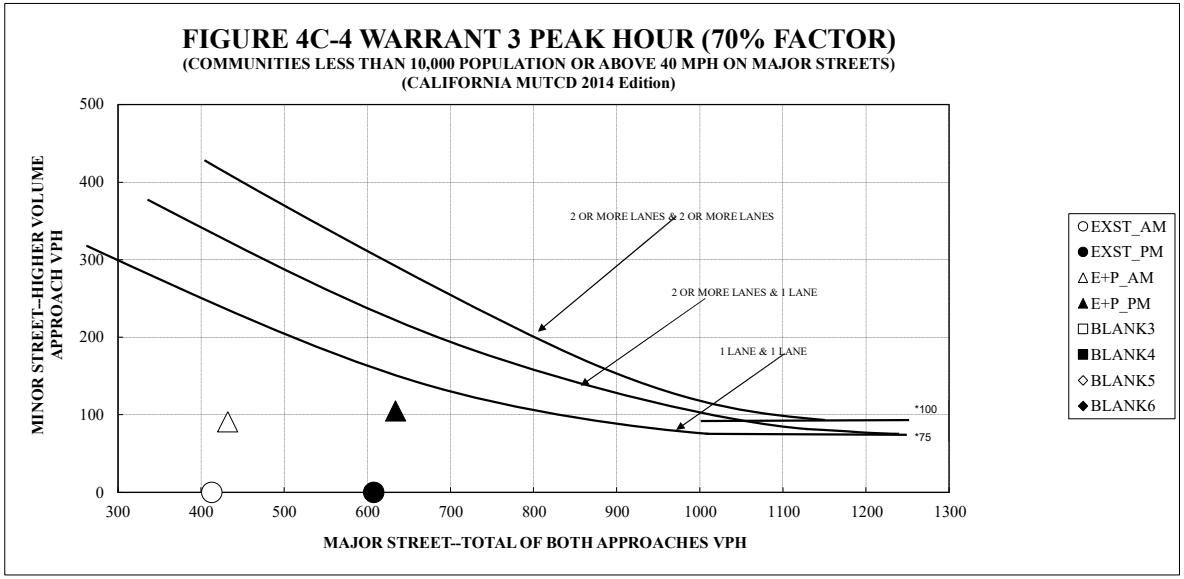
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	413	0	NO
EXST_PM	608	0	NO
E+P_AM	432	91	NO
E+P_PM	634	105	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **May 23, 2024** Intersection No.: **6**

Intersection: **Project Driveway 2 / Durock Rd**

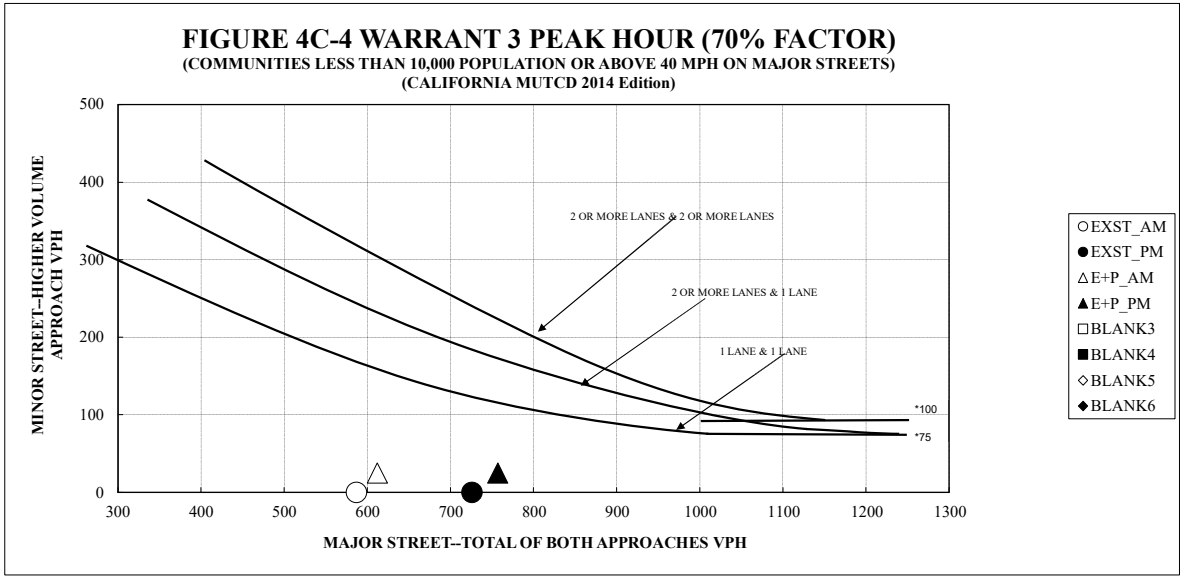
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	587	0	NO
EXST_PM	726	0	NO
E+P_AM	612	25	NO
E+P_PM	757	25	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **May 23, 2024** Intersection No.: **7**

Intersection: **S Shingle Road / Project Driveway 1**

Number of lanes on MAJOR street: **1**

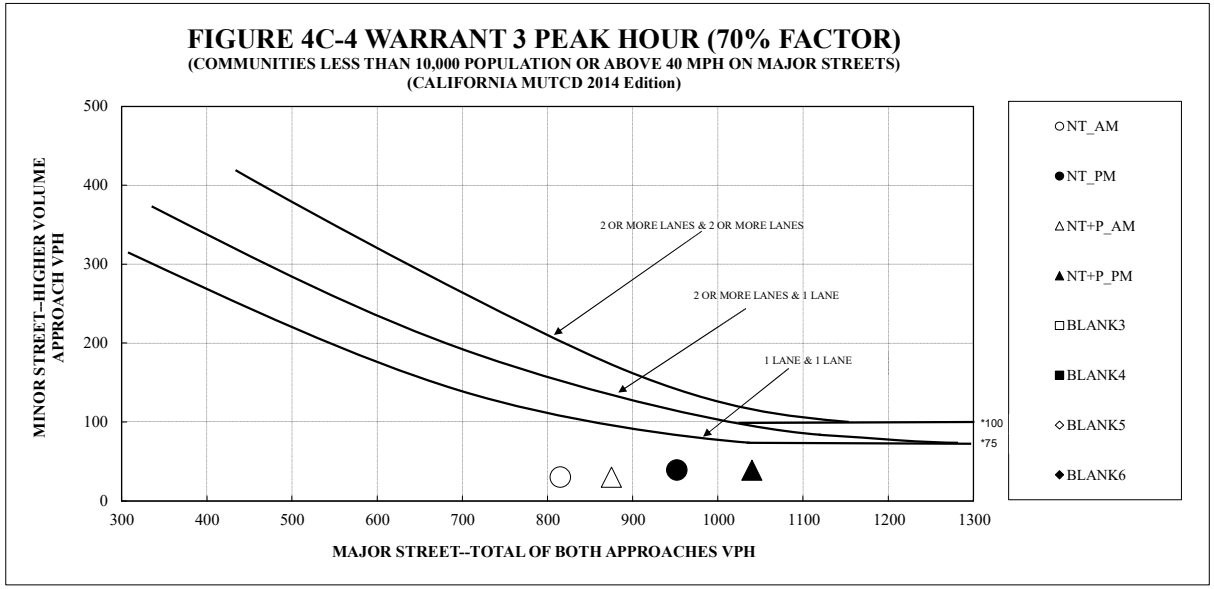
Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Attachment I

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
NT_AM	815	30	NO
NT_PM	952	39	NO
NT+P_AM	875	30	NO
NT+P_PM	1040	39	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **4**

Intersection: **S Shingle Road / Park and Ride Driveway**

Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

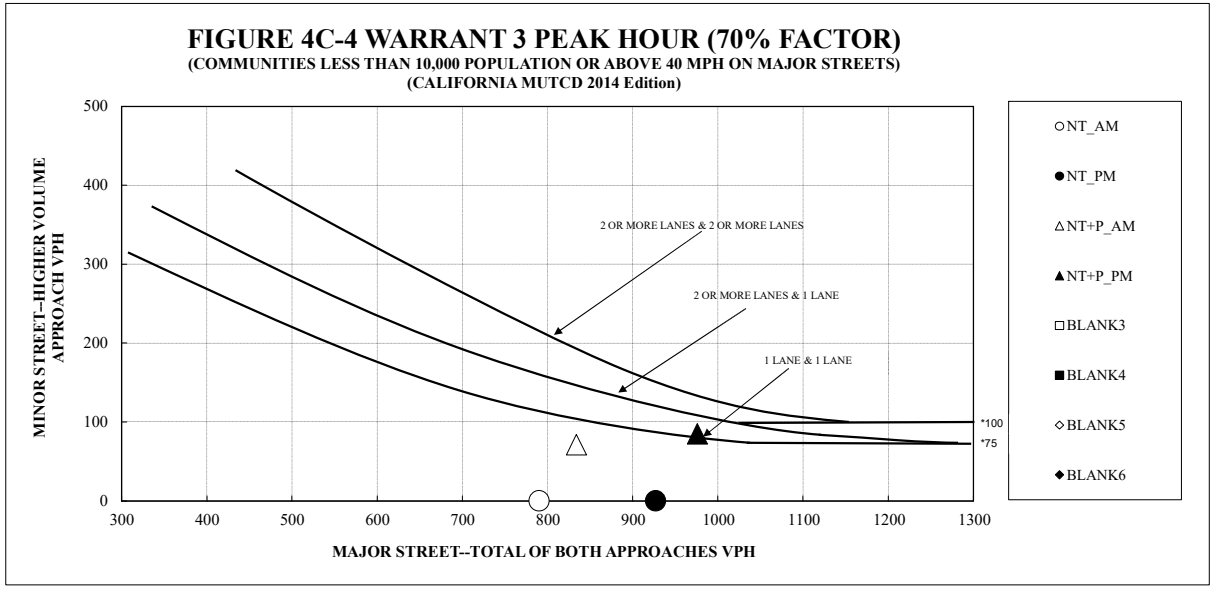
WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\Traffic\Analysis\Signal Warrants\Near-Term\CA_MUTCDSigWarrantNo3AM_PM_WAR-70%.xls
INT4

Attachment I

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
NT_AM	790	0	NO
NT_PM	927	0	NO
NT+P_AM	834	71	NO
NT+P_PM	976	85	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **7**

Intersection: **S Shingle Road / Project Driveway 2**

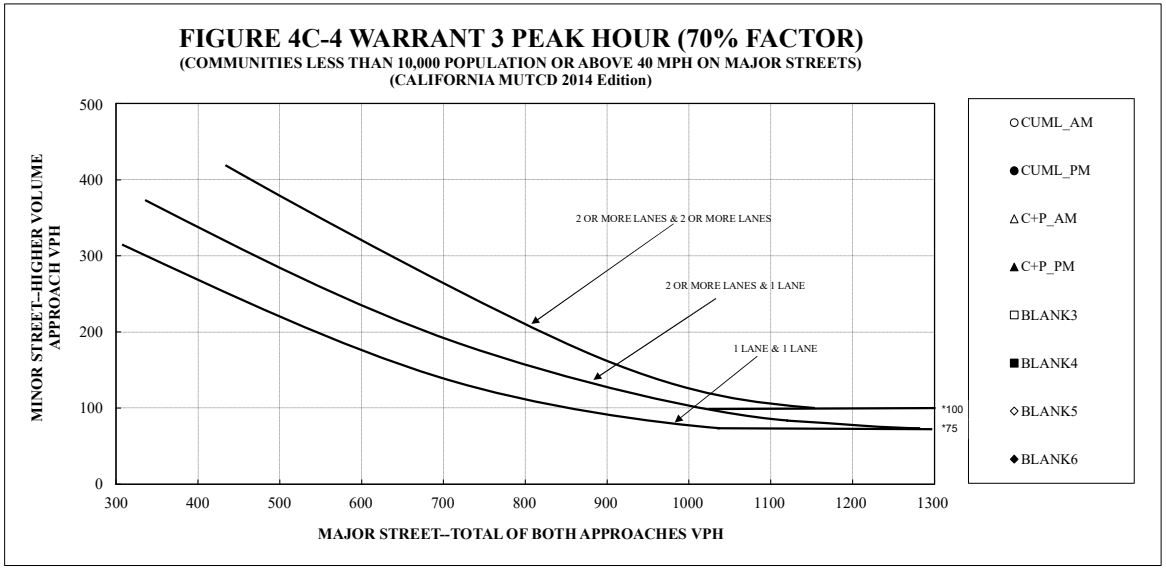
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
CUML_AM	1365	30	NO
CUML_PM	1718	39	NO
C+P_AM	1425	30	NO
C+P_PM	1806	39	NO
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **4**

Intersection: **South Shingle Road & Park-and-Ride Driveway**

Number of lanes on MAJOR street: **2**

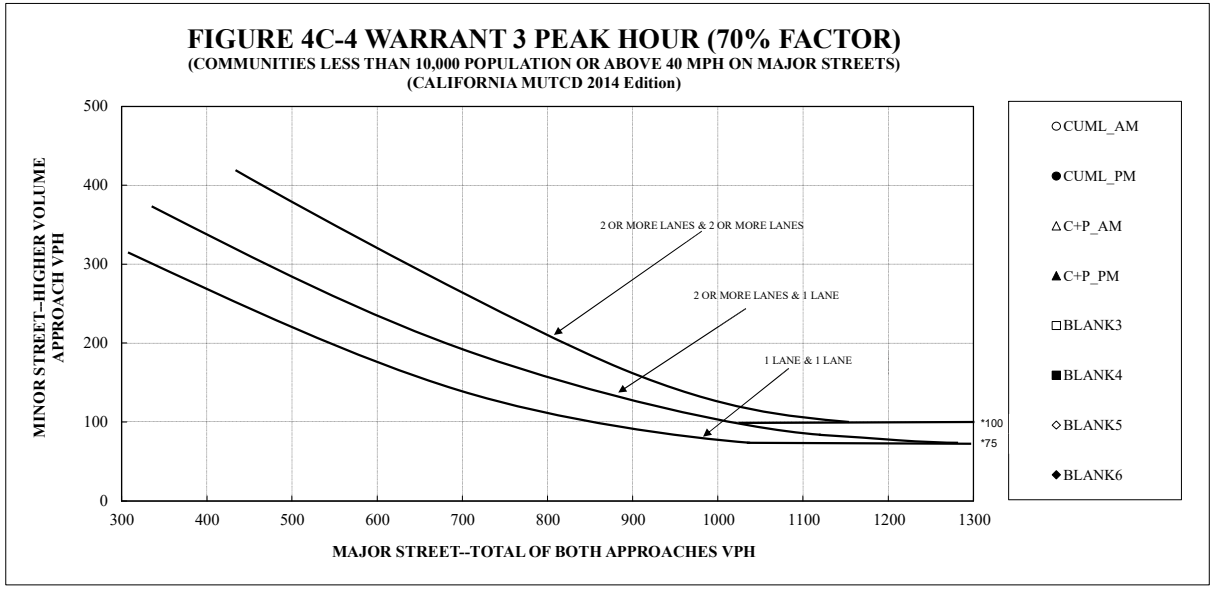
Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Attachment I

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
CUML_AM	1344	0	NO
CUML_PM	1706	0	NO
C+P_AM	1388	71	NO
C+P_PM	1755	85	YES
BLANK3	0	0	
BLANK4	0	0	
BLANK5	0	0	
BLANK6	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **September 5, 2025** Intersection No.: **7**

Intersection: **South Shingle Road & Project Driveway**

Number of lanes on MAJOR street: **2**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Attachment I

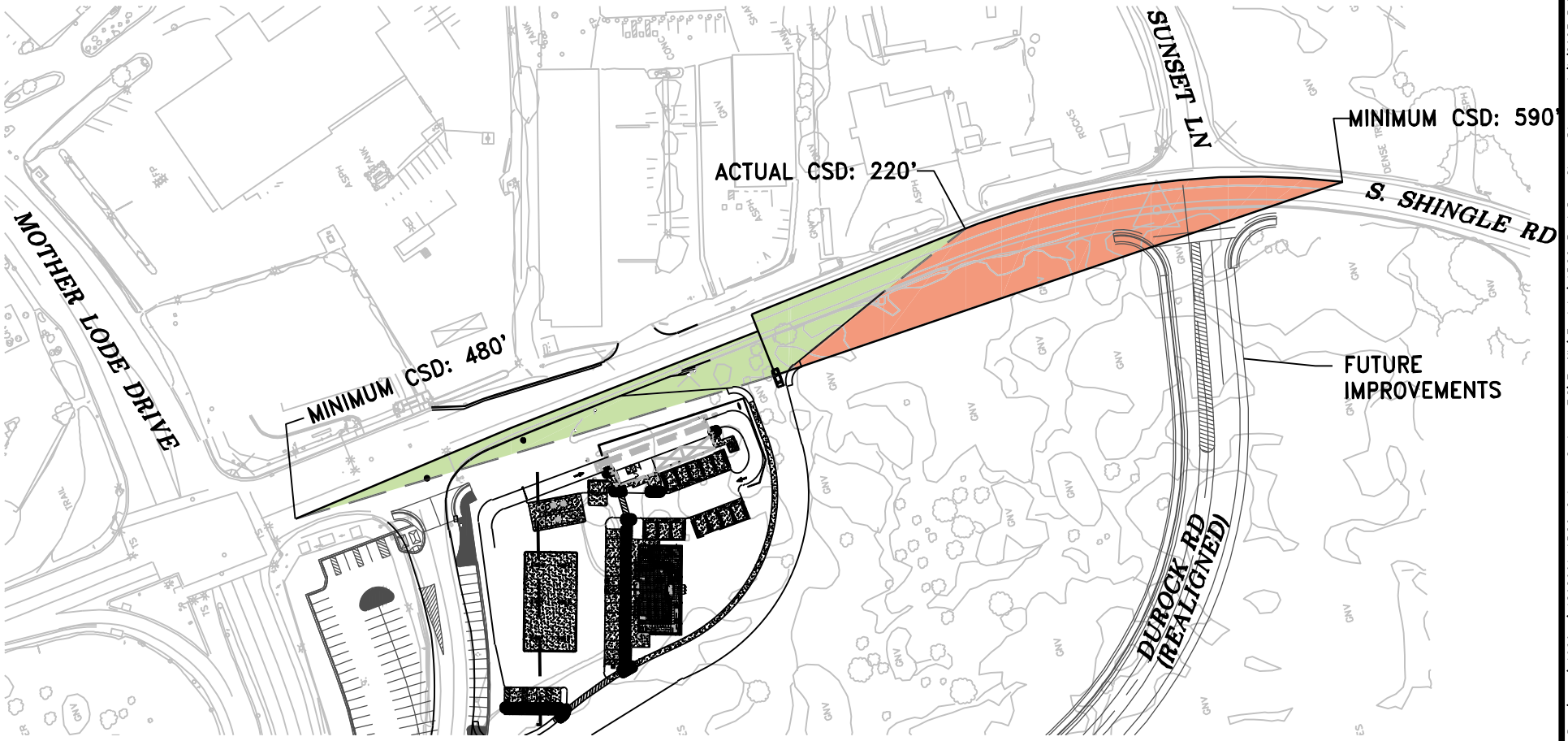
CORNER SIGHT DISTANCE (CSD) TRIANGLES - LEFT-TURN/RIGHT-TURN FROM STOP

ARCO SHINGLE SPRINGS

EL DORADO COUNTY

EL DORADO COUNTY **CALIFORNIA**

DECEMBER, 2022



150' 75' 0 150'

SCALE: 1" = 150'

LEGEND

REQUIRED CLEAR AREA

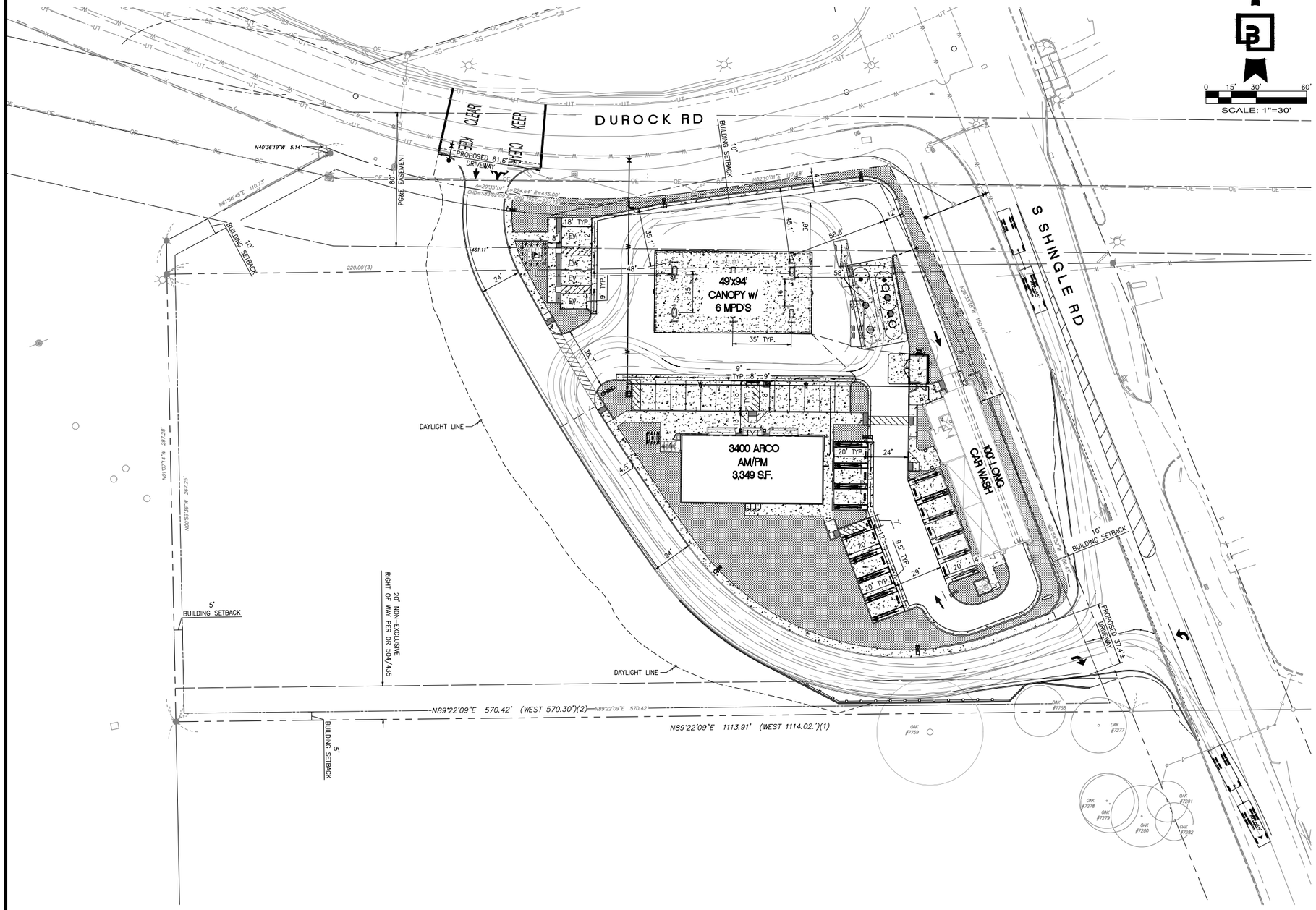
VISIBLE AREA

LINE OF SIGHT

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\Traffic\Exhibits\ARCO_Proj_Dwy_Sight_Dist.dwg 1/1/2023 5:28 PM Nicole Scappaticci

PRELIMINARY SITE PLAN



N

0 15' 30' 60'

SCALE: 1"=30'



VICINITY MAP

PROJECT DATA

LOCATION:	4100 DUROCK RD @ S SHINGLE RD SHINGLE SPRINGS, CALIFORNIA
APN'S:	109-080-012-000, 109-080-013-000
PROPOSED LOT AREA:	±160,986.25 S.F. (3.69 AC)
ZONING:	COMMUNITY COMMERCIAL (CC)
FLOOD ZONE:	FEMA INDICATES THAT THE MAJORITY OF THE SITE IS WITHIN FLOOD ZONE AREA X – AN AREA DETERMINED TO BE OUTSIDE OF THE 0.2% CHANCE FLOODPLAIN.

BUILDING SETBACKS:

FRONT SETBACK:	10 FEET
STREET SIDE:	10 FEET
SIDE INTERIOR:	5 FEET
REAR:	5 FEET

LANDSCAPING:

FRONT AND SIDE STREET SETBACKS MUST BE LANDSCAPED.

INTERIOR AND REAR PROPERTY LINES – MINIMUM OF 5 FOOT PLANTER

LANDSCAPING SHALL BE PROVIDED IN PAVED PARKING LOTS OF FIVE SPACES OR MORE AND SHALL PROVIDE SHADE OVER 50 PERCENT OF ALL PAVED PARKING AREAS.

LANDSCAPING AREAS WITHIN A PARKING FACILITY SHALL HAVE A MINIMUM WIDTH OF FIVE FEET AND A MINIMUM AREA OF 25 SQUARE FEET, EXCLUSIVE OF ANY CURBS.

LANDSCAPE AREA PROVIDED (SEE PRELIMINARY LANDSCAPE PLANS): 14,800 SF
SHADING COVERAGE PROVIDED (SEE PRELIMINARY LANDSCAPE PLANS): 52.3%

PARKING REQUIREMENTS (PER TABLE 130.35.030.1 OF EL DORADO COUNTY CODE):

C-STORE: 3,349 SF
(1 PER 300 S.F. OF AUA; PLUS 1 PER 600 OF STORAGE AREA):
3,349/300 = 11.2 = 12 SPACES

CARWASH: 1 WASHING STALL
(CAR WASH 2 PER WASHING STALL)
1*2 = 2 SPACES

PARKING SPACES REQUIRED: 14 SPACES
PARKING SPACES PROVIDED: 13 SPACES
VACUUM SPACES PROVIDED: 12 SPACES
FUTURE EV CHARGING SPACES: 4 SPACES

BICYCLE PARKING REQUIREMENTS:

SHORT-TERM BICYCLE PARKING SPACES REQUIRED (PER PARKING AND LOADING COMMUNITY DESIGN STANDARDS):
(1 PER EVERY 5 REQUIRED VEHICLE PARKING SPACES)
14/5 = 2.8 = 3 SPACES

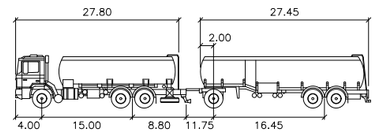
SHORT-TERM BICYCLE PARKING SPACES PROVIDED: 4 SPACES (2 PER RACK)

LONG-TERM BICYCLE PARKING SPACES REQUIRED (PER SECTION 5.106.4.1.2 OF CGBC):
(FOR NEW BUILDINGS WITH TENANT SPACES THAT HAVE 10 OR MORE TENANT-OCCUPANTS, PROVIDE PARKING FOR 5% OF TENANT-OCCUPANT VEHICULAR SPACES)
0 TENANT SPACES = 0 SPACES

LONG-TERM BICYCLE PARKING SPACES PROVIDED: 0 SPACES

DRAINAGE NOTE:

DRAINAGE REQUIREMENTS AND DISCHARGE LOCATION COORDINATION IS ON GOING. DRAINAGE DESIGN SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE.



Arco65'
feet

First Part Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 35.0
First Part Track	: 7.70	Articulating Angle	: 70.0
Trailer Track	: 7.70		

Preliminary Not For Construction

CLIENT:
bp
ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

SEAL:

LICENSED PROFESSIONAL ENGINEER
KACEY C. HOLD
19465
CIVIL
STATE OF CALIFORNIA
Not for Construction

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's
CAR WASH

SITE ADDRESS:

4100 DUROCK RD
@ S SHINGLE ROAD
SHINGLE SPRINGS, CALIFORNIA

FACILITY #TBD

DESIGNED BY:	EVS	ALLIANCE Z&DM:	
CHECKED BY:	KCH	BP REPM:	
DRAWN BY:	NW	ALLIANCE PM:	
VERSION:	- -	PROJECT NO:	21863

DRAWING TITLE:

PRELIMINARY SITE PLAN

SHEET NO:

PSP

File:P:\21000s\21863\preliminary\21863 SP-2.dwg Date/Time:6/27/2025 10:19 AM Scale:1" = 1' RPADILLA Xref: ----

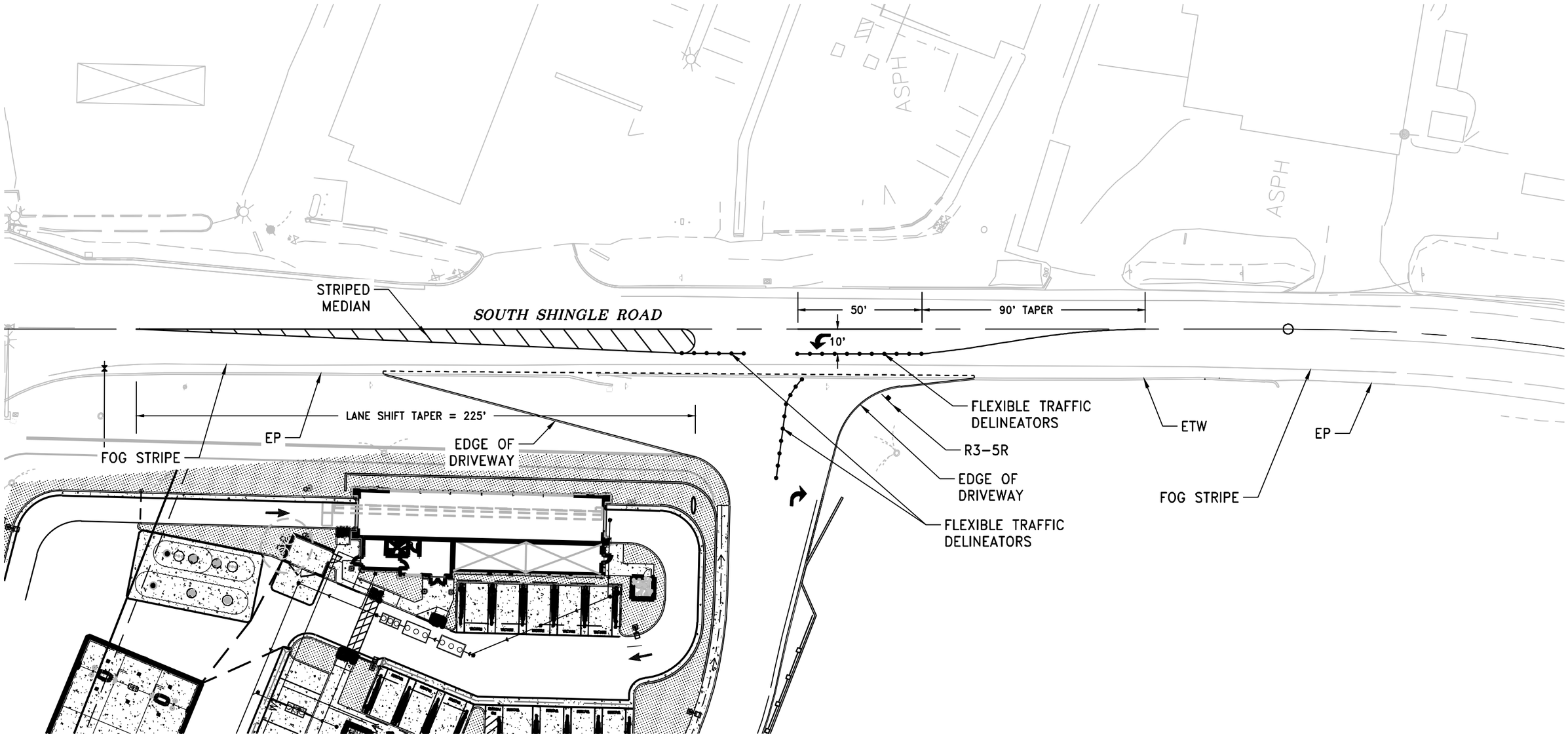
Attachment J

LEFT-TURN POCKET EXHIBIT - SOUTH SHINGLE PROJECT DRIVEWAY ACCESS

ARCO SHINGLE SPRINGS

EL DORADO COUNTY CALIFORNIA

AUGUST, 2025



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4202001_ARCO_Shingle_Springs_TIS\Traffic\Exhibits\Lt_Turn_Pocket\S_Shingle_Lt_Turn_Pocket.dwg 8/21/2025 4:13 PM Nicole Tambellini

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
Biological Resources							
Mitigation Measure (MM) BIO-1: Nesting Bird and Raptor Protection. The following shall be incorporated on any grading, improvement, or building permit plans. Future development at the Project site shall implement the following measures to protect nesting birds and raptors: ▸ To minimize impacts to special-status bird species, raptors, and other native birds, potential future development activities (e.g., tree removal, vegetation clearing, ground disturbance, staging, construction of off-site improvements) shall be conducted during the nonbreeding season (approximately September 1 through January 31, as determined by a qualified biologist), when feasible. If project activities are conducted during the nonbreeding season, no further mitigation is required prior to the proposed activity. ▸ If development activities must commence during the avian nesting season (between February 1 and August 31), within 7 days prior to commencement of work, a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for special-status birds, nesting raptors, and other native birds. Surveys shall be conducted in	Property owner or designee	Preconstruction nest survey(s) and report(s) provided to El Dorado County Planning Division	Prior to issuance of grading permit or prior to issuance of building permit, whichever is earlier	El Dorado County Planning Division			

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
publicly accessible areas within 0.5 miles of the development activity area for golden eagle, 0.25 miles of the development activity area for white-tailed kite, 500 feet of the development activity area for other raptor species and special-status birds, and 50 feet of the development activity area for non-raptor common native bird nests. ▸ If no active bird nests are found, the qualified biologist shall submit a report documenting the survey methods and results to the applicant and El Dorado County, and work may proceed. If at any time during the nesting season there is a lapse of two weeks or more with no work, a new survey for nesting birds shall be completed before work proceeds. ▸ If an active bird nest is found, a no-disturbance buffer shall be established around the nest site until the breeding season has ended or a qualified biologist has determined that the young have fledged or the nest is no longer active. ▸ The size of the no-disturbance buffer shall be determined by the biologist, based on the sensitivity of the bird species, nesting chronology of the species, disturbance characteristics (type, extent, visibility, duration, and timing), existing ambient conditions, and other factors (e.g., screening from existing structures, vegetation, or topography), as determined by the biologist.							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
Buffers typically shall be 0.5 miles for golden eagle, 0.25 miles for white-tailed kite, 500 feet for other raptors, 100 feet for non-raptor special-status bird species, and at least 20 feet for common non-raptor bird species. The size of the buffer may be adjusted if a qualified biologist determines that such an adjustment shall be unlikely to adversely affect the nest. Any buffer reduction for a special-status bird species shall require coordination with CDFW. ▸ Daily monitoring of the nest by a qualified biologist during activities shall be required if the activity has potential to adversely affect the nest as determined by the qualified biologist, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project activities, as determined by the qualified biologist. ▸ Documentation of compliance with this mitigation measure and any required coordination with CDFW shall be provided to El Dorado County before commencement of any project construction activities.							
MM BIO-2: Special-Status Plant Protection. The following shall be incorporated on any grading, improvement, or building permit plans. Prior to future	Property owner or designee	Rare plant survey(s), monitoring, and report(s)	Prior to issuance of grading permit or	El Dorado County Planning Division			

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
development at the Project site, the following measures shall be implemented to protect special-status plants: ▸ Prior to any vegetation clearing, ground disturbing, or construction activities within the Project site, a qualified botanist shall implement protocol-level botanical surveys during the blooming period for the special-status plants with potential to occur in the Project site. The survey shall be conducted during the blooming/identification period closest to the initiation of proposed vegetation clearing or ground disturbance. ▸ The surveys shall include all areas where habitat potentially suitable for special-status plant species would be removed or disturbed, plus a 25-foot buffer. ▸ Surveys shall follow methods from CDFW's *Protocols for Surveying and Evaluating Impacts on Special-Status Native Plant Populations and Natural Communities* (CDFW 2018 or most recent version). The qualified botanist shall (1) be knowledgeable about plant taxonomy; (2) be familiar with plants of the Project region, including special-status plants and sensitive natural communities; (3) have experience conducting floristic botanical field surveys as described in CDFW's protocol document; (4) be		provided to El Dorado County Planning Division	prior to issuance of building permit, whichever is earlier; during construction					

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
familiar with the California Manual of Vegetation (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/); and (5) be familiar with federal and state statutes and regulations related to plants and plant collecting. ▸ If no special-status plants are found, the botanist shall document the findings in a report to the applicant and El Dorado County, and no additional measures are required prior to proposed activities. ▸ If activities last for more than one year, the botanical surveys described above shall be repeated during the blooming period in subsequent years prior to additional vegetation clearing or ground disturbing activities. ▸ If special-status plants are found, the botanist shall clearly mark, map, and record their locations. A no-disturbance buffer shall be established surrounding these locations, consisting of high visibility fencing with a minimum 4-foot-tall metal fence posts (such as t-posts). Fencing shall be maintained in place throughout the entirety of all ground disturbance or vegetation removal activities to ensure that the special-status plants are protected from equipment and vehicles, construction personnel, digging, trenching, placement of fill, storage of equipment or							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
materials, and all other activities. All personnel involved in ground disturbance or vegetation removal work shall be informed of the requirement to avoid no-disturbance areas and shall be required to sign an acknowledgement that they have received these instructions and agree to adhere to all mitigation measures. ▸ If special-status plant species are found that cannot be avoided, appropriate mitigation shall be implemented and shall depend on the species and its protection status. ▸ For unavoidable impacts to Pine Hill endemics, mitigation shall include compliance with the County's Ecological Preserve Fee Program and Zoning Ordinance Chapter 130.71. The project site is in Mitigation Area 1. ▸ For unavoidable impacts to special-status plants that are not listed under the federal ESA or CESA, various methods may be used to minimize or compensate for impacts on these species. Depending on the biology of the species affected and the potential for transplanting and reseeding, establishing populations through seed collection or transplantation from the site that is to be affected may be implemented. Seeding or transplanting may be used to create new plant populations, or to enhance or expand existing populations. This work may be done in							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
coordination with California Native Plant Society. Potential mitigation sites could include suitable locations within or outside the project site. Mitigation could include, or consist of, expanding the affected population on the project site if only a portion of the population is to be removed and suitable habitat is available or can be created to expand the extent of the affected population into a new area. Habitat and individual plants lost shall be mitigated at a minimum 1:1 ratio, considering acreage as well as function and value of the new population and habitat. ▸ If an affected plant species, whether a Pine Hill Endemic or not, is protected under the federal ESA or CESA, coordination/consultation with USFWS and/or CDFW will be required. A site-specific mitigation strategy to compensate for loss of occupied habitat and individuals, consistent with the requirements of the federal ESA or CESA, will need to be developed and implemented. Actions to compensate for take of the federal ESA or CESA protected species may include preserving and enhancing existing populations and creation of new populations. Elements of the mitigation approach and success criteria required by USFWS or CDFW may include, but would not be limited to:							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
▸ Identification of appropriate mitigation ratios for enhancement, expansion, and creation of target plant populations to fully compensate for direct loss of affected plant populations as well as temporal losses of functions and values. ▸ Number and/or density of target plant individuals in the mitigation area. ▸ A requirement that compensatory and preserved populations shall be self-producing. Populations would be considered self-producing when plants reestablish annually for a set number of years with no human intervention, such as supplemental seeding. ▸ If mitigation includes dedication of conservation easements, identifying responsible parties for long-term management, conservation easement holders, long-term management requirements, and funding sources as determined appropriate by the regulatory agency(ies). ▸ Documentation of surveys, completion of the mitigation strategy, and coordination/consultation process with USFWS or CDFW shall be provided to El Dorado County before commencement of							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
any project activities that could adversely affect the protected plant species. Prior to any ground-disturbing or vegetation-removal activities, a Worker Environmental Awareness Training (WEAT) shall be prepared and administered to the construction crews. The WEAT will include the following: discussion of the state and federal Endangered Species Act, the Clean Water Act, the Project's permits and CEQA documentation, and associated mitigation measures; consequences and penalties for violation or noncompliance with these laws and regulations; identification of special-status wildlife that may be encountered on the project site; location of any avoidance, exclusion, or buffer areas; material to watch for that may indicate the presence of subsurface cultural resources; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a special-status wildlife species or potential cultural resources. A handout summarizing the WEAT information shall be provided to workers to keep on-site for future reference. Upon completion of the WEAT training, workers will sign a form stating that they attended the training, understand the information presented and will comply with the regulations discussed.							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
MM NOISE-1: Restricted Hours for On-Site Truck Circulation All on-site truck circulation (i.e., truck deliveries) at the project site shall be limited to daytime hours only (7:00 am to 7:00 pm).	Property owner or designee	A permanent sign shall be posted on-site in a location visible to customers that states the hours of on-site truck circulation and provides the most current Code Enforcement and Planning phone numbers. Code Enforcement Division shall verify ongoing compliance with this requirement in response to community inquiries.	Prior to Certificate of Occupancy, Ongoing operations	El Dorado County Planning Division, Code Enforcement Division (shall verify ongoing compliance with this requirement in response to community inquiries)			
MM GHG-1: Greenhouse Gas Emissions Mitigation The following shall be incorporated on any grading, improvement, or building permit plans, subject to review and approval by the El Dorado County Planning Division:	Property owner or designee	Building permit review	Prior to issuance of building permit	El Dorado County Planning Division			

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
▸ BMP #1: The proposed project shall be designed and constructed without natural gas infrastructure; and ▸ BMP #2: The project shall be constructed to include EV Ready parking spaces at the ratio with which the current CalGreen Tier 2 standards require EV Capable spaces that are in effect at the time of the initial building permit submittal. If the prohibition of natural gas infrastructure is not enforceable or commercially feasible at the time of issuance of building permit(s), the project applicant shall require the commercial uses on-site to allow for the future retrofit of all natural gas appliances with all-electric appliances and purchase of off-site mitigation credits or forecasted mitigation units ("FMUs") (collectively, "GHG credits") for project-related GHG emissions from the component(s) using natural gas instead of electric. The emissions from the use of natural gas shall be calculated by a qualified professional using EDCAQMD, CARB, or the EPA-approved emissions models and quantification methods available and submitted to the County for review and approval, which shall include third-party review by a qualified consultant of the County's selection and be subject to applicant reimbursement of consultant costs.							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
Any and all GHG credits to off-set the use of natural gas must be created through a CARB-approved registry. These registries are currently the American Carbon Registry (ACR), Climate Action Reserve (CAR), and Verra, although CARB may accredit additional registries in the future. These registries use robust accounting protocols for all GHG credits created for their exchange, including the six currently approved CARB protocols. This mitigation measure specifically requires GHG credits created for the project originate from a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 CCR 95972. The selected protocol must demonstrate that the GHG emissions reductions are real, permanent, quantifiable, verifiable, enforceable, and additional. Definitions of these terms from 17 CCR 95802(a) are provided below. 1. Real: GHG reductions or enhancements result from a demonstrable action or set of actions and are quantified using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG reservoirs within the [GHG credit] project boundary and account for uncertainty and the potential for activity-shifting and market-shifting leakage. 2. Additional: GHG reductions or removals that exceed any GHG reduction, or removals							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
otherwise required by law, regulation, or legally binding mandate, and that exceed any GHG reductions or removals that would otherwise occur in a conservative Business as Usual scenario. 3. Permanent: GHG reductions and removal enhancements are not reversible or, when GHG reductions and GHG-removal enhancements may be reversible, mechanisms are in place to replace any reversed GHG-emission reductions and GHG-removal enhancements to ensure that all credited reductions endure for at least 100 years. 4. Quantifiable: The ability to accurately measure and calculate GHG reductions or GHG-removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emission sources, GHG sinks, or GHG reservoirs included within the [GHG credit] project boundary, while accounting for uncertainty. Activity-shifting, and market-shifting leakage. 5. Verifiable: A [GHG credit] project report assertion is well-documented and transparent such that it lends itself to an objective review by an accredited verification body. 6. Enforceable: The authority for CARB to hold a particular party liable and take appropriate action if any of the provisions of this article are							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
violated. Note that this definition of enforceability is specific to the Cap and-Trade regulation, where CARB holds enforcement authority, but this measure shall employ GHG credits from the voluntary market, where CARB has no enforcement authority. Applying the definition to this mitigation measure means that GHG reductions must be owned by a single entity and backed by a legal instrument or contract that defines exclusive ownership. *Geographic Prioritization of GHG Credits* GHG credits from reduction projects in El Dorado County (County) shall be prioritized before projects in larger geographies (i.e., northern California, California, United States, and international). The project applicant shall inform brokers of the required geographic prioritization for the procurement of GHG credits. GHG credits from reduction projects identified in the County that are of equal or lesser cost compared to the settlement price of the latest Cap-and-Trade auction must be included in the transaction. GHG credits from reduction projects outside of the County may be purchased if adequate credits cannot be found in the County or if they exceed the maximum price identified above. The economic and geographic analysis undertaken to inform the selection of GHG credits must be provided by the project applicant to the County as							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
part of the required documentation discussed below under Plan Implementation and Reporting. *Types of GHG Credits* GHG credits may be in the form of GHG offsets for prior reductions of GHG emissions verified through protocols or FMUs for future committed GHG emissions meeting protocols. Because emissions reductions from GHG offsets have already occurred, their benefits are immediate and can be used to compensate for an equivalent quantity of project-generated emissions at any time. GHG credits from FMUs must be funded and implemented within 5 years of project GHG emissions to qualify as a GHG credit under this measure (i.e., there can only be a maximum of 5 years lag between project emissions and their real-world reductions through funding a FMU in advance and implementing the FMU on the ground). Any use of FMUs that result in a time lag between project emissions and their reduction by GHG credits from FMUs must be compensated through a prorated surcharge of additional FMUs proportional to the effect of the delay. Because emissions of CO2 in the atmosphere reach their peak radiative forcing within 10 years, a surcharge of 10% for every year of lag between project emissions and their reduction through a FMU shall be added to the GHG credit requirement (i.e., 1.10 FMUs would be required to mitigate 1 metric ton of							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
project GHG emissions generated in the year prior to funding and implementation of the FMU). *Verification and Independent Review of GHG Credits* All GHG credits shall be verified by an independent verifier accredited by the ANSI National Accreditation Board (ANAB) or CARB, or an expert with equivalent qualifications to the extent necessary to assist with the verification. Following the standards and requirements established by the accreditation board (i.e., ANAB or CARB), the verifier shall certify the following. • GHG credits conform to a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 CCR 95972. Verification of the latter requires certification that the credits meet or exceed the standards set in 17 CCR 95972. • GHG credits are real, permanent, quantifiable, verifiable, enforceable, and additional, as defined in this measure. • GHG credits are purchased according to the geographic prioritization standard defined in this measure under Geographic Prioritization of GHG Credits. Verification of GHG offsets must occur as part of the certification process for compliance with the							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
accounting protocol. Because FMUs are GHG credits that result from future projects, additional verification must occur beyond initial certification is required. Verification for FMUs must include initial certification and independent verification every 5 years over the duration of the FMU generating the GHG credits. The verification shall examine both the GHG credit realization on the ground and its progress toward delivering future GHG credits. The project applicant shall retain an independent verifier meeting the qualifications described above to certify reductions achieved by FMUs are achieved following completion of the future reduction project.							

CUP23-0007 Durock Road AM/PM
Exhibit Q - Mitigation Monitoring and Reporting Program

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
Biological Resources							
Mitigation Measure (MM) BIO-1: Nesting Bird and Raptor Protection. The following shall be incorporated on any grading, improvement, or building permit plans. Future development at the Project site shall implement the following measures to protect nesting birds and raptors: ▸ To minimize impacts to special-status bird species, raptors, and other native birds, potential future development activities (e.g., tree removal, vegetation clearing, ground disturbance, staging, construction of off-site improvements) shall be conducted during the nonbreeding season (approximately September 1 through January 31, as determined by a qualified biologist), when feasible. If project activities are conducted during the nonbreeding season, no further mitigation is required prior to the proposed activity. ▸ If development activities must commence during the avian nesting season (between February 1 and August 31), within 7 days prior to commencement of work, a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for special-status birds, nesting raptors, and other native birds. Surveys shall be conducted in	Property owner or designee	Preconstruction nest survey(s) and report(s) provided to El Dorado County Planning Division	Prior to issuance of grading permit or prior to issuance of building permit, whichever is earlier	El Dorado County Planning Division			

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
publicly accessible areas within 0.5 miles of the development activity area for golden eagle, 0.25 miles of the development activity area for white-tailed kite, 500 feet of the development activity area for other raptor species and special-status birds, and 50 feet of the development activity area for non-raptor common native bird nests. ▸ If no active bird nests are found, the qualified biologist shall submit a report documenting the survey methods and results to the applicant and El Dorado County, and work may proceed. If at any time during the nesting season there is a lapse of two weeks or more with no work, a new survey for nesting birds shall be completed before work proceeds. ▸ If an active bird nest is found, a no-disturbance buffer shall be established around the nest site until the breeding season has ended or a qualified biologist has determined that the young have fledged or the nest is no longer active. ▸ The size of the no-disturbance buffer shall be determined by the biologist, based on the sensitivity of the bird species, nesting chronology of the species, disturbance characteristics (type, extent, visibility, duration, and timing), existing ambient conditions, and other factors (e.g., screening from existing structures, vegetation, or topography), as determined by the biologist.							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
Buffers typically shall be 0.5 miles for golden eagle, 0.25 miles for white-tailed kite, 500 feet for other raptors, 100 feet for non-raptor special-status bird species, and at least 20 feet for common non-raptor bird species. The size of the buffer may be adjusted if a qualified biologist determines that such an adjustment shall be unlikely to adversely affect the nest. Any buffer reduction for a special-status bird species shall require coordination with CDFW. ▸ Daily monitoring of the nest by a qualified biologist during activities shall be required if the activity has potential to adversely affect the nest as determined by the qualified biologist, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project activities, as determined by the qualified biologist. ▸ Documentation of compliance with this mitigation measure and any required coordination with CDFW shall be provided to El Dorado County before commencement of any project construction activities.							
MM BIO-2: Special-Status Plant Protection. The following shall be incorporated on any grading, improvement, or building permit plans. Prior to future	Property owner or designee	Rare plant survey(s), monitoring, and report(s)	Prior to issuance of grading permit or	El Dorado County Planning Division			

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
development at the Project site, the following measures shall be implemented to protect special-status plants: ▸ Prior to any vegetation clearing, ground disturbing, or construction activities within the Project site, a qualified botanist shall implement protocol-level botanical surveys during the blooming period for the special-status plants with potential to occur in the Project site. The survey shall be conducted during the blooming/identification period closest to the initiation of proposed vegetation clearing or ground disturbance. ▸ The surveys shall include all areas where habitat potentially suitable for special-status plant species would be removed or disturbed, plus a 25-foot buffer. ▸ Surveys shall follow methods from CDFW's *Protocols for Surveying and Evaluating Impacts on Special-Status Native Plant Populations and Natural Communities* (CDFW 2018 or most recent version). The qualified botanist shall (1) be knowledgeable about plant taxonomy; (2) be familiar with plants of the Project region, including special-status plants and sensitive natural communities; (3) have experience conducting floristic botanical field surveys as described in CDFW's protocol document; (4) be		provided to El Dorado County Planning Division	prior to issuance of building permit, whichever is earlier; during construction					

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
familiar with the California Manual of Vegetation (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/); and (5) be familiar with federal and state statutes and regulations related to plants and plant collecting. ▸ If no special-status plants are found, the botanist shall document the findings in a report to the applicant and El Dorado County, and no additional measures are required prior to proposed activities. ▸ If activities last for more than one year, the botanical surveys described above shall be repeated during the blooming period in subsequent years prior to additional vegetation clearing or ground disturbing activities. ▸ If special-status plants are found, the botanist shall clearly mark, map, and record their locations. A no-disturbance buffer shall be established surrounding these locations, consisting of high visibility fencing with a minimum 4-foot-tall metal fence posts (such as t-posts). Fencing shall be maintained in place throughout the entirety of all ground disturbance or vegetation removal activities to ensure that the special-status plants are protected from equipment and vehicles, construction personnel, digging, trenching, placement of fill, storage of equipment or							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
materials, and all other activities. All personnel involved in ground disturbance or vegetation removal work shall be informed of the requirement to avoid no-disturbance areas and shall be required to sign an acknowledgement that they have received these instructions and agree to adhere to all mitigation measures. ▸ If special-status plant species are found that cannot be avoided, appropriate mitigation shall be implemented and shall depend on the species and its protection status. ▸ For unavoidable impacts to Pine Hill endemics, mitigation shall include compliance with the County's Ecological Preserve Fee Program and Zoning Ordinance Chapter 130.71. The project site is in Mitigation Area 1. ▸ For unavoidable impacts to special-status plants that are not listed under the federal ESA or CESA, various methods may be used to minimize or compensate for impacts on these species. Depending on the biology of the species affected and the potential for transplanting and reseeding, establishing populations through seed collection or transplantation from the site that is to be affected may be implemented. Seeding or transplanting may be used to create new plant populations, or to enhance or expand existing populations. This work may be done in							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
coordination with California Native Plant Society. Potential mitigation sites could include suitable locations within or outside the project site. Mitigation could include, or consist of, expanding the affected population on the project site if only a portion of the population is to be removed and suitable habitat is available or can be created to expand the extent of the affected population into a new area. Habitat and individual plants lost shall be mitigated at a minimum 1:1 ratio, considering acreage as well as function and value of the new population and habitat. ▸ If an affected plant species, whether a Pine Hill Endemic or not, is protected under the federal ESA or CESA, coordination/consultation with USFWS and/or CDFW will be required. A site-specific mitigation strategy to compensate for loss of occupied habitat and individuals, consistent with the requirements of the federal ESA or CESA, will need to be developed and implemented. Actions to compensate for take of the federal ESA or CESA protected species may include preserving and enhancing existing populations and creation of new populations. Elements of the mitigation approach and success criteria required by USFWS or CDFW may include, but would not be limited to:							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
▸ Identification of appropriate mitigation ratios for enhancement, expansion, and creation of target plant populations to fully compensate for direct loss of affected plant populations as well as temporal losses of functions and values. ▸ Number and/or density of target plant individuals in the mitigation area. ▸ A requirement that compensatory and preserved populations shall be self-producing. Populations would be considered self-producing when plants reestablish annually for a set number of years with no human intervention, such as supplemental seeding. ▸ If mitigation includes dedication of conservation easements, identifying responsible parties for long-term management, conservation easement holders, long-term management requirements, and funding sources as determined appropriate by the regulatory agency(ies). ▸ Documentation of surveys, completion of the mitigation strategy, and coordination/consultation process with USFWS or CDFW shall be provided to El Dorado County before commencement of							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
any project activities that could adversely affect the protected plant species. Prior to any ground-disturbing or vegetation-removal activities, a Worker Environmental Awareness Training (WEAT) shall be prepared and administered to the construction crews. The WEAT will include the following: discussion of the state and federal Endangered Species Act, the Clean Water Act, the Project's permits and CEQA documentation, and associated mitigation measures; consequences and penalties for violation or noncompliance with these laws and regulations; identification of special-status wildlife that may be encountered on the project site; location of any avoidance, exclusion, or buffer areas; material to watch for that may indicate the presence of subsurface cultural resources; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a special-status wildlife species or potential cultural resources. A handout summarizing the WEAT information shall be provided to workers to keep on-site for future reference. Upon completion of the WEAT training, workers will sign a form stating that they attended the training, understand the information presented and will comply with the regulations discussed.							

CUP23-0007 Durock Road AM/PM
Exhibit Q - Mitigation Monitoring and Reporting Program

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
MM NOISE-1: Restricted Hours for On-Site Truck Circulation All on-site truck circulation (i.e., truck deliveries) at the project site shall be limited to daytime hours only (7:00 am to 7:00 pm).	Property owner or designee	A permanent sign shall be posted on-site in a location visible to customers that states the hours of on-site truck circulation and provides the most current Code Enforcement and Planning phone numbers. Code Enforcement Division shall verify ongoing compliance with this requirement in response to community inquiries.	Prior to Certificate of Occupancy, Ongoing operations	El Dorado County Planning Division, Code Enforcement Division (shall verify ongoing compliance with this requirement in response to community inquiries)			
MM GHG-1: Greenhouse Gas Emissions Mitigation The following shall be incorporated on any grading, improvement, or building permit plans, subject to review and approval by the El Dorado County Planning Division:	Property owner or designee	Building permit review	Prior to issuance of building permit	El Dorado County Planning Division			

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
▸ BMP #1: The proposed project shall be designed and constructed without natural gas infrastructure; and ▸ BMP #2: The project shall be constructed to include EV Ready parking spaces at the ratio with which the current CalGreen Tier 2 standards require EV Capable spaces that are in effect at the time of the initial building permit submittal. If the prohibition of natural gas infrastructure is not enforceable or commercially feasible at the time of issuance of building permit(s), the project applicant shall require the commercial uses on-site to allow for the future retrofit of all natural gas appliances with all-electric appliances and purchase of off-site mitigation credits or forecasted mitigation units ("FMUs") (collectively, "GHG credits") for project-related GHG emissions from the component(s) using natural gas instead of electric. The emissions from the use of natural gas shall be calculated by a qualified professional using EDCAQMD, CARB, or the EPA-approved emissions models and quantification methods available and submitted to the County for review and approval, which shall include third-party review by a qualified consultant of the County's selection and be subject to applicant reimbursement of consultant costs.							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
Any and all GHG credits to off-set the use of natural gas must be created through a CARB-approved registry. These registries are currently the American Carbon Registry (ACR), Climate Action Reserve (CAR), and Verra, although CARB may accredit additional registries in the future. These registries use robust accounting protocols for all GHG credits created for their exchange, including the six currently approved CARB protocols. This mitigation measure specifically requires GHG credits created for the project originate from a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 CCR 95972. The selected protocol must demonstrate that the GHG emissions reductions are real, permanent, quantifiable, verifiable, enforceable, and additional. Definitions of these terms from 17 CCR 95802(a) are provided below. 1. Real: GHG reductions or enhancements result from a demonstrable action or set of actions and are quantified using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG reservoirs within the [GHG credit] project boundary and account for uncertainty and the potential for activity-shifting and market-shifting leakage. 2. Additional: GHG reductions or removals that exceed any GHG reduction, or removals							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
otherwise required by law, regulation, or legally binding mandate, and that exceed any GHG reductions or removals that would otherwise occur in a conservative Business as Usual scenario. 3. Permanent: GHG reductions and removal enhancements are not reversible or, when GHG reductions and GHG-removal enhancements may be reversible, mechanisms are in place to replace any reversed GHG-emission reductions and GHG-removal enhancements to ensure that all credited reductions endure for at least 100 years. 4. Quantifiable: The ability to accurately measure and calculate GHG reductions or GHG-removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emission sources, GHG sinks, or GHG reservoirs included within the [GHG credit] project boundary, while accounting for uncertainty. Activity-shifting, and market-shifting leakage. 5. Verifiable: A [GHG credit] project report assertion is well-documented and transparent such that it lends itself to an objective review by an accredited verification body. 6. Enforceable: The authority for CARB to hold a particular party liable and take appropriate action if any of the provisions of this article are							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
violated. Note that this definition of enforceability is specific to the Cap and-Trade regulation, where CARB holds enforcement authority, but this measure shall employ GHG credits from the voluntary market, where CARB has no enforcement authority. Applying the definition to this mitigation measure means that GHG reductions must be owned by a single entity and backed by a legal instrument or contract that defines exclusive ownership. *Geographic Prioritization of GHG Credits* GHG credits from reduction projects in El Dorado County (County) shall be prioritized before projects in larger geographies (i.e., northern California, California, United States, and international). The project applicant shall inform brokers of the required geographic prioritization for the procurement of GHG credits. GHG credits from reduction projects identified in the County that are of equal or lesser cost compared to the settlement price of the latest Cap-and-Trade auction must be included in the transaction. GHG credits from reduction projects outside of the County may be purchased if adequate credits cannot be found in the County or if they exceed the maximum price identified above. The economic and geographic analysis undertaken to inform the selection of GHG credits must be provided by the project applicant to the County as							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
part of the required documentation discussed below under Plan Implementation and Reporting. *Types of GHG Credits* GHG credits may be in the form of GHG offsets for prior reductions of GHG emissions verified through protocols or FMUs for future committed GHG emissions meeting protocols. Because emissions reductions from GHG offsets have already occurred, their benefits are immediate and can be used to compensate for an equivalent quantity of project-generated emissions at any time. GHG credits from FMUs must be funded and implemented within 5 years of project GHG emissions to qualify as a GHG credit under this measure (i.e., there can only be a maximum of 5 years lag between project emissions and their real-world reductions through funding a FMU in advance and implementing the FMU on the ground). Any use of FMUs that result in a time lag between project emissions and their reduction by GHG credits from FMUs must be compensated through a prorated surcharge of additional FMUs proportional to the effect of the delay. Because emissions of CO2 in the atmosphere reach their peak radiative forcing within 10 years, a surcharge of 10% for every year of lag between project emissions and their reduction through a FMU shall be added to the GHG credit requirement (i.e., 1.10 FMUs would be required to mitigate 1 metric ton of							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
project GHG emissions generated in the year prior to funding and implementation of the FMU). *Verification and Independent Review of GHG Credits* All GHG credits shall be verified by an independent verifier accredited by the ANSI National Accreditation Board (ANAB) or CARB, or an expert with equivalent qualifications to the extent necessary to assist with the verification. Following the standards and requirements established by the accreditation board (i.e., ANAB or CARB), the verifier shall certify the following. • GHG credits conform to a CARB-approved protocol or a protocol that is equal to or more rigorous than CARB requirements under 17 CCR 95972. Verification of the latter requires certification that the credits meet or exceed the standards set in 17 CCR 95972. • GHG credits are real, permanent, quantifiable, verifiable, enforceable, and additional, as defined in this measure. • GHG credits are purchased according to the geographic prioritization standard defined in this measure under Geographic Prioritization of GHG Credits. Verification of GHG offsets must occur as part of the certification process for compliance with the							

Mitigation Measure	Monitoring				Verification		
	Implementing Party	*Type of Monitoring Action*	*Timing Requirements*	*Monitoring/ Verification Entity*	*Signature*	*Date*	*Comments*
accounting protocol. Because FMUs are GHG credits that result from future projects, additional verification must occur beyond initial certification is required. Verification for FMUs must include initial certification and independent verification every 5 years over the duration of the FMU generating the GHG credits. The verification shall examine both the GHG credit realization on the ground and its progress toward delivering future GHG credits. The project applicant shall retain an independent verifier meeting the qualifications described above to certify reductions achieved by FMUs are achieved following completion of the future reduction project.							

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan
Cc: Ande Flower; Karen L. Garner; Robert J. Peters; Aaron D. Mount
Subject: Fw: Arco gas station -
Date: Tuesday, September 23, 2025 10:46:09 AM

Please see the comment below regarding CUP23-0007.

Thank you,

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: luckysgirl2040 <luckysgirl2040@yahoo.com>
Sent: Tuesday, September 23, 2025 10:35 AM
To: Planning Department <planning@edcgov.us>
Subject: Arco gas station

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

I find it funny how you say traffic isn't a problem in this area along with noise and more light pollution. Nothing rural about any of this. What does our general plan say? This clearly violates our general plan!!!

How is someone benefitting by saying yes? That is my first question. Just speaking what everyone else is thinking.

Frankly I'm sick of my home being wrecked by people who could care less about the people who already live here!

Why not!? There will be more risk taking, pedestrian and traffic accidents if this goes through. It is a health and safety violation written in our county codes and covenants. Not to mention polution, impacting the existing wildlife. Bring crime to our area, more stops and people who do not live here. Loitering etc.

Traffic is horrible now! Stop lying about the traffic. Go sit in the park and ride and monitor the 2 car length passing lane you approved or that there is no room for one to get off the freeway because of the traffic light at durock road stops the exiting of highway 50. Or how you have to wait several minutes to get on hwy 50 at ponderosa road because of the traffic lights. Its a joke! You have once again allowed overbuilding for an area that cannot handle peak traffic and or normal business traffic for that matter.

The property where they want to put an arco should be used as a freeway bypass to south shingle. Not make ponderosa road and south shingle impassable, a nightmare beyond nightmares. What's wrong with you people? If you don't live here, or in shingle springs, use the ponderosa exit, daily, you should not have a say. Look at Missouri Flat! Another joke! A mess someone shuffled onto the people who were already here. You have turned motherlode into a nightmare because of your incompetence of Missouri flat and overbuilding our county. Emergency vehicles cant even maneuver the traffic anymore. Who cares, its not you....maybe someday it will be.

Thats what's wrong today? No one wants to speak up or call out evil or stupidity. This is both. Stupid because it ruins this access road to homes both north and south, denying the major F level traffic already present. You want to add to it and ignore the public. Evil because in my opinion there is a backroom deal being made to get this signed off. No one in their right mind would approve this. Learn from the 76 station nightmare!!!

Anyone who says yes to this project should be fired on the spot. This is an obvious problem that is not addressed now and you want to add to it, lie about it it not being a problem? Obviously, you don't live around there. Just collect your benefits and burden the people?

Its really time to hold county workers accountable for the business that is supposed to happen on our behalf. I don't see the people of el dorado county represented for the past 30 years..

Its really getting old!!! Look at what we have now!! You are ruining our home, one decision at a time. There are thousands who have lived here for years who feel the same. Fix it!!!

No on Arco!!

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan; Ande Flower; Karen L. Garner; Robert J. Peters
Subject: Fw: Comments on Proposed ARCO Gas Station, etc. at Durock & South Shingle
Date: Tuesday, September 23, 2025 2:58:46 PM

FYI

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: Lynnee Boyes <lboyes@prodigy.net>
Sent: Tuesday, September 23, 2025 2:57 PM
To: Planning Department <planning@edcgov.us>; BOS-District IV <bosfour@edcgov.us>
Cc: info@shinglespringscommunityalliance.com <info@shinglespringscommunityalliance.com>
Subject: Comments on Proposed ARCO Gas Station, etc. at Durock & South Shingle

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

Dear Planner Anna Quan & Supervisor Parlin,

My name is Lynnee Boyes, and I am a resident of South Shingle Road. I am writing to express my strong opposition to the proposed ARCO gas station, carwash, and convenience store at the intersection of Durock Road and South Shingle Road. As a community member, I have serious concerns about the appropriateness and long-term impact of this project. Specifically:

- There are already **two gas stations**, **three convenience stores**, and **one carwash** within one-tenth of a mile of the proposed site. This development is not fulfilling an unmet need.
- The intersection at Durock and South Shingle is **already heavily congested**, especially during **Ponderosa High School's** morning arrival and afternoon dismissal times. Adding more traffic from a high-turnover business like a gas station will worsen this problem significantly.
- The intersection is scheduled for **realignment within the next 0 years**, meaning this project would cause additional **early construction disruption** and extend the period of congestion and traffic detours for our community.
- While I understand the project may technically meet zoning and legal criteria, **common sense and community interest** suggest this is not a responsible or community-minded location for such a redundant and disruptive development.
- Additionally, Durock Road is **already non-compliant due to its proximity to the reeway o ramp**, which raises further concerns about traffic safety and planning oversight.

I respectfully request that you reconsider approval of this project, or at the very least, initiate a thorough review that includes **genuine community input**. It's clear that this area is already overburdened, and adding yet another gas station and carwash will only degrade the quality of life for residents, increase safety risks, and prolong traffic impacts related to construction.

Finally, I would appreciate any guidance you can provide regarding **how local residents can ormally protest or appeal this pro ect**, beyond submitting written comments. We deserve to have our voices heard — not just because the project meets regulatory checkboxes, but because the people who live here do not support it.

Thank you for your time and attention.

Respectfully,

Lynnee Boyes

Resident, South Shingle Road

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan
Subject: Fw: AM/PM Durock & So Shingle
Date: Tuesday, September 23, 2025 8:16:44 AM

FYI

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: Marc Chaisson <mchaiss@gmail.com>
Sent: Tuesday, September 23, 2025 8:08 AM
To: Planning Department <planning@edcgov.us>
Subject: AM/PM Durock & So Shingle

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

Hello Anna Quan,

I'd like to take issue with the Draft MND concerning the proposed Arco AM/PM market and its impact on traffic. For anyone who has to experience the morning traffic mess on Mother Lode and So Shingle this proposal is not good news. The congestion and unsafe traffic maneuvers (especially middle-of-the-road U-turns) that are a daily occurrence in this area are a real problem, This AM/PM will only make a bad situation worse. For the Draft MND is suggest that traffic will not be an issue is categorically incorrect.

Sincerely,

Marc Chaisson
Shingle Springs

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan; Ande Flower; Karen L. Garner; Robert J. Peters
Subject: Fw: ARCO at Durock Road and South Shingle
Date: Monday, September 29, 2025 8:13:43 AM

FYI

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: Cindie Blodgett <cbwetlab@att.net>
Sent: Saturday, September 27, 2025 9:26 PM
To: Planning Department <planning@edcgov.us>
Subject: ARCO at Durock Road and South Shingle

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

Hello,

As a 33 year resident living off of South Shingle Rd, I have serious concerns about adding an Arco at the proposed site. Yes; it would be wonderful to have a gas station in that location. However, the current traffic situation at and near that intersection is horrible. Congestion already causes traffic light waits of up to 3 light changes. Even just one light change adds to the next light which can easily add 5 to 10 minutes to travel time. When there was a stop sign at that intersection, we could get to our son's house on the other side of the freeway within 7 minutes. Now it takes a minimum of 15 to 20 minutes, going the same distance.

My concern is that adding an Arco would only make matters worse.

I have heard there are plans to re-do those intersections. Perhaps waiting until after the intersections have been re-constructed, there might be room for the additional traffic an Arco would bring. Until then, I do not feel there is sufficient traffic flow.

Thank you for considering,

Cindie Blodgett

No act of kindness, no matter how small, is ever wasted. - Aesop

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan; Ande Flower; Karen L. Garner; Robert J. Peters
Subject: Fw: Proposed Arco station at Durock and S. Shingle Rd.
Date: Monday, September 29, 2025 8:12:33 AM

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: JoAnn LoFranco <jlofranco@yahoo.com>
Sent: Saturday, September 27, 2025 12:12 PM
To: Planning Department <planning@edcgov.us>
Subject: Proposed Arco station at Durock and S. Shingle Rd.

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

We do not need another gas station and mini mart at this intersection. This intersection is already over-impacted with traffic and back ups. You can hardly get through the 2 existing signals in the morning and afternoon.
The traffic getting on and off of highway 50, going to Ponderosa High School, and getting in and out of the existing shopping center where the post office is located is almost impossible. This is not a good place to put another business that is going to generate more traffic on S. Shingle Rd. and Durock Rd.

JoAnn LoFranco

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan; Ande Flower; Karen L. Garner; Robert J. Peters
Subject: Fw: Opposition Complaint Against Arco AM/PM Gas Station Proposal
Date: Monday, September 29, 2025 3:21:38 PM

FYI

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: Cecilia Watkins <chispasurf@yahoo.com>
Sent: Monday, September 29, 2025 3:18 PM
To: Planning Department <planning@edcgov.us>
Subject: Opposition Complaint Against Arco AM/PM Gas Station Proposal

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

Subject: Opposition to Conditional Use Permit for Arco AM/PM Gas Station
Dear Anna Quan, We, the undersigned, are writing to formally express our opposition to the Conditional Use Permit request for the proposed construction and operation of a new Arco AM/PM gas station at Assessor's Parcel Numbers 109-080-012 and 109-080-013.
1. Environmental Concerns: The proposed gas station could hurt the local environment. The construction of a 3,349-square-foot convenience store, a large fuel canopy, and three underground storage tanks may lead to soil and water contamination from potential fuel leaks and spills. Moreover, increased runoff from impervious surfaces could worsen local flooding and water pollution, posing risks to nearby residential areas, wildlife, and ecosystems.

2. Traffic Issues: Introducing another gas station in an already congested area will significantly increase traffic volume and worsen existing traffic problems. With two other gas stations nearby, competition for space is likely to lead to congestion, longer wait times, and a higher risk of accidents, affecting traffic flow not only during peak hours but also increasing safety concerns.

3. Health Risks: The operation of an Arco AM/PM gas station raises health concerns for residents in the vicinity. Emissions from fuel dispensers, including volatile organic compounds (VOCs) and particulate matter, can impact air quality and pose risks to respiratory health. Increased traffic and vehicle idling will further contribute to air pollution, particularly affecting local families and children.

4. Gas Station Saturation: The proposed location is already saturated with fuel service options, with two gas stations within proximity. Adding another gas station is unnecessary and raises concerns about market saturation and economic viability. It is crucial to prioritize the community's well-being and environmental protection over unnecessary commercial development. In conclusion, we strongly oppose the conditional use permit for the proposed

Arco AM/PM gas station.

We urge the planning commission to carefully consider the environmental, traffic congestion, public health, and market saturation impacts in this area.

Thank you for considering our concerns. Sincerely,

Pheary and Cecilia Watkins
4225 South Shingle Court,
Shingle Springs, CA 95682 (less than 1/3 mile from proposed site) Chispasurf@yahoo.com
530-400-2636 9/29/2025

Yahoo Mail: Search, Organize, Conquer

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan; Ande Flower; Karen L. Garner; Robert J. Peters
Subject: Fw: ARCO gas station
Date: Thursday, October 2, 2025 9:28:32 AM

FYI

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: James Thompson <jvthompson01@gmail.com>
Sent: Thursday, October 2, 2025 9:24 AM
To: Planning Department <planning@edcgov.us>
Subject: ARCO gas station

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

Planned construction at South Shingle Rd. and Durock Rd. will definitely result in increased traffic. Currently there exists a Standard and a 76 gas station at that intersection. The exit from US 50 often backs up onto the highway which already causes congestion and hazards. There is an existing ARCO station at the exit to Placerville Drive.

I am not in support of the addition of an ARCO gas station at this location. Please deny the request as this intersection is already congested.

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan
Cc: Ande Flower; Robert J. Peters; Karen L. Garner; Aaron D. Mount
Subject: Fw: CUP23-0007 permit #
Date: Friday, October 3, 2025 11:16:54 AM

FYI

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: Terrell <ctakbbgaches@gmail.com>
Sent: Friday, October 3, 2025 11:06 AM
To: Planning Department <planning@edcgov.us>
Subject: CUP23-0007 permit #

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

Please do not approve this commercial site for yet another gas station and mini mart. There's no need for another gas station! Traffic is horrible and we want to keep Shingle Springs Rural!!!!
Terrell Gaches

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

From: Planning Department
To: Anna Y. Quan; Ande Flower; Karen L. Garner; Robert J. Peters
Subject: Fw: CUP23-0007: ARCO Station Proposal - Shingle Springs - Durock Rd
Date: Friday, October 10, 2025 8:05:38 AM

FYI

County o El Dorado
Planning and Building Department (Planning Services)
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5355

From: Roberta Bailey <maijour@comcast.net>
Sent: Thursday, October 9, 2025 5:58 PM
To: Planning Department <planning@edcgov.us>
Subject: CUP23-0007: ARCO Station Proposal - Shingle Springs - Durock Rd

This Message Is From an Untrusted Sender
You have not previously corresponded with this sender.
Report Suspicious

Attention: **Anna Quan**, County of El Dorado, Planning and Building Department, County Planner

As a resident of Cameron Park, sharing the same post office as Shingle Springs (95682) this is an ill conceived location for a gas station/market/car wash. I regularly attend yoga classes at Snap Fitness on Durock Rd. Our group is mostly older women, but of course the facility attracts men and women of all ages and times of day. My experience turning left from Durock Rd to access the Hwy 50 onramp across the overpass is often a hazardous approach because the space before the traffic lights at the intersection is not able to accommodate the vehicles, blocking Durock and motorists backed up on Shingle Springs Rd.
Yesterday, October 8, a work crew was painting the pedestrian lines on Shingle Springs Rd from the corner of the 76 Station to the other side of the Park & Ride near where cars are exiting Hwy 50 (not exactly safe for foot traffic). I was stopped in front of the workmen who payed no attention to drivers as the lights were not working and motorists risked taking turns moving across the intersection or angling left or right. This was an exceptional situation, but it demonstrates how impacted this section of road becomes whether lights are functioning or not.

Please **reject the proposal** for ARCO to have a gas station AMPM and carwash.

CONSIDER: Traffic - Intersections - Lights - Congestion - Access - Directions - Obstructions - Fire - Emergencies - Safety

1. The configuration of *on and off* ramps for Hwy 50 is difficult to navigate, especially for motorists unfamiliar with the territory
2. Traffic lights from Durock, Shingle Springs Rd, Mother Load and Hwy 50 are routinely congested filling up the intersection in front of the 76 Station

3. Two exits West, off Cambridge Rd, have a convenient ARCO with a market and car wash
4. What happens to traffic management when semi trucks arrive to fill gas pump tanks? Traffic delays and congestion
5. Traffic accidents could result in fuel fires that turn wild with motorists stuck in all directions obstructing fire trucks and crews… threatening lives, properties and wildlife
6. The 76 Station is sufficient for this highway exit with a market and deli across Mother Load
7. People who need to use the post office could be impacted by non residents filling up on road trips
8. The Cameron Park Drive exit has four gas stations, car washes and food, plus Bel Air Supermarket, Safeway, Forklift, restaurants, CVS, banks and more

The quality of life for residents of 95682 would be unnecessarily impacted by imposing an unneeded gas station in this location.

Your attention and rejection of this proposal is appreciated.

Kindly,

Roberta Bailey
Cameron Park

CUP23-0007 Durock Road AM/PM
Exhibit R - Initial Study Public Comments

County of El Dorado
Planning and Building Department
County Planner: Anna Quan
2850 Fairlane Court
Placerville, CA 95667

2025 OCT 10 AM 11:17
RECEIVED
PLANNING DEPARTMENT

04 October 2025

RE:

Dear Ms. Quan:

Let's start here by me stating my STRONG opposition to the proposed (planned?) ARCO gas station and convenience store (and car wash facility) on the West side of South Shingle Road at its intersection with Durock Road.
First comment, as questions, is this: How many large scale gas stations, car wash facilities, and convenience stores are needed, even justified, at the South Shingle Road-Durock Road intersection? Is there a documented services demand for more of each that the proposal meets?

As a frequent user of the South Shingle Road-Durock Road intersection (transiting from Mother Load to Durock Road; South Shingle Road to Durock Road; Durock Road to Mother Load; Mother Load to Pondersoa Road heading to Meder or the Westbound Highway 50 on-ramp, for examples) more often than not it involves extensive traffic movement congestion and excessive delays. Traffic signals are poorly sequenced now so that few vehicles can move at one time before there is a signal change.

Adding more transitory traffic to this already expeditious movement challenged intersection is not needed- or good planning. Then there is the matter of anyone using or wishing to use the ARCO gas station, car wash, and/or convenience store getting from the surrounding roads into the ARCO facility, or getting out of the facility onto the surrounding roadways.
Traffic backed up on Eastbound Durock Road at the South Shingle Road intersection will make entering Durock Road from the ARCO facility very challenging for all involved and create more congestion and movement delays. It may also adversely affect businesses on Durock West of the intersection since ingress and egress for those businesses may present a challenge for customers and lead to a customer frustration and unacceptable delays in entering and leaving those businesses - and decrease in customer participation. Less business means less income leads to closing shop. So, the ARCO proposal has an adverse business climate impact as well as an adverse traffic congestion impact.

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

YANA GARCIA
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

21 October 2025

Anna Quan
County of El Dorado
2850 Fairlane Court
Placerville, CA 95667
anna.quan@edcgov.us

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, CUP23-0007 - DUROCK ROAD AM/PM PROJECT, SCH 202 0 0 , EL DORADO COUNTY

Pursuant to the State Clearinghouse's 22 September 2025 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the CUP23-0007 - Durock Road AM/PM Project, located in El Dorado County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by

the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Re uirements

Clean Water Act Section 0 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 0 Permit Water Quality Certi ication

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Re uirements Discharges to Waters o the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter G. Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Marc Strauch
Strauch and Company
marc.s@strauchco.com

CUP23-0007 Durock Road AM/PM
Exhibit S - Shingle Springs Community Alliance Community Meeting Follow Up Letter

Via Email: matthew.aselage@edcgov.com

February 29, 2024

El Dorado County Planning and Building Department

2850 Fairlane Court

Placerville, CA 95667

ATTN: Mr. Matthew Aselage, Planner

Re: ARCO Project Meeting Outcomes with Shingle Springs Community Alliance 2-8-24

Dear Mr. Aselage:

As you requested at the end of our meeting on February 8, 2024 with representatives of ARCO, the El Dorado County Planning and Building Department, the El Dorado County Department of Transportation, and selected core members of the Shingle Springs Community Alliance (SSCA), presented below is a brief summary of the main points addressed and the outcomes from the perspective of the SSCA.

Traffic and Traffic Flow

- Where will the gasoline tankers go once they exit southbound onto South Shingle Road?

  The ARCO project team submitted a figure showing that the tanker trucks will go south on South Shingle Road, turn left onto Sunset Lane, then turn left onto Motherlode Drive to return to Highway 50 on-ramps.

  SSCA Response: We are concerned with the prospect of gasoline tanker trucks travelling along Sunset Lane. Sunset Lane is a 25 mph narrow road. It is not a truck route. A large low income apartment complex is located on Sunset Lane. The left turn from Sunset Lane onto Motherlode Drive can be difficult during periods of traffic as Sunset Lane enters Motherlode Drive at the base of a hill where vehicles are typically travelling at speed. Have the residents of the apartment complex been notified that gasoline tanker trucks will be driving by their building five times a week? The truck route does not appear appropriate. Additionally, Sunset Lane is already burdened by large delivery trucks servicing Lee's Feed during periods when the trucks block one lane to unload. Vehicles often drive around them into the oncoming lane to get around the trucks, creating a safety hazard.

- How will vehicles exit the proposed ARCO station to return to Highway 50 and/or the Ponderosa Road overpass?

  SSCA Response: The traffic flow as originally proposed was flawed, as vehicles could not realistically turn left onto South Shingle Road toward Highway 50 under present-day conditions. Zach Oates of the El Dorado County Department of Transportation recently submitted a text to

the ARCO team clarifying that issue, stating that as a condition of development a "two-way left turn lane" on South Shingle Road must be constructed concurrently with the project. The SSCA would like to see a site plan showing the two-way left turn lane to understand how that would work.

- Exiting the proposed ARCO station after Durock Road is realigned.

  Once Durock Road is realigned to the south the second driveway of the proposed ARCO station is replaced with a driveway into the Park & Ride. To access Durock Road vehicles must exit using another driveway from the Park & Ride.

  SSCA Response: This is an awkward fix to a property no longer located on a corner. One of the two driveways is replaced by what is essentially an emergency access driveway into a Park & Ride. Intuitively that should result in more traffic using the driveway along South Shingle Road, further congesting traffic. Also, it is unclear how vehicles will turn left onto South Shingle Road after South Shingle Road is enlarged to two lanes each way – vehicles apparently would need to cross two lanes of traffic to access northbound South Shingle Road. We remain unconvinced that traffic flow will not result in significant traffic congestion. Further, all those wishing to travel eastbound on Motherlode Drive will more than likely use Sunset Lane as opposed to trying to turn left on South Shingle Road to access Motherlode Drive. Sunset Lane will therefore be receiving significantly more traffic. Has that been analyzed?

Architectural Building Design Elements

The SSCA requested that the generic building design be improved aesthetically in consideration of the community's 10+ year effort to enact Community Design Standards; the County Planning Department was to finalize the standards consistent with design elements that the SSCA identified in 2013 after public meetings and input. To date, the County has yet to resume that work.

- The ARCO team presented an alternative design for the buildings and pump island, replacing the exterior stucco finish with lap siding fiber board and shingle siding (cement fiber board in a shingle design) to create more of a rustic look of wood siding and shingles.

  SSCA Response: The SSCA appreciates the alternate design, including the arched canopy roof. It is a significant improvement. While the building design is not strictly in line with the themes identified by the community in 2013 it nevertheless is a big improvement. During the meeting the addition of stone elements was discussed but not agreed to. The addition of stone elements similar to the ARCO station in El Dorado Hills at Green Valley and Sophia Parkway, or perhaps the use of slate or some other stone, would further improve the look of the buildings and we encourage the ARCO team to reconsider that.

Vaping Products

- The SSCA requested that ARCO not sell vaping products in consideration of the problem of vaping use by kids at nearby Camerado Middle School and Ponderosa High School, as well as in light of the County's recent decision to halt further licenses for tobacco sales county-wide until a

tobacco ordinance is established. The ARCO team emphasized their controls to prevent underage customers from purchasing vaping and other tobacco products.

SSCA Response: We remain at odds with the ARCO team's position that their selling vaping products will not further increase the local supply of vaping products that may ultimately end up in the possession of underage kids. We do not question the effectiveness of ARCO's controls in preventing underage sales. Rather, we remain concerned that by offering vaping products in addition to other nearby retailers (a smoke shop on Durock Road, and likely Gold Harvest Market and the 76 station) the ample supply will make it easier for underage kids to procure vaping products from older kids or others.

Other Topics

- Noise – We understand the noise study concluded that noise from the project site, most notably the car wash dryer, would not exceed county standards closest to the residential structures southwest of the proposed ARCO station. However, we question whether the noise standard would be exceeded past the site boundary in other directions – toward the Park & Ride to the north, the 76 station to the east, and the shopping center to the southeast.

- Signage – The height of signage was not identified in project documents or discussed in the meeting. We are interested in tasteful signage that is not too tall and not too bright. We value a dark night sky. We understand that there are limitations to signage height if located within a certain distance of a highway or perhaps a Caltrans easement along the highway (100 feet is our understanding) and assume that the County will consider sign restrictions defined both by the County ordinance and by Caltrans. Additionally, it is our understanding that if a sign is proposed within 100 feet of a highway or Caltrans easement within a Community Commercial zoned property a design review permit would be needed which would require review by the Planning Commission.

- Transformer – Electrical transformers can be difficult to acquire depending on the provider. We assume that procurement of a transformer has been evaluated and will not stall the project if constructed.

In closing, progress was made in the meeting but there remains concern regarding:

1) Traffic flow patterns under present day conditions. What does the two-lane left turn lanes look like? What happens when traffic is backed up at the stoplight on South Shingle Road preventing additional vehicles from turning left from the station? Is routing gasoline tanker trucks onto Sunset Lane an acceptable solution? Is Sunset Lane a truck route? Have the tenants in the apartment building on Sunset Lane been notified of that plan?

2) Traffic flow conditions after Durock Road is realigned and South Shingle Road is widened to two lanes in each direction. Eliminating the driveway to Durcok Road and replacing it with a driveway into the Park & Ride and a second driveway from the Park & Ride to Durock Road will

likely result in more traffic on South Shingle Road. How will traffic turn left onto South Shingle Road when there will be two southbound lanes of traffic to cross?

3) Building design elements – the alternate building design is a welcome improvement. We ask that the additional use of stone elements be considered.

4) Vaping products should not be sold.

5) Confirmation that noise standards will not be exceeded beyond the property boundary in all directions.

In light of these concerns and the inherent limitations posed by the location of the project, including with regard to traffic flow and traffic impacts, review by the Planning Commission appears appropriate for this project.

Thank you for considering the local community in your review of this project.

Sincerely,

Tim Costello, SSCA