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:**
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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: Lela Shelley, 530-621-5859

PROJECT: DR22-0007/Cool Station, Automobile-based Commercial Project

PROJECT LOCATION: The property, identified by Assessor's Parcel Numbers 071-080-007 & 071-500-036, consisting of 5.2 acres, is located on the northeast corner of the intersection between California State Highway 49 and California State Highway 193, in the Cool Rural Center, Supervisorial District 4.

PROJECT DESCRIPTION: Design Review for the proposed two-phase construction of a 7,205-square-foot commercial building including a 2,585-square-foot drive-thru quick serve restaurant, and a 4,620-square-foot Convenience store. An additional 3,024-square-foot fuel canopy would be developed alongside the commercial building as Phase One, with associated driveways, parking lot, utilities, signage, and landscaping improvements. Phase Two would include a 2,852-square-foot building expansion and the development of an 1,892-square-foot carwash.

PUBLIC REVIEW PERIOD: The public review period for the Draft MND set forth in CEQA for this project is **30** days, beginning **September 22, 2025**, and ending **October 21, 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: Lela Shelley, 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 19, 2025

DRAFT MITIGATED NEGATIVE DECLARATION

FILE: DR22-0007

PROJECT NAME: Cool Station Automobile-based Commercial Project

NAME OF APPLICANT: Mel Higginbothom, Architect

ASSESSOR'S PARCEL NO.: 071-080-0007 & 071-500-036 **SECTION:** 18 **T:** 12 **R:** 9

LOCATION: Northeast corner of the intersection between California State Highway 49 and California State Highway 193, in the Cool Rural Center, Supervisorial District 4.

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

☐ **REZONING:** **FROM:** **TO:**

☐ **TENTATIVE PARCEL MAP** ☐
SUBDIVISION (NAME):

☐ **SPECIAL USE PERMIT TO ALLOW:**

☒ **OTHER:** Design Review

REASONS THE PROJECT WILL NOT HAVE A SIGNIFICANT ENVIRONMENTAL IMPACT:

☐ **NO SIGNIFICANT ENVIRONMENTAL CONCERNS WERE IDENTIFIED DURING THE 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

Initial Study/Proposed Mitigated Negative Declaration for the DR22-0007 / Cool Station – Automobile-based Commercial Project

Prepared for:

El Dorado County
2850 Fairlane Court
Placerville, CA 95667
530/621-5859

Contact: Lela Shelley, Project Planner

July 2025

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LIST OF ABBREVIATIONS

2023 Ozone Plan	Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan
AB	Assembly Bill
ADMP	Asbestos Dust Mitigation Plan
APN	Assessor's Parcel Number
AQAP	air quality attainment plan
Basin Plan	Water Quality Control Plan for the Sacramento and San Joaquin River Basins
BMP	best management practice
C	Commercial
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CDC	California Department of Conservation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	California Fire Code
CHRIS	California Historic Resources Information System Center
CL	Commercial Limited
CNDDB	California Natural Diversity Database
CO_2	carbon dioxide
County	County of El Dorado
CRHR	California Register of Historic Resources
CRPR	California rare plant rank
CWPP	community wildfire protection plan
dB	decibels
DC	Design Review - Community
DWR	California Department of Water Resources
EDCAQMD	El Dorado County Air Quality Management District
EDCHMP	El Dorado County Multi-Jurisdictional Hazard Mitigation Plan
EDCSO	El Dorado County Sheriff's Office
EMD	Environmental Management Department
EP	Ecological Preserve
ESA	federal Endangered Species Act
FR	Forest Resource
ft	feet
GHG	greenhouse gas
HVAC	heating, ventilation, and air conditioning
IS/Proposed MND	Initial Study/Proposed Mitigated Negative Declaration
LAMP	local agency management plan
LOS	level of service
LUST	leaking underground storage tank

MCAB	Mountain Counties Air Basin
MMRP	mitigation monitoring and reporting program
MRZ	Mineral Resource Zones
MS4	municipal separate storm sewer system
msl	mean sea level
$MTCO_2e/yr$	metric tons of carbon dioxide equivalent per year
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Center
NCIC	North Central Information Center
NOA	Naturally Occurring Asbestos
NOx	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NR	Natural Resource
NRCS	Natural Resource Conservation
ORMP	Oak Resources Management Plan
PG&E	Pacific Gas and Electric Company
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particles
PRC	California Public Resource Code
Project Applicant	MHA Design Services
Project	DR22-0007 / 2-Phase Cool Station - Automobile-based Commercial Facility
ROG	reactive organic gases
ROW	right-of-way
RWQCB	regional water quality control board
SB	Senate Bill
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SR	State Route
SRA	state responsibility area
SWMP	storm water management plan
SWPPP	storm water pollution prevention plan
TAC	toxic air contaminant
Technical Advisory	*Technical Advisory on Evaluating Transportation Impacts in CEQA*
THRIS	Tribal Historic Information System
TPZ	Timber Production Zone
UAIC	United Auburn Indian Community
US 50	US Highway 50
USFWS	US Fish and Wildlife Service
USGS	US Geological Service
VMT	vehicle miles traveled
WERS	Western El Dorado Recovery Systems

1 NOTICE ON INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

This Initial Study/Proposed Mitigated Negative Declaration (IS/Proposed MND) has been prepared for the County of El Dorado (County) as the lead agency under the California Environmental Quality Act (CEQA). The purpose of this IS/Proposed MND is to evaluate and disclose potential environmental effects resulting from the DR22-0007 / 2-Phase Cool Station - Automobile-based Commercial Facility Project (Project). Under CEQA, the lead agency is the public agency with primary responsibility over approval of the project.

The County prepared this Proposed MND because, although the attached IS identifies potentially significant environmental effects, revisions to the Project have been made or agreed to by the applicant that would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, consistent with Section 15070 of the State CEQA Guidelines.

1.1 PROJECT DESCRIPTION

MHA Design Services (the Project Applicant) has submitted an application to the County (the Lead Agency) for the DR22-0007 / 2-Phase Cool Station - Automobile-based Commercial Facility Project (Project). The project site consists of two parcels, one approximately 3.8-acres and one 1.4 acres (5.2 acres total). The Project is proposed in two-phase construction of a 9,787 square foot (sf) commercial building including four (4) suites as follows: 1,250 sf visitors center, a 1,500 sf non-drive-thru tenant, a 2,525 sf drive-thru quick serve restaurant, and a 4,512 sf commercial store (C-store).

1.2 PROJECT LOCATION

The Project site is located on the northeast corner of the intersection between California State Highway (SR) 49 and California SR 193, in the unincorporated community of Cool, in El Dorado County, California (assessor parcel number [APN] 071-080-007 and 071-500-036).

1.3 MITIGATION MEASURES INCLUDED IN THE PROJECT TO AVOID POTENTIALLY SIGNIFICANT IMPACTS

The following mitigation measures are identified in the attached IS to reduce potentially significant impacts.

Mitigation Measure 3.4-1: Nesting Bird and Raptor Protection

The project applicant shall implement the following measures to protect nesting birds and raptors:

- To minimize impacts to special-status bird species, raptors, and other native birds, development activities (e.g., vegetation clearing, ground disturbance, staging, construction of off-site improvements, and tree removal [if unavoidable]) 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 0.25 miles of the development activity area for white-tailed kite, 500 ft of the development activity area for other raptor species and special-status birds, and 50 ft 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 0.25 miles for white-tailed kite, 500 ft for other raptors, 100 ft for non-raptor special-status bird species, and at least 20 ft 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.

Mitigation Measure 3.4-2: Oak Resources Protection

If Project implementation results in the loss or removal of a native oak tree on the project site that qualifies for protection under the ORMP, the project applicant shall obtain a permit from the County and pay the mitigation fee for oak woodland impacts as stated in the ORMP. The project applicant shall coordinate with the County prior to any planned removal of native oak trees and notify the County of any damage to native oak trees during construction and comply with any ORMP requirements. For three years after any project construction under retained native oak trees, if any of these trees die from conditions attributable to changes in the ground in the tree's dripline, the applicant will coordinate with the County and comply with any ORMP mitigation requirements.

Mitigation Measure 3.5-1: Protection of Unknown Archaeological Resources

In the event that unknown buried archaeological deposits (e.g., prehistoric stone tools, milling stones, shells, midden soils) are encountered during construction, all ground-disturbing activity within 100 ft of the resources shall be halted and a qualified professional archaeologist (36 Code of Federal Regulations 61) and appropriate Native American tribal representative shall be notified immediately and retained to assess the significance of the find. Construction activities could continue in other areas. If the find is determined to be significant by the qualified archaeologist or Native American tribe (i.e., because it is determined to constitute a unique archaeological resource), the archaeologist, in consultation with the Count and the culturally affiliated Native American tribe(s) shall develop appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures could include but would not necessarily be limited to preservation in place, subsurface testing, or contiguous block unit excavation and data recovery.

Mitigation Measure 3.18-1: Protection of Known Tribal Cultural Resources

Components of the project that require earth-moving and excavation could impact the known Tribal cultural resource (P-09-003627). The project, as currently designed, would not result in ground disturbance within the known Tribal cultural resource. However, final engineering and other factors could change, which could cause project activities to move towards the Tribal cultural resource. To better protect the Tribal cultural resource in the event of unforeseen circumstances. a paid Tribal monitor authorized by UAIC will be present when the fencing is placed around the Tribal cultural resource. The monitor shall provide guidance on the placement of the fencing to achieve the desired protection of the Tribal cultural resource. A Tribal monitor from UAIC shall also be present during the removal of the fence. The applicant, or applicant's representative, shall fund the presence of the monitor during fence installation. In

addition, the applicant, or applicant's representative, shall contact and coordinate with the tribe 7 days prior to the installation of the fencing as well as 7 days prior to the removal of the fence.

Mitigation Measure 3.18-2: Protection of Unanticipated Discoveries of Tribal Cultural Resources

If any suspected Tribal cultural resources are discovered during ground disturbing construction activities, all work shall cease within 100 ft of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a Tribal cultural resource (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment as necessary.

When avoidance is infeasible, preservation in place is the preferred option for mitigation of Tribal cultural resources under CEQA and UAIC protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of Tribal cultural resources will not take place unless approved in writing by UAIC or by the California Native American Tribe that is traditionally and culturally affiliated with the project area.

The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a Tribal cultural resource may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, including AB52, have been satisfied.

1.4 REVIEW AND APPROVAL

The purpose of the IS/Proposed MND is to present to decision-makers and the public information about the environmental consequences of implementing the project. This IS/Proposed MND will be available for a 30-day public review period from September 12, 2025 to October 12, 2025.

Supporting documentation referenced in this document is available for review at:

County of El Dorado
Planning and Building Department
2850 Fairlane Court, Building C
Placerville, California 95667

Comments should be addressed to:

Ande Flower, Planning Manager
Planning and Building Department
2850 Fairlane Court, Building C
Placerville, California 95667

E-mail comments may be addressed to: lela.shelley@edcgov.us

If you have questions regarding the IS/Proposed MND, please call Lela Shelley (530) 621-5859. If you wish to send written comments (including via e-mail), they must be postmarked by October 12, 2025.

After comments are received from the public and reviewing agencies, the County may (1) adopt the MND, a mitigation monitoring and reporting program (MMRP), and approve the project; (2) undertake additional

environmental studies, potentially including preparation of an Environmental Impact Report; or (3) deny the project. If the project is approved, the project proponent may proceed with the project.

1.5 PROPOSED FINDINGS

The County has reviewed and considered the proposed project and has determined that the project will not have a significant effect on the environment, with the proposed mitigation measures and based upon the substantial supporting evidence provided in the IS. The County hereby prepares and proposes to adopt a MND for this project.

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2 PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

MHA Design Services (the Project Applicant) has submitted an application to the County of El Dorado (County) (the Lead Agency under CEQA) for the DR22-0007 / 2-Phase Cool Station - Automobile-based Commercial Facility (Project). The Project site is currently vacant and consists of two parcels with a combined acreage of 5.2 (APN's 071-080-007 and 071-500-036).

2.2 PROJECT LOCATION AND EXISTING SETTING

The proposed Project is located in the unincorporated community of Cool, in El Dorado County, California in Section 18, Township 12N, and Range 09E, on the Auburn, California 7.5-minute USGS quadrangle. The Project site is within the western slope of the Sierra Nevada foothills, 33 miles northeast of the City of Sacramento (Figure 2-1). Folsom Lake is approximately 6 miles west of the Project and the U.S Highway 50 corridor is approximately 11 miles south of the Project site.

The Project site is located on the northeast corner of the intersection between SR 49 and SR 193 (Figure 2-2). The Project site is currently undeveloped, but portions had been previously developed as a school site that is no longer present. The surrounding properties are located in a rural setting with various commercial developments in the immediate vicinity as various open space areas that are characterized by annual grasslands and oak woodlands. The property slopes gently to the southwest, with elevations ranging from approximately 1,520 to 1,560 feet (ft) above mean sea level (msl). A cluster of rock outcrops occupy the majority of the western portion of the Project site.

Existing development on-site consists of a utility corridor that runs east/west through the southern portion of the Project site. There is also a paved pedestrian/bicycle path running along the southern edge of the Project site. Patches of gravel and paved surfaces remain from the demolished school site.

Adjoining properties are developed with residential and commercial uses such as restaurants, shops, a grocery store, and a gas station. A Dollar General store is located directly north of the Project site's boundaries. There is one residential property of approximately 1 acre approximately 400 ft east of the Project site.

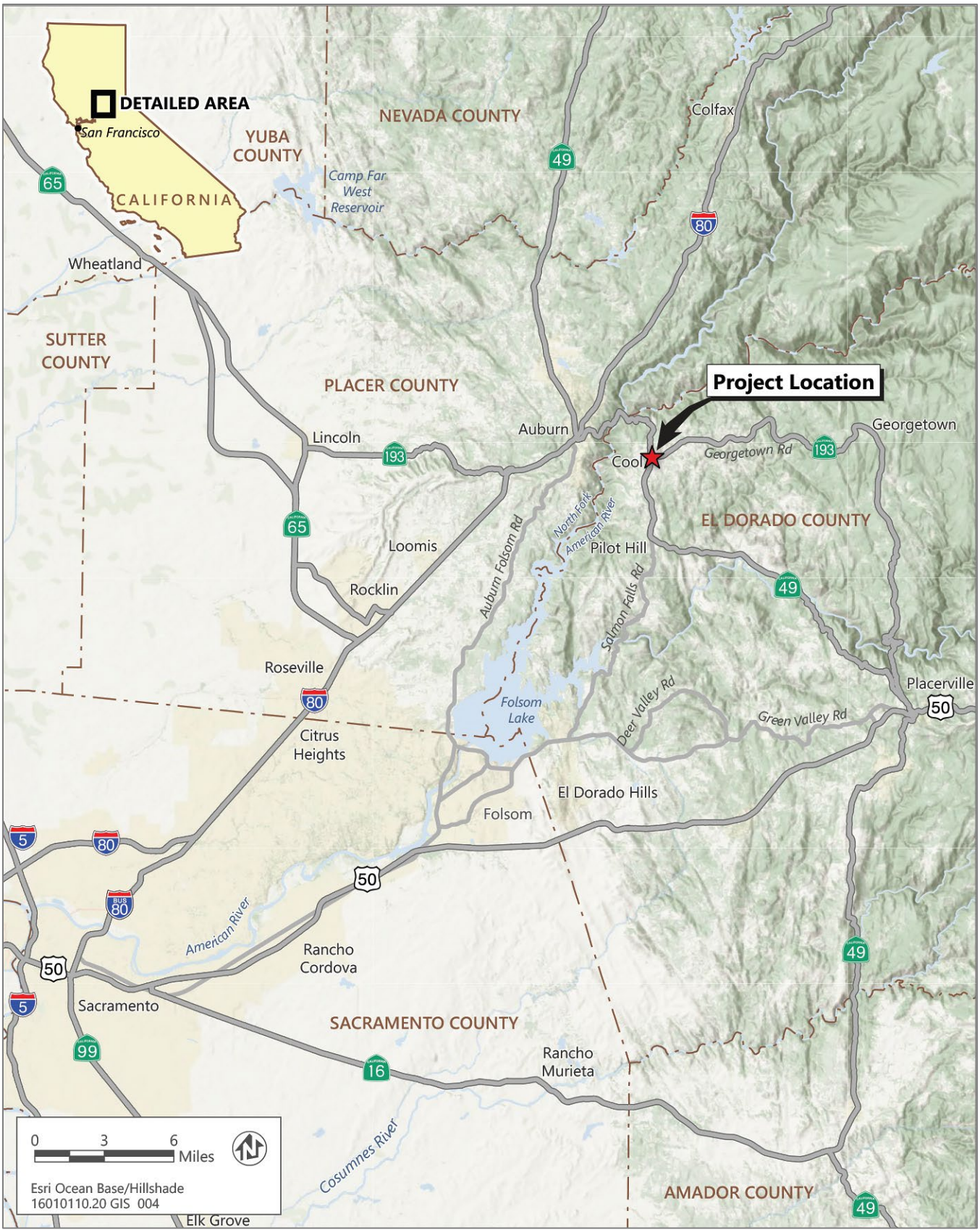
2.2.1 General Plan and Zoning

The Project site is designated as Commercial (C) in the County General Plan Land Use Diagram (EDC 2004a). As described in the County's General Plan Land Use Element, the C designation establishes areas for commercial retail, office, and service uses to serve the residents, businesses, and visitors of El Dorado County. These lands typically have a full range of commercial retail, office, and service uses to serve the residents, business, and visitors of El Dorado County. Mixed use development of commercial lands within Community Regions and Rural Centers which combine commercial and residential uses shall be permitted.

The zoning designations for the Project are Commercial Limited (CL) and Desing Review - Community (DC). The CL, Limited Commercial Zone, designates areas suitable for lower intensity retail sales, office, and service needs of the surrounding area while minimizing conflicts with the residential uses and outside traffic into the area. Mixed use development compatible with surrounding uses would also be appropriate. The DC, Design Review – Community, are adjacent to or visible from designated State Scenic Highway corridors or located within community design reviews areas established the El Dorado County Board.

2.3 PROJECT DESCRIPTION/PROJECT FEATURES/ETC.

The proposed Project would be constructed in two phases. Phase One would consist of a 7,205-sf commercial building including two suites, a 2,585-sf drive-thru quick serve restaurant and a 4,620 sf Convenience store (Figure 2-3). An additional 3,024 sf eight pump fuel canopy would be developed alongside the commercial building as part of Phase One. In addition, as part of Phase One a 2,582-sf building pad would be installed to support future Phase Two construction. Phase Two would consist of development of 1,892-sf carwash on the building pad installed during Phase One.



Source: Adapted by Ascent in 2025.

Figure 2-1 Regional Location



Source: Adapted by Ascent in 2025.

Figure 2-2 Project Site

The project would provide as part of Phase One parking for 61 regular vehicles, 2 Electric charging stalls, 2 trailer stalls, 2 ADA stalls, and racks sufficient to support parking of at least 6 bicycles.

The facility appearance and architecture is responsive to community input and designed to complement Historic Old Town architectural features. Project landscaping will include multiple parking lot tree plantings and a variety of shrubs and ground cover, all compliant with the Model Water Efficiency standard/regulations with low water use. A small patch of oak woodland will be left undisturbed in the east part of the site. There are four individual oak trees along the southern edge of the site (Figures 2-3 and 2-4). The Project would preserve existing trees wherever practical and feasible. There are no plans to remove these trees; however, some grading/ground disturbance would occur under the canopy of these trees. The project will install buffer fencing to identify undisturbed area around rock formations that will remain in place through construction.

Two monument signs are proposed. One would be located at the Northwest corner of the Project site, near SR 49, approximately 80 sf and less than 10 ft tall. The other would be located at the southwest corner of the Project site, near SR 193, approximately 40 sf and 7ft tall. Both would have a brick veneer design at the base to match the buildings, with multi-tenant signage on top.

Access would be provided at two driveways, one on SR 193 and one on SR 49. Driveways would meet all County vehicle design standards, emergency access requirements, and Caltrans encroachment requirements.

The fuel canopy would have eight pumps (16 dispensers). A fuel island would be constructed as part of the canopy area consisting of a concrete slab under the full extent of the fuel canopy with an impermeable surface extending 8 ft minimum beyond the face of the adjacent fuel pump dispenser. This concrete slab will be graded and constructed to prevent drainage across, or from, the dispensing area. This fuel island shall be equipped with drain inlets that direct drainage through sand and oil separators to the sanitary sewer system.

Project lighting would include 16 parking lot fixtures as well as building mounted lighting, and ceiling lighting within the fuel canopy; all with downward shielding fixtures.

As part of proposed Project a segment of Class II bike lane would be constructed along the SR 49, along the Project site's western boundary, extending north from SR 193 to the Project site's northern edge. This segment of Class II bike lane is intended to provide additional access and safety to complement the existing Class I pedestrian/bicycle path along the southern edge of the Project site.

Georgetown Divide Public Utility District (GDPUD) reviewed the Project and found that the Project is within the district's service boundaries. Per GDPUD, the site is entitled to derive service, subject to the district's water service priority policy, upon proper application and payment of the appropriate charges. The subject property is served by a ten-inch water main located in SR 193. There is also a ten-inch water main in SR 49 in the area next to the project site.

The Project would make use of a private on-site septic system. The septic system will meet the requirements for a commercial facility, including a grease interceptor to prevent grease from entering the leach field. A leach field considered sufficient to serve the proposed Project has been identified. However, a portion of the project site is reserve for additional leach field capacity of needed. For electricity the Project would connect to existing Pacific Gas & Electric (PG&E) facilities in SR 193 and or SR 49.

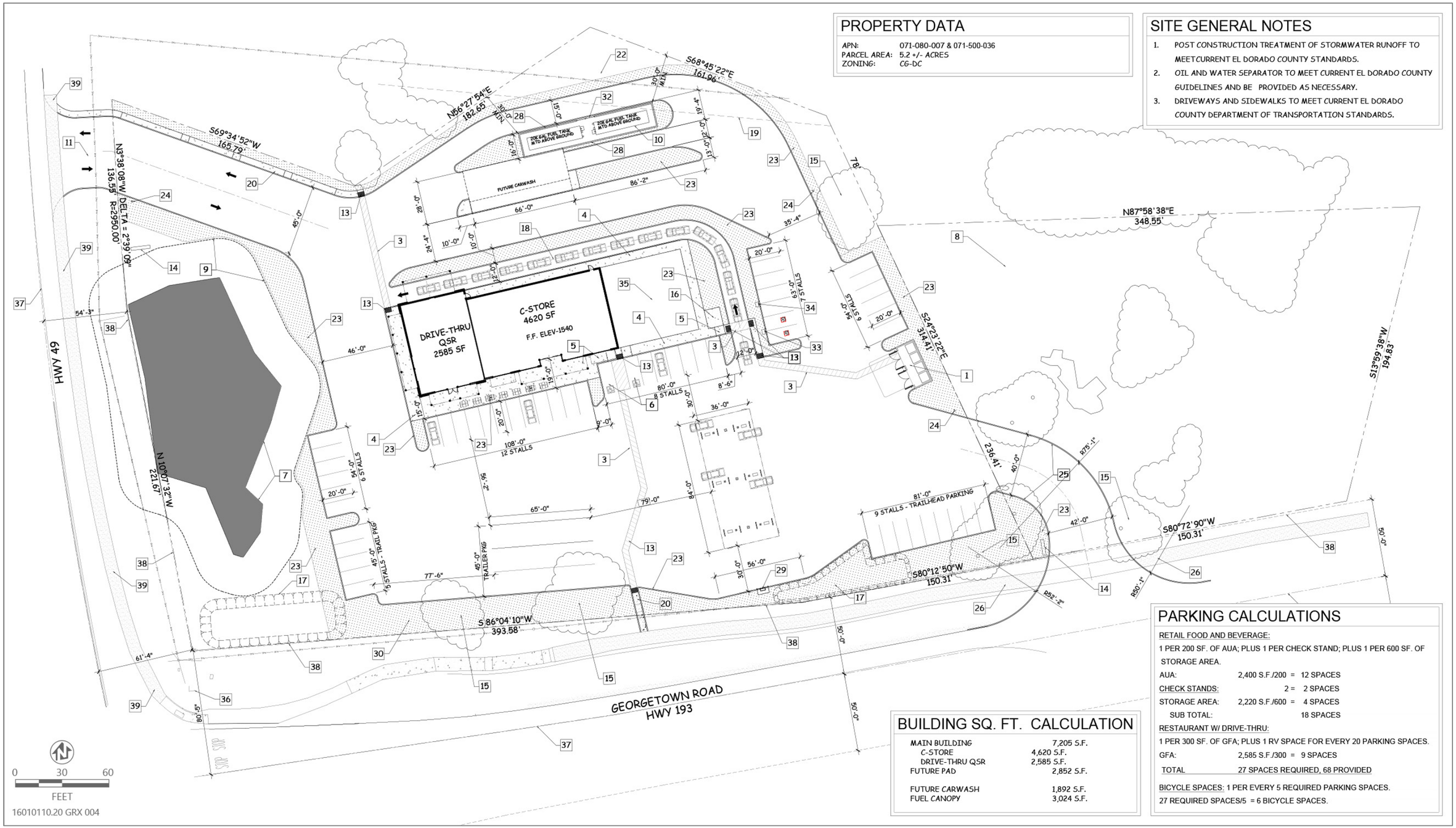
Construction would include grading improvements, utility trenching and drainage system installation, erosion control measures, proposed structures, fuel island, car wash, parking lot paving, landscaping and associated improvements. All construction activities would be completed in conformance with applicable agency requirements, and subject to building permits from the El Dorado County Building Services.

2.4 PROJECT APPROVALS

The project would require the following approvals:

- County of El Dorado: Planning Commission approval
- CalTrans
- Georgetown Public Utilities District

- El Dorado County Planning and Building departments
- El Dorado County Air Quality Management District
- El Dorado County Department of Transportation
- El Dorado County Fire Protection District
- El Dorado County Environmental Management Department approval of septic system leach field areas for proposed new parcels.



Source: Image produced and provided by MHA Design Services in 2025; adapted by Ascent in 2025.

Figure 2-3 Site Plan



Source: Image produced and provided by MHA Design Services in 2025; adapted by Ascent in 2025.

Figure 2-4 Site Plan over Aerial Photo

3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1.	Project Title:	Cool Station – Automobile-based Commercial Project
2.	Lead Agency Name and Address:	County of El Dorado Planning and Building Department 2850 Fairlane Court, Building C Placerville, California 95667
3.	Contact Person and Phone Number:	Lela Shelley, Project Planner (530) 621-5859
4.	Project Location:	Assessor parcel number (APN) 071-080-007 and 071-500-036
5.	Applicant Name and Address:	Melvin Higginbotham, 11584 Francis Drive, Grass Valley, CA 95949
6.	General Plan Designation:	Commercial (C)
7.	Zoning:	General Commercial – Community Design Review (CG-DC)

8. Description of Project:

   MHA Design Services (the Project Applicant) is proposing to develop an automobile-based commercial facility, including a gas station, convenience store, and drive-thru quick serve restaurant; with construction of a car wash at a later date during a second phase of the project. The project would be located on a 5.2-acre site comprised of two parcels (APN's 071-080-007 and 071-500-036). See Chapter 2 of this document for additional information.

9. Surrounding Land Uses and Setting:

   The Project site is currently undeveloped, but portions had been previously developed as a school site that is no longer present. The surrounding properties are located in a rural setting with various commercial buildings and facilities in the immediate vicinity as well as open space areas that are predominately characterized by annual grasslands and oak woodlands.

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

- County of El Dorado: Planning Commission approval
- El Dorado County Planning and Building departments
- El Dorado County Air Quality Management District
- El Dorado County Department of Transportation
- El Dorado County Fire Protection District
- El Dorado County Environmental Management Department approval of septic system leach field areas for proposed new parcels.

11. 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, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Yes; At the time of the application request, seven Tribes: Colfax-Todds Valley Consolidated Tribe, 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 February 16, 2023. Staff received a request from the United Auburn Indian Community for consultation on March 3, 2023. This request was received within a 30-day period from the date of staff's consultation initiation response. Staff had responded to the UAIC's documentation request on March 6, 2023. Consultation discussions occurred for several months, resulting in an agreement for the full avoidance of the area which may contain indigenous cultural resources. With avoidance built into the project, the county's standard unanticipated discovery condition of approval would be included in the project staff report. Consultation with UAIC will close once planning staff is able to provide a fully complete draft CEQA document and a Mitigation Monitoring and Reporting Program document. Both environmental documents were sent to the UAIC on August 5, 2025, including modifications requested by UAIC. The UAIC officially closed consultation on August 8, 2025. Shingle Springs Band of Miwok Indians also requested consultation and officially closed consultation on August 20, 2025 deferring to UAIC. No other consultation requests were received.

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. Where checked below, the topic with a potentially significant impact will be addressed in an environmental impact report.

☐ Aesthetics	☐ Agriculture and Forest 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	☒ None with Mitigation Incorporated

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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



Signature

9/4/2025

Date

Aaron Mount

Printed Name

Planning Manager

Title

El Dorado County Planning

Agency

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, then 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 substantial evidence 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 (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
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 Measures 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. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. 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 significance.

3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics.				
Except as provided in Public Resources Code section 21099 (where aesthetic impacts shall not be considered significant for qualifying residential, mixed-use residential, and employment centers), would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) In non-urbanized 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 points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Environmental Setting

The Project is in a rural area, with existing development at the Project site consisting of a utility corridor that runs east/west through the southern portion of the site and remnants of past development (e.g., concrete pads). Vegetation on the Projects site consists of annual/ruderal grassland and individual oak trees. There is a rock outcrop on the western portion of the project site near SR 49, although similar rock outcrops are common in the region. SR 49 runs north/south adjacent to the western boundaries of the Project site, and SR 193 runs east/west adjacent to the southern boundaries of the Project site. Views of and views from the Project site are generally limited to immediately adjacent commercial properties as well as residential properties. The visual quality of the Project site is typical for the area, with no unusual or distinctive characteristics. The topography of the Project site slopes gently to the southwest portion of the Project site. Elevations range from approximately 1,520 to 1,560 ft above msl.

A list of the county's scenic views and resources is presented in Table 5.3-1 of the El Dorado County General Plan EIR (EDC 2003, 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. The Project site is not among the scenic views identified in the General Plan EIR.

There is one eligible state scenic highway, SR 49, adjacent to the western boundaries of the Project site. The nearest officially designated state scenic highway is a segment of US Highway 50 (US 50) near Placerville, approximately 16 miles southeast of the Project site (Caltrans 2025). The Project site is not within the viewshed of State US 50 given the distance and topography.

There are various commercial structures along SR 49 and SR 193 opposite the project site, including shops, strip malls, and a gas station. The area has the character of a rural commercial center at the intersection of two main roads. Existing sources of light and glare within and surrounding the vacant Project site consist of interior and exterior building lights from commercial structures, lights from motor vehicles traveling on adjacent roadways (SR 49 and SR 193), and small

amounts of glare from light reflected from windows. In addition, the parking lot for the Holiday Market complex, south of the project site, is lighted, and various commercial enterprises in the area have illuminated signage.

3.1.2 Discussion

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

No Impact. There are no scenic vistas at the Project site. Views from, and of, the project site are limited by topography, existing development, and vegetation (e.g., oak woodland). Because the Project site is not part of a scenic vista, and no scenic vistas are visible from the project site, the Project would have no effect on a scenic vista.

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

Less than Significant. As discussed in Section 3.1.1, the Project site is within the viewshed of an eligible state scenic highway, SR 49 along the western boundary of the Project site. Project development will avoid the rock outcrop along SR 49. Oak trees on the project site are on the eastern portion of the parcel and along the southern edge and no tree removal is proposed. No historic buildings would be affected by the Project, and Project structures would have architectural features similar to existing development in the area. Project development would not degrade the characters that make this segment of SR 49 eligible for state scenic highway status. Therefore, the Project would have a less than significant effect on scenic resources within a state scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant. The site is located in a developed area surrounded on all sides by similarly zoned General Commercial (CG) and Community Commercial (CC) parcels. The zoning designations for the Project are Commercial Limited (CL) and Desing Review – Community (DC). The CL, Limited Commercial Zone, designates areas suitable for lower intensity retail sales, office and service needs of the surrounding area while minimizing conflicts with the residential uses and outside traffic into the area. Mixed use development compatible with surrounding uses would also be appropriate. The DC, Design Review – Community, are adjacent to or visible from designated State Scenic Highway corridors or located within community design reviews areas established the El Dorado County Board. Prior to the application of the (DC), Combining Zone design guidelines and standards shall be adopted by the Board. The proposed development for the Project would be consistent and compatible with these zoning designations (CL and DC) and would not degrade the surrounding land use zoning designations (CG and CC). In addition, the Project design and architecture would be consistent with applicable design guidelines for the site and would be compatible with existing surrounding development. There is an existing gas station with convenience store on the other side of Highway 49 from the project site and various types of other commercial development in the immediate vicinity. The proposed Project would not substantially degrade the existing visual character or quality of Project site or surroundings.

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

Less than Significant. As discussed in Section 3.1.1, existing sources of light and glare within and surrounding the Project site consist of interior and exterior building lights from widely spaced commercial structures, lights from motor vehicles traveling on adjacent roadways (SR 49 and SR 193), and small amounts of glare from light reflected from windows. In addition, the parking lot for the Holiday Market complex, south of the project site, is lighted and various commercial enterprises in the area have illuminated signage. Development of the Project site would result in new sources of glare, but they would be the same as existing sources including lighting associated with buildings and vehicles, glare from windows, parking lot lighting, and illuminated signage. The Project would be required to comply with the County's lighting Policy 2.8.1.1 that limits excess nighttime lighting. Policy 2.8.1.1 addresses building and parking lot lighting and lighted signage and includes various measures to limit adverse effects from lighting such as limiting brightness levels, directing lights downward, and shielding of lights to avoid potential glare. The Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

3.2 AGRICULTURE AND FOREST RESOURCES

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

3.2.1 Environmental Setting

According to the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program, the eastern portion of the Project site is classified as Other Land (CDC 2025a). The western portion of the Project site is identified as Urban and Built-Up Land (CDC 2025b). Neither of these land classifications (Other Land and Built-Up Land) qualify for Prime, Statewide, or Unique farmland designations (EDC 2004b). The Project site is not currently used for agricultural production, has not been used for agriculture in the recent past, and does not currently have Wiliamson Act enrollment (CDC 2025c).

County lands that are suitable for timber production are typically designated Natural Resource (NR) on the General Plan Land Use map and zoned Timber Production Zone (TPZ) or Forest Resource (FR). The Project site is zoned as CG and CC, and does not contain forestland or timberland. California Public Resource Code (PRC) Section 12220(g)

defines forest as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." Although some native oak trees occur on the Project site, there is less than 10-percent native tree cover on the site. PRC Section 4526 defines *timberland* as land that "is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees." California Government Code Section 51104(g) defines a *timberland production zone* as "an area which has been zoned pursuant to Sections 51112 or 5113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses; and timber as trees maintained for eventual harvest for forest project purposes (not including nursery stock."

3.2.2 Discussion

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

No Impact. As discussed in Section 3.2.1, there are no lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and there are no agricultural uses within the project site. Therefore, the project would not convert Important Farmland to non-agricultural use.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact. As discussed in Section 3.2.1, the project site is not enrolled in a Williamson Act contract. The existing zoning would not change as a result of the proposed project. If development were to occur, it would be consistent with the zoning. Therefore, the project would not conflict with existing zoning for agricultural use or a Williamson Act contract.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The project site is zoned as CG and CC, and is not zoned as forest land, timberland, or Timberland Production, and does not contain forest land or timberland as defined by the Public Resources Code or Government Code. Therefore, the project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

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

No Impact. Although some native oak trees occur on the Project site, there is less than 10-percent native tree cover on the site. Therefore, there is no forest land on the Project site meeting the PRC Section 12220(g) definition of a forest. Therefore, the proposed Project would not result in the loss of forest land.

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?

No Impact. The Project site does not contain agricultural or forest land. There is no designated Farmland or forest land in the vicinity of the project site. Project activities have no mechanism to affect Farmland or forest land distant from the project site. Therefore, the project would not result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use beyond the impact mechanisms evaluated above.

3.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.				
Are significance criteria established by the applicable air district available to rely on for significance determinations?	☒ Yes		☐ No	
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) 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?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

The project is located in the Mountain Counties Air Basin (MCAB), which is comprised of the western portion of El Dorado County, the middle portion of Placer County, and the entirety of Plumas, Sierra, Nevada, Amador, Calaveras, Tuolumne, and Mariposa counties. Ozone, respirable particulate matter (PM_{10}), and fine particles ($PM_{2.5}$) are the criteria air pollutants of primary concern in this analysis because of their nonattainment status with respect to the applicable National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) in the El Dorado County portion of the MCAB.

The El Dorado County Air Quality Management District (EDCAQMD) is the primary agency responsible for planning to meet NAAQS and CAAQS in El Dorado County. EDCAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the State Implementation Plan (SIP) for ozone. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the Clean Air Act requirements to attain and maintain the NAAQS for ozone. The Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2023 Ozone Plan) was prepared by the five local air districts of the Sacramento Federal Non-attainment Area, with the support of the California Air Resources Board (CARB), and is an air quality attainment plan (AQAP) applicable to development in the Project area (CARB 2023).

EDCAQMD has developed a *Guide to Air Quality Assessment: Determining Significance of Air Quality Impacts under CEQA* (EDCAQMD 2002) for use by lead agencies when preparing environmental documents. The guidance includes thresholds of significance for criteria pollutants and toxic air contaminants (TACs) and recommendations for conducting air quality analyses. The guidance also describes project screening criteria to identify projects that can be classified as less than significant for one or more pollutants without the need for detailed calculations or modeling. According to EDCAQMD CEQA guidance (2002), single family housing development has a screening cut-point of 280

dwelling units (48 dwelling units if they have fireplaces/woodstoves). Emission from operation of a single family housing development that does not reach this cut-point are presumed to be less-than-significant and do not require air quality modeling. For construction exhaust emissions, impacts from projects that encompass 12 acres or less of ground that is being worked at one time are presumed to be less than significant, as long as standard construction emission conditions are in place (EDCAQMD 2002).

An Air Quality Impact Analysis Report was prepared for the proposed Project and is provided as Attachment A. The report models and quantifies expected construction and operational emissions of criteria pollutants and TACs from Project implementation. The EDCAQMD reviewed the Air Quality Impact Analysis Report for the Project and concurred with the results (EDCAQMD 2023). In their review of the report, EDCAQMD concurred that the air quality criteria pollutant resulting from the project would be less than significant, and the project would comply with applicable EDCAQMD rules.

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. Emission source types and health effects are summarized in Table 3-1 and El Dorado County's attainment status for the CAAQS and the NAAQS are shown in Table 3-2.

Table 3-1 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2025.

Attainment Status

As shown in Table 3-2, El Dorado County is designated as nonattainment for ozone with respect to both the NAAQS (8-hour standard) and CAAQS (1-hour Classification and 8-hour standard), nonattainment for PM_{10} with respect to the CAAQS, and nonattainment for $PM_{2.5}$ with respect to the NAAQS.

Table 3-2 El Dorado County Attainment Status Designations

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
1-hour Ozone	Nonattainment	Revoked in 2005
8-hour Ozone	Nonattainment	Serious Nonattainment
Carbon Monoxide	Unclassified	Unclassified/Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified/Attainment
24-hour Respirable Particulate Matter (PM_{10})	Nonattainment	Unclassified/Attainment
Annual PM_{10}	Nonattainment	
24-hour Fine Particulate Matter ($PM_{2.5}$)	—	Nonattainment
Annual $PM_{2.5}$	Unclassified	Nonattainment

Source: CARB 2025.

NATURALLY OCCURING ASBESTOS

An asbestos map of western El Dorado County prepared by the County shows the location of individual parcels and areas in the following four categories that either contain Naturally Occurring Asbestos (NOA) or are considered to be subject to elevated risk of containing NOA (EDC 2018):

- Found Area of NOA,
- Quarter Mile Buffer for Found Area of NOA,
- More Likely to Contain Asbestos, and
- Quarter Mile Buffer for More Likely to Contain Asbestos or Fault Line.

The subject Project site is entirely within an Asbestos Review Area, requiring that an Asbestos Dust Mitigation Plan (ADMP) application be submitted to and approved by the EDAQMD prior to project construction if project activities move more than 20 cubic yards of soil (EDC 2018).

3.3.2 Discussion

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

Less than Significant. Applicable AQAPs (e.g. CARB 2023) for the region, including the MCAB portion of El Dorado County, were developed to bring the region into attainment as required by the federal and California Clean Air Acts. According to the EDCAQMD CEQA guidance (2002), projects are considered consistent with applicable air quality plans if they satisfy the following criteria:

- The project does not require a change in the existing land use designation, such as through a general plan amendment or rezone.
- The project does not exceed the "project alone" significance criteria.
- The project implements applicable emission reduction measures.
- The project complies with all applicable district rules and regulations.

The proposed Project would not require a change in existing land use or zoning for the project site and would consist of development which was included in growth projections used in the formulation of applicable AQAPs. Potential short-term construction and long-term operation associated with the proposed development would be required to implement all applicable emission reduction measures and comply with applicable EDCAQMD rules and regulations. The "Project Alone" significance criteria is based on use of an emissions model to estimate a project's long term operational emissions of reactive organic gases (ROG) and oxides of nitrogen (NOx). According to the pollutant emissions analysis provided in the Air Quality Impact Analysis Report (Attachment A) and the EDCAQMD review of that report (EDCAQMD 2023), the Project emissions would be below applicable thresholds of significance and can be presumed to have less than significant impacts. Because the Project would not conflict or obstruct implementation of applicable air quality plans, impacts would be less than significant.

b) 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. El Dorado County is currently designated as nonattainment with respect to the NAAQS and CAAQS for ozone, the NAAQS for $PM_{2.5}$, and the CAAQS for PM_{10}. The significance criteria for ozone is based on two directly emitted primary precursors of ozone, ROG and NOx. A project that emits 82 pounds per day or more of either of these pollutants would be considered to have a significant adverse impact on air quality. For the other criteria pollutants, including PM_{10}, 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(s). (EDCAQMD 2002)

According to the pollutant emissions analysis provided in the Air Quality Impact Analysis Report (Attachment A) and the EDCAQMD review of that report (EDCAQMD 2023), Project emissions would not result in a considerable net increase in any criteria pollutant. Construction and operational emissions would be below the 82 pounds per day threshold for ROG and NOx. Emissions of PM10 and PM2.5 would be not result in significant air quality impacts through compliance with applicable EDCAQMD conditions.

Project development could result in construction related emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from activities such as site preparation, grading, building construction, paving, application of architectural coating, off-road equipment, material delivery, and worker commute trips. Additionally, long-term operational emissions associated with the proposed development at the Project site could include area sources (landscape equipment, consumer products, maintenance activities) and mobile sources (vehicle trips to the project site). Emissions resulting from the proposed development would not exceed applicable thresholds. In addition, the Project would meet the County's screening criteria for projects that can be presumed to have less than significant construction and operational impacts without the need for detailed calculations or modeling (e.g., construction area less than 12-acres and development less than the equivalent of 280 dwelling units. Although detailed emissions modeling would not necessarily be needed for the Project, modelling was conducted for the Project and provided in the Air Quality Impact Analysis Report. The results align with a less than significant conclusion based solely on the screening criteria. Emissions would not exceed applicable thresholds and would not contribute substantially to the region's nonattainment status.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant. Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the potential presence of individuals particularly sensitive to pollutants and the potential for increased and prolonged exposure of individuals to pollutants. The closest sensitive receptors to the Project site are existing commercial buildings on adjacent properties, most of which are at least 100 ft from Project site boundaries.

Development of the Project site could result in the release of construction and operational pollutants. Construction-related activities could result in temporary, intermittent emissions of diesel PM from equipment exhaust, including during site preparation and grading. The proposed development could also result in the operational emissions of diesel PM from the increase in vehicle trips and associated diesel PM emissions.

The pollutant emissions analysis provided in the Air Quality Impact Analysis Report (Attachment A) and the EDCAQMD review of that report (EDCAQMD 2023) includes an analysis of health risks that might result from emissions associated with Project construction and operation. The analysis concluded that sensitive receptors would not be exposed to substantial pollutant concentrations or pollutants that would result in a significant health risk.

Both the CDC and El Dorado County have identified the project site as an area that could contain NOA (EDC 2018). Therefore, ground disturbance could result in the potential for NOA to be mobilized and for particles to reach nearby parcels. Standard EDCAQMD conditions include the preparation and implementation of an ADMP if more than 20 cubic yards of dirt will be moved. Adherence with this standard condition would minimize the potential for the project to expose sensitive receptors to substantial concentrations of NOA. Impacts would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant. Project development could result in the release of construction odors. Because construction-related odors would be intermittent, temporary, and would disperse rapidly with distance from the source, construction-related odors would not result in the frequent exposure of a substantial number of individuals to objectionable odors. With respect to operation, commercial uses, including gas stations, are not land uses that typically generate excessive objectionable odors. In addition, there is already a gas station with convenience store and food service uses in the immediate project vicinity without objectionable odors affecting a substantial number of people. Therefore, the proposed project would not generate objectionable odors affecting a substantial number of people.

3.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources.				
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?		☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.1 Environmental Setting

The Project site is located in the community of Cool, in El Dorado County, California. The Project site is in a rural area, with most properties in the region being privately owned. Existing development on-site consists of a utility corridor that runs north/south through the eastern portion of the site, patches of gravel, some paved areas, and concrete slabs and similar features remaining from past development. The eastern part of the site, which is located outside of the development footprint and will not be disturbed as part of the project, is less disturbed by past development. There is a small patch of oak woodland with some rocky features in the east part of the site and an open grassland field. On the far western portion of the site, also outside of the development footprint, there is a large rock outcrop. The project site slopes gently to the southwest, ranging in elevations from approximately 1,520 to 1,560 ft above msl.

SR 49 borders the west edge of the site and SR 193 borders the south edge of the site. There are commercial properties opposite the project site across both roads. There are also commercial properties to the north and east of the site, intermixed with patches of grassland and woodlands. A store constructed in the past two years is situated north of the site along SR 49, and there is a transmission tower resembling a fake tree north of the central-east part of the site. Beyond this more developed portion of the community of Cool, surrounding land use in this part of El Dorado County is large open space comprised of annual grassland and oak woodlands interspersed with residential properties.

The USDA Natural Resource Conservation (NRCS) Service Web Soil Survey indicates that the project site is underlain primarily by very rocky loam (NRCS 2025) from the DeE soil series. The Project site is not located within any of the County's mitigation areas for rare plants, and it is not within designated critical habitat for any species.

The Project site and surrounding properties are dominated by mixed oak woodland. The predominant trees on the Project site are blue oak *(Quercus douglasil)* and interior live oak *(Quercus wislizeni))*. Native shrubs typical of chaparral habitats in the region are present on the eastern and western portions of the site, including buck brush *(Ceanothus cuneatus),* greenleaf manzanita *(Arctostaphylos patula),* and poison oak *(Toxicodendron diversilobum).* The annual grassland and herbaceous vegetation on the site contain native and nonnative grasses and forbs typical of the region including species such as Spanish clover (*Acmispon americanus*), oat (*Avena sp*.), ripgut brome *(Bromus diandrus),* Italian thistle *(Carduus pycnocephalus),* yellow star thistle (*Centaurea solstitialis)*, Fitch's spikeweed (*Centromadia fitchii*), annual hairgrass (*Deschampsia danthonioides*), annual fireweed (*Epilobium brachycarpum*), gumplant (*Grindelia camporum*), foxtail barley (*Hordeum murinum*), prickly lettuce (*Lactuca serriola*), long-beaked hawkbit (*Leontodon saxatilis*), creeping wild-rye (*Leymus triticoides*), perennial ryegrass (*Lolium perenne*), medusa-head grass (*Taeniatherum caput-medusae*), rose clover (*Trifolium hirtum*), Ithuriel's spear (*Triteleia laxa*), rat-tail six-weeks grass (*Vulpia myuros*), and Dogtail grass *(Cynosurus echinatus)*.

There are no streams, lakes, or potentially jurisdictional Water of the U.S. of any type in the site. There are also no areas in the site that meet the technical criteria of wetlands (i.e., presence of hydrophytic vegetation, hydric soils, and wetland hydrology). The site is upland grasses with soils that appear to be well drained.

3.4.2 Discussion

Information on sensitive biological resources previously recorded near the Project site was collected through a search of the following databases and background reports:

- California Natural Diversity Database (CNDDB) record search within the Auburn, Greenwood, Pilot Hill, and Coloma US Geological Service (USGS) 7.5-minute quadrangles (CDFW 2025a);
- California Native Plant Society, Rare Plant Inventory search of Auburn, Greenwood, Pilot Hill, and Coloma USGS 7.5-minute quadrangles (CNPS 2024);
- US Fish and Wildlife Service (USFWS) Information for Planning and Conservation project planning tool (USFWS 2023);
- USFWS National Wetlands Inventory website (USFWS 2025b);
- USGS National Hydrography Dataset (USGS 2025a);
- CDFW Terrestrial Connectivity Data and Resources (CDFW 2025b, Spencer et al. 2010);
- Site-specific Biological Resources Evaluation Report (HBD Capital LLC 2023)(Attachment B);
- Conservation and Open Space Element of the El Dorado County General Plan, as amended (EDC 2004a).

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 the US Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated. Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource agencies, which fall into one or more of the following categories:

- officially listed under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA) as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered, threatened, or rare;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the State CEQA Guidelines;
- species identified by CDFW as Species of Special Concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local planning documents; and
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California rare plant rank (CRPR). The CDFW system includes five rarity and endangerment ranks for categorizing plant species of concern. The three relevant to the project are summarized as follows:
  - CRPR 1A - Plants presumed to be extinct in California;
  - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere; and
  - CRPR 2 - Plants that are rare, threatened, or endangered in California but more common elsewhere.

Special-Status Plants

A Biological Resources Evaluation Report, which included special-status plants assessment, was completed for the Project site in 2023 (HBD Capital LLC 2023) (Attachment B). There are 14 special-status plants with records in the region: Jepson's onion (*Allium jepsonii*), big-scale balsamroot (*Balsamorhiza macrolepis*), Stebbins' morning-glory (*Calystegia stebbinsii*), chaparral sedge (*Carex xerophila*), Pine Hill ceanothus (*Ceanothus roderickii*), Red Hills soaproot (*Chlorogalum grandiflorum*), Brandegee's clarkia (*Clarkia biloba ssp. brandegeeae*), Bisbee Peak rush-rose (*Crocanthemum suffrutescens*), Butte County fritillary (*Fritillaria eastwoodiae*), El Dorado bedstraw (*Galium californicum ssp. sierrae*), dubious pea (*Lathyrus sulphureus var. argillaceus*), Layne's ragwort (*Packera layneae*), oval-leaved viburnum (*Viburnum ellipticum*), and El Dorado County mule ears (*Wyethia reticulata*). A rare plant survey was conducted at the Project site in 2023 and no special-status plants were observed during this survey. Given the disturbed nature of the site and poor habitat conditions, it is considered unlikely that any special-status plant species occur. The Project site is not within an area designated by the County as a preferred ecological preserve for rare plants (EDC 2025a). Considering the absence of rare plants during a past survey, and the very low potential for rare plants to be present, potential impacts on rare plants from Project implementation would be less than significant.

Special-Status Wildlife

The Biological Resources Evaluation Report prepared for the project includes a special-status wildlife assessment (HBD Capital LLC 2023) (Attachment B). A special-status wildlife survey was conducted at the Project site in 2023 and no special-status wildlife species were observed. According to a review of database searches, there are 12 special-status wildlife species with records in the region: tricolored blackbird (*Agelaius tricolor*), bald eagle (*Haliaeetus leucocephalus*), bank swallow (*Riparia riparia*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), fisher (*Pekania pennanti*), foothill yellow-legged frog (*Rana boylii*, pop. 3 and 5), Central Valley steelhead (*Oncorhynchus mykiss irrideus*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and western bumble bee (*Bombus occidentalis*). California red-legged frog (*Rana aurora draytonii*) and monarch butterfly (*Danaus*

plexippus). With no aquatic habitats on the project site, there is no potential for aquatic species to be present. There are no elderberry shrubs on the site that might support valley elderberry longhorn beetle. Given the disturbed nature of the site and poor habitat conditions, it is considered unlikely that any other special-status wildlife species occur and none of these species would be affected by project implementation.

Nesting habitat for common raptors, migratory birds, and other nesting birds protected under the Fish & Game Code, Migratory Bird Treaty Act, or other regulations is present in the remaining oak woodland and chaparral on the project site and in woodland habitat adjacent to the project site. Common bird species could also nest in herbaceous vegetation or on the ground in ungraded portions of the site such as Mourning Dove (Zenaida macroura), Killdeer (Charadrius vociferous), or a variety of other songbirds. If project activities were to commence during the typical bird nesting season (February 1 to August 31), project activities associated with ground disturbance or vegetation removal in the vicinity of bird nests could lead to destruction of nests, abandonment of eggs or young, or forced fledging, which could be a violation of the Fish and Game Code and/or Migratory Bird Treaty Act. Therefore, this impact would be significant.

Mitigation Measures

Mitigation Measure 3.4-1: Nesting Bird and Raptor Protection

The project applicant shall implement the following measures to protect nesting birds and raptors:

- To minimize impacts to special-status bird species, raptors, and other native birds, development activities (e.g., vegetation clearing, ground disturbance, staging, construction of off-site improvements, and tree removal [if unavoidable]) 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 0.25 miles of the development activity area for white-tailed kite, 500 ft of the development activity area for other raptor species and special-status birds, and 50 ft 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 0.25 miles for white-tailed kite, 500 ft for other raptors, 100 ft for non-raptor special-status bird species, and at least 20 ft 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.

Significance after Mitigation

With implementation of Mitigation Measure 3.4-1, 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 the proposed development at the Project site would be avoided. This would reduce potential impacts to a less-than-significant level.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the US Fish and Wildlife Service?

No impact. The Project site does not contain any riparian habitat or aquatic habitats, or sensitive natural communities that would be affected by Project implementation. Therefore, the Project would not adversely affect any riparian habitat or other sensitive natural community.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No impact. The project area does not contain any aquatic habitat (i.e., wetlands, streams, canals, irrigation ditches). Project implementation would, therefore, not result in any impact on State-protected or federally protected wetlands. Therefore, there would be no impact.

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?

Less-than-significant impact. The Project site does not support habitat for native resident or migratory fish. The Project site is also not within the range of mule deer migration. There are no streams or riparian corridors on the project site that would serve as movement corridors. The Project site is surrounded by existing development and has substantial roads (SR 49 and SR 193) on two sides. The Project site does not connect any existing habitat areas. Therefore, the site does not currently function as an important wildlife movement corridor. Any common wildlife currently using the property would be expected to continue moving through undeveloped portions of the site. Any wildlife moving through the area currently would have to be tolerant of development, human presence, vehicles, and domestic animals. Therefore, no significant impacts on wildlife movement corridors would result from implementation of the proposed Project.

Because of the degraded nature of the habitat on the Project site and the existing surrounding development, the site would not function as a native wildlife nursery site and Project development would not substantially impede the use of a native wildlife nursery site. This impact is less than significant.

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

Less than significant with Mitigation Incorporated. The adopted El Dorado County General Plan Conservation and Open Space Element discusses significant natural resources in the County, including aquatic habitat, special-status species, and sensitive habitats, and establishes goals, objectives, and policies related to these topics. Relevant policies from the El Dorado County General Plan include:

- Objective 7.4.2: Identify and Protect Resources - Identification and protection, where feasible, of critical fish and wildlife habitat including deer winter, summer, and fawning ranges; deer migration routes; stream and river riparian habitat; lake shore habitat; fish spawning areas; wetlands; wildlife corridors; and diverse wildlife habitat.
    - Policy 7.4.4.4: For all new development projects or actions that result in impacts to oak woodlands and/or individual native oak trees, including Heritage Trees, the County shall require mitigation as outlined in the El Dorado County ORMP. The ORMP functions as the oak resources component of the County's biological resources mitigation program, identified in Policy 7.4.2.8

El Dorado County General Plan Biological Resources Policy Update and Oak Resources Management Plan

The El Dorado County Board of Supervisors adopted the Biological Resources Policy Update and ORMP in October 2017. The Biological Resources Policy Update included revisions to the General Plan objectives, policies, and implementation measures to establish a comprehensive Biological Resource Mitigation Program. The objective of this program is to conserve special-status species habitat, aquatic habitat, wetland and riparian habitat, habitat for migratory deer herds, and large expanses of native vegetation. The ORMP updated and revised the existing Oak Woodland Management Plan, and now defines mitigation requirements for impacts on oak woodlands, individual native oak trees, and heritage trees; and also outlines El Dorado County's strategy for oak resource management and conservation. The ORMP establishes an in-lieu fee payment option for impacts on oak woodlands and oak trees and identifies Priority Conservation Areas where oak woodland conservation efforts will be focused. The standards for implementing the County's ORMP are established in the County's Oak Resources Conservation Ordinance, found in County Code Chapter 130.39.

The ORMP designates three classes of protected oak resources: oak woodlands that have at least 10 percent oak canopy; heritage trees, defined as native oaks with a total trunk diameter at breast height of 36 inches or greater; and individual oak trees, defined as native oak trees with a trunk diameter at breast height of 6 inches or greater that are not located in oak woodlands. An oak woodland removal permit is required prior to removal of oak trees that are part of an oak woodland and an oak tree removal permit is required prior to removal of heritage trees and individual oak trees. Mitigation for impacts on oak woodlands is based on the total area affected ranging from 1:1 mitigation for zero to 50 percent removal to 2:1 mitigation for more than 75 percent removal. Mitigation may be completed with a combination of the following options: acquisition of an off-site conservation easement, payment of in-lieu fees, or either on- or off-site replacement planting of up to 50 percent of the required mitigation area. Mitigation for removal of heritage or individual oak trees requires on- or off-site replacement planting or payment of in-lieu fees at a 3:1 (heritage trees) or 1:1 (individual oak trees) ratio, respectively, to the number of trunk inches removed. Any oak woodland preserved on site and all mitigation planting areas must be protected in perpetuity through deed restrictions or a conservation easement.

Protected Oak Resources

Removal of oak trees is not included as part of the proposed Project; however, the development footprint does extend under the canopy of some individual oak trees. Either through accidental damage, or through changes in ground surface conditions within the tree's dripline, mortality of a small number of individual native oak trees is possible. If mortality to individual oak trees occur, mitigation consistent with the ORMP would be required. Without mitigation, the project would conflict with local policies and ordinances protecting biological resources.

Mitigation Measure 3.4-2: Oak Resources Protection

If Project implementation results in the loss or removal of a native oak tree on the project site that qualifies for protection under the ORMP, the project applicant shall obtain a permit from the County and pay the mitigation fee for oak woodland impacts as stated in the ORMP. The project applicant shall coordinate with the County prior to any planned removal of native oak trees and notify the County of any damage to native oak trees during construction and comply with any ORMP requirements. For 3-years after any project construction under retained native oak trees, if any of these trees die from conditions attributable to changes in the ground in the tree's dripline, the applicant will coordinate with the County and comply with any ORMP mitigation requirements.

Significance after Mitigation

With implementation of Mitigation Measures 3.4-2, impacts to native oaks would be mitigated according to the County's mitigation policies making project activities consistent with County policies and ordinances. This impact would be reduced to a less than significant level.

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?

No Impact. There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved state habitat conservation plans that apply to the Project site. Compliance with County conservation requirements is described under question e.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources.				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Substantially disturb human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

3.5.1 Environmental Setting

The Project site is located within the territory occupied by the Nisenan at the time of initial contact with European Americans. The Nisenan are Native American peoples also referred to as "Southern Maidu" who occupied the drainages of the southern Feather River and Honcut Creek in the north, through Bear River and the Yuba and American River drainages in the south. Villages were frequently located on flats adjoining streams, and were inhabited mainly in the winter as it was usually necessary to go out into the hills and higher elevation zones to establish temporary camps during food gathering seasons. As with all northern California Indian groups, economic life for the Nisenan revolved around hunting, fishing, and collecting of plant foods. Their knowledge of the uses of local animals and plants, and abundant raw materials sources led to the manufacturing of an immense array of primary and secondary tools and implements (Jensen 2022).

Water storage and transportation and related hydroelectric development represent additional important historic themes in El Dorado County, along with logging, ground transportation, public land entry, and homesteading. The early mining activity, coupled with historic through contemporary logging, ranching and associated water distribution projects, have all impacted prehistoric and early historic sites in this portion of El Dorado County and the Project site.

It appears likely that construction of Highway 49, adjacent to the west side of the property, may have affected a portion of the project area, and aerial images of the property indicate that it, as well as the adjacent lands, have been intensively disturbed throughout the past several decades. Cave Valley/Cool Elementary School was established sometime around 1900, and appears to have been located within the present Project site. In 1952, the Northside Elementary School was constructed south of Cool, replacing the former school, which was subsequently demolished. Based on aerial images taken in 1984, the school, or a related building, is standing within the property in November of that year.

A cultural resources records search was conducted on May 17, 2022, by the North Central Information Center (NCIC) of the California Historical Resources Information System at California State University, Sacramento. The records search was conducted to determine if precontact or historic cultural resources had been previously recorded within the Project site, the extent to which the Project site had been previously surveyed, and the number and type of cultural resources within a 0.25-mile radius of the Project site.

The NCIC records search indicated that one prior cultural resources study has occurred within the Project site. An additional 18 studies have been completed within the 0.25-mile records search radius. According to the records search, one archaeological site, P-09-003627, has been previously recorded within the Project site, consisting of bed

rock outcrops as well as remnants of the historic Cave Valley. Six additional cultural resources have been recorded within the 0.25-mile records search radius.

The previous cultural resources study within the Project site involved efforts to determine whether or not, P-09-003627 extended into the parcel, and if so, to what extent. Those efforts failed to identify any prehistoric or historic-era cultural material within the northern portion of the parcel, and because substantial ground disturbance was noted to the south (present Project site) informal trowel probes and shovel scrapes were conducted. A total of 20 trowel probes were placed at various intervals throughout the western and southern portions of site P-09-003627. No evidence of precontact cultural material was observed within any of the trowel probes, nor on the surface of the site, nor on the soil surface throughout the Project site. All of the lithic material observed within, and among the boulders and outcrops appear to be the result of natural erosion, and contemporary disturbances (target shooting, heavy equipment, etc.).

A pedestrian survey was conducted on June 13, 2022, which was able to identify the remnants of the historic Cave Valley in the location where it was originally recorded. All of the soils located within proximity of, and between, these concrete remnants have been subjected to intensive disturbance associated with wholesale demolition. P-09-003627 exhibits a substantial reduction of original integrity.

P-09-003627 was evaluated for the California Register of Historic Resources (CRHR) to determine if the site meets the criteria to be considered a significant (unique) archaeological resource under CEQA. This site is not associated with events that have made significant contributions to the broad patterns of local or regional history or the cultural heritage of California or the United States. There is no evidence that this site ever made significant contributions to history. While the theme of education appears to be the primary function undertaken at this site, there is no evidence supporting a contribution beyond the typical or mundane. Consequently, this site is recommended not eligible per CRHR Criterion 1.

This site is not associated with the lives of persons important to local, California, or national history. While the resource is associated with early 20th century, historic-era education activities, there is no evidence that those responsible for such activities were prominent in their fields, nor did any particular person involved in activities which resulted in the formation of this resource ever make any known, significant contributions to history. Consequently, this site is not recommended eligible per CRHR Criterion 2.

Based on existing inventory data maintained by the NCIC, there are a number of records on file for historic-era schools that are far better condition, and which possess the better attributes than those present at this site. Such components and the physical remnants which comprise this site are thus not considered rare or underrepresented in the existing California State inventory for the County in general or the project area in particular, nor does this site represent a "... distinctive type..." or "...a distinguishable entity whose components may lack individual distinction." Consequently, this site is not recommended eligible per CRHR Criterion 3.

Data recovery work involving this site could not be expected to provide unique or unusual additional information over and above that which exists in the existing site record. There are no historic-era buried features for which further evaluation or recordation might be considered appropriate. Under these circumstances, further research in the form of data recovery, or additional detailed recording would not likely further our understanding of this site. For these reasons, this site is not recommended eligible for inclusion on the CRHR per Criterion 4.

Considering the fact that site integrity has been substantially compromised, this site is not considered eligible/significant per any of the evaluation criteria, and therefore not a unique archaeological resource under CEQA (Jensen 2022).

3.5.2 Discussion

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No Impact. No historical resources were identified at the project site as a result of either the NCIC record search, background research, or pedestrian survey. Therefore, there would be no impact to historical resources as a result of the project.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant Impact with Mitigation. As previously discussed, the pedestrian survey resulted in careful examination of P-09-003627, confirming that the resource does not contain precontact cultural material and does include historic-era cultural material. The site was subjected to CRHR eligibility evaluation and recommended not eligible for inclusion on the CRHR, under any of the relevant criteria, and is therefore not a unique archaeological resource under CEQA (Jensen 2022). Nevertheless, the possibility remains that subsurface archaeological materials could be encountered during ground disturbing activities. This impact would be potentially significant.

Mitigation Measure 3.5-1: Protection of Unknown Archaeological Resources

In the event that unknown buried archaeological deposits (e.g., prehistoric stone tools, milling stones, shells, midden soils) are encountered during construction, all ground-disturbing activity within 100 ft of the resources shall be halted and a qualified professional archaeologist (36 Code of Federal Regulations 61) and appropriate Native American tribal representative shall be notified immediately and retained to assess the significance of the find. Construction activities could continue in other areas. If the find is determined to be significant by the qualified archaeologist or Native American tribe (i.e., because it is determined to constitute a unique archaeological resource), the archaeologist, in consultation with the Count and the culturally affiliated Native American tribe(s) shall develop appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures could include but would not necessarily be limited to preservation in place, subsurface testing, or contiguous block unit excavation and data recovery.

Significance after Mitigation

Implementation of Mitigation Measure 3.5-1 would reduce impacts to a less-than-significant level by requiring cessation of work, evaluation of the significance of the find, and implementation of preservation and/or proper data recovery upon discovery of previously unknown resources.

c) Substantially disturb human remains, including those interred outside of formal cemeteries?

Less than Significant. Based on documentary research, no evidence suggests that any prehistoric or historic era marked or un-marked human interments are present within or in the immediate vicinity of the project site. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project site and could be uncovered by project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains, and discovery of any human remains, are contained in California Health and Safety Code Section 7050.5 and PRC Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the El Dorado County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, the Native American Heritage Center (NAHC) shall be notified within 24 hours, and the guidelines of NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated most likely descendants and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Sections 7050.5 and PRC Section 5097, would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered.

3.6 ENERGY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy.				
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

3.6.1 Environmental Setting

California relies on a regional power system composed of a diverse mix of natural gas, petroleum, renewable, hydroelectric, and nuclear generation resources:

- Natural gas: Approximately 39% of California's net electricity generation is fueled by natural gas, and six out of ten California households use natural gas for home heating (EIA 2024).
- Petroleum: Petroleum products (gasoline, diesel, jet fuel), which are consumed almost exclusively by the transportation sector, account for vast majority of the energy used in California by the transportation sector, with the rest provided by ethanol, natural gas, and electricity (Bureau of Transportation Statistics 2023). For the first time since 1953, transportation's reliance on petroleum dipped below 90 percent in 2020 during the COVID-19 pandemic. Transportation's petroleum dependence remained below 90 percent, at 89.7 percent in 2021 and 89.4 percent in 2022 (Bureau of Transportation Statistics 2023). California is the largest consumer of jet fuel and second-largest consumer of motor gasoline among the 50 states (EIA 2024).
- Electricity and renewables: In 2023, renewable resources, including hydroelectric power and small-scale solar power, supplied 54% of California's in-state electricity generation. (EIA 2024).
- Alternative fuels: Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many alternative transportation fuels (e.g., biodiesel, hydrogen, electricity). Use of alternative fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, 2022 Scoping Plan).

Electric service in the Project area is provided by Pacific Gas and Electric Company. Electric service is available for the Project site. A propane tank will be used to provide gas needs to the Project site.

3.6.2 Discussion

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant. Development at the Project site could result in a moderate increase in energy use compared to existing conditions from both construction and operational activities. Implementation of the Project would include construction of the following commercial buildings: a drive-thru quick-serve restaurant, a convenience store, and a building pad for future building expansion (i.e., a car wash). A fuel (station) canopy would be developed alongside the commercial building as Phase One.

During construction, energy would be required to operate and maintain construction equipment and transport construction materials. The one-time energy expenditure required to construct the physical buildings and infrastructure associated with the proposed development would be nonrecoverable. The energy needs for construction would be temporary and would not require additional capacity or substantially increase peak or base period demands for electricity and other forms of energy. Associated energy consumption would be typical of that associated with construction of commercial centers. Non-renewable energy would not be consumed in a wasteful, inefficient, and unnecessary manner when compared to other construction activity in the region.

The commercial buildings at the Project site could result in a moderate increase in electricity consumption in the region relative to existing conditions. However, the new facilities would be built in compliance with current Title 24 Building Energy Efficiency Standards (or the standards in effect at the time of construction), which serve to reduce wasteful, uneconomical, and unnecessary uses of energy for the State. Operation of the project would be typical of commercial uses electricity for lighting/climate control/ kitchen facilities/miscellaneous appliances/etc. The net fuel consumption associated with potential additional future vehicle trips to the Project site would not be considered wasteful, inefficient, or unnecessary in comparison to other similar developments in the region. State and federal regulations regarding fuel efficiency standards for vehicles in California are designed to reduce wasteful, inefficient, and unnecessary use of energy for transportation.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant. Relevant plans that pertain to the efficient use of energy include the Energy Efficiency Action Plan, which focuses on energy efficiency and building decarbonization (CEC 2025). Development at the Project site has the potential to result in a small increase in consumption of energy resources during construction and operation of new buildings and facilities. However, the proposed development would be minor and would be required to comply with all applicable requirements for construction and operational efficiency. The project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

3.7 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Geology and Soils.				
Would the project:				
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 California Geological Survey Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

3.7.1 Environmental Setting

Based on mapping by California Geologic Survey, the nearest Alquist-Priolo Fault Zones are over 50 miles from the project site (CDC 2025d). According to the El Dorado County General Plan EIR, "no active faults have been identified in El Dorado County. One fault, part of the Rescue Lineament–Bear Mountains fault zone, is classified as a well located late-Quaternary fault (CDC 1990); therefore, it represents the only potentially active fault in the county. It is

part of the Foothill Fault Suture Zone system, which was considered inactive until a Richter scale magnitude 5.7 earthquake occurred near Oroville on August 1, 1975 (CDC 1990). All other faults located in El Dorado County are classified as pre-Quaternary (inactive)." (EDC 2003).

The project is within the boundary of a geologic formation of metasedimentary and metavolcanic rocks, which is a Jurassic age (duration about 201.3 million years ago to 145 million years ago; Wagner et al. 1981). The soil located in the project site is known as the Delpiedra Series, classified as DeE, which consists of very rocky loam, very deep, and are well drained soils (0 – 50 percent slopes). This soil type is prominent in the Cool region of the Sierra Nevada foothills (UCD Soils Web 2025). The DeE soil series has a high runoff, a depth to bedrock between 12 to 16 inches, depth to water table is typically more than 80 inches (NRCS 2025).

According to the State Department of Water Resources (DWR), the project site is located outside (approximately 13 miles) of a groundwater basin subject to the Sustainable Groundwater Management Act (SGMA) or a groundwater sustainability plan (DWR 2025). The topography of the Project site slopes gently to the southwest portion of the Project site.

Based on the soil characteristics, topography, depth to groundwater, and distance to active faults, there is low potential for geologic hazards from landslides, steep areas, rock falls, mud flows, liquefaction, and expansive soils at the project site.

3.7.2 Discussion

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 California Geological Survey Special Publication 42.)

No Impact. As discussed in Section 3.7.1, the project site is not within an Alquist-Priolo Fault Zone and is located over 50 miles east of the nearest Alquist-Priolo Fault Zones (CDC 2025d). Therefore, the project would not cause substantial adverse effects involving rupture of a known earthquake fault.

ii) Strong seismic ground shaking?

Less than Significant As described in Section 3.7.1, 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. The proposed 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. The 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.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant. Liquefaction is the process in which water is combined with unconsolidated soils, generally from ground motion and pressure, which causes the soils to behave like a liquid (e.g., like "quicksand"). Liquefaction potential is determined from a variety of factors, including soil type, soil density, depth to the groundwater table, and the duration and intensity of ground shaking. Liquefaction is most likely to occur in deposits of water-saturated alluvium or areas of considerable artificial fill. Other types of seismic-related ground failure include ground lurching, differential settlement, and lateral spreading.

The potential for liquefaction and other seismic-related ground failure is considered low on the Project site because the Project site is not in an area prone to saturated soils or strong ground shaking. The site is not located within a

State Designated Seismic Hazard Zone for liquefaction (DWR 2025; CDC 2025d). Therefore, the project would not cause substantial adverse effects from seismic-related ground failure, including liquefaction.

iv) Landslides?

Less than Significant. The project site gently slopes towards the southwestern portion of the site. The potential for landslides to occur is considered low given the lack of steep slopes within or adjacent to the project site. Therefore, the project would not cause substantial adverse effects from landslides.

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

Less than Significant. Soil erosion refers to the process by which soil or earth material is loosened or dissolved and removed from its original location. Erosion can occur by varying processes and may occur in the project site where bare soil is exposed to wind or moving water (both rainfall and surface runoff). The processes of erosion are generally a function of material type, terrain steepness, rainfall or irrigation levels, surface drainage conditions, and general land uses.

The proposed Project would not trigger substantial erosion. Construction of the proposed development would include ground disturbance, such as excavation, grading, and trenching, which could increase the potential for erosion to occur. The proposed development would be in compliance with the grading, erosion, and sediment control requirements outlined in Section 110.14 of the County municipal code. The proposed development would also comply with all applicable EDCAQMD fugitive dust requirements. Furthermore, because the proposed development would result in a disturbance area of more than 1 acre, the Project is required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ). The Construction General Permit requires the development of a storm water pollution prevention plan (SWPPP), with best management practices (BMPs) for erosion and sediment control. The Construction General Permit is issued and enforced by the appropriate RWQCB. The Project site is within the jurisdiction of the Central Valley RWQCB and the project would be subject to all existing regulations associated with the protection of water quality, including erosion and sediment control. The proposed Project would comply with standard requirements for erosion control, thereby preventing substantial soil erosion or the loss of topsoil. Impacts would be less than significant.

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

Less than Significant. Refer to Sections 3.7.2(a)(iii) and (iv) above. The project site is located on the DeE soil series, which is very rocky loam, very deep, and well drained soils (UCD Soils Web 2025). The topography is hilly with relatively gentle slopes. The potential for on- or off-site landslides, lateral spreading, liquefaction, or collapse is considered low. Development at the Project site would not cause soils to become unstable.

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

No Impact. Expansive soils are typically associated with fine-grained clayey soils that have the potential to shrink and swell with repeated cycles of wetting and drying. The Project site contains very rocky loam soils and does not have fine-grained clayey soils. There would be no impact.

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

Less than Significant. The Project site is in a rural area where wastewater treatment is accomplished through onsite septic systems. Development of the new septic system at the Project site would require approval from the County's Environmental Management Department (EMD) and compliance with the County's Private Sewage Disposal System Ordinance (EDC 2024). Before the proposed Project can be approved by the County, information about soil depth,

soil percolation rate, and the proposed leach field area for proposed septic system must be submitted to the local agency management plan (LAMP) and must demonstrate sufficient percolation rates to meet projected wastewater generation rates.

Wastewater service would be provided to the proposed Project by an onsite septic tank and leach field. The septic system will meet the requirements for a commercial facility, including a grease interceptor to prevent grease from entering the leach field. Preliminary evaluations of soils conditions have found that percolation rates may require a specialized leach field system to accommodate poor drainage rates. A location for a leach field system considered sufficient to support the proposed Project has been identified east of the oak trees that are to be preserved. Additional land south of the proposed leach field has been reserved to allow installation of additional leach line if needed. Sufficient reserved land is available to potentially triple the length of leach line currently being considered. With the ability to substantially expand the leach field in response to poor soil drainage conditions, the project is capable of being supported by the use of an on-site septic system.

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

No Impact. As described in Section 3.7.1, the project is underlain by metasedimentary and metavolcanic rocks. The geologic conditions associated with these soil types are not suitable for fossil formation. No fossil-bearing strata or paleontological sites have been previously recorded or observed within or near the project site. Because fossils typically occur in sedimentary rocks, which are not present within the Project site, potential future ground disturbance is unlikely to encounter a paleontological resource. The project would not destroy a unique paleontological resource or site or unique geologic feature.

3.8 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Greenhouse Gas Emissions.				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.8.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with on-road and off-road transportation, industrial/manufacturing, electricity generation by utilities and consumption by end users, residential and commercial on-site fuel usage, and agriculture and forestry. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (IPCC 2014).

Climate change is a global problem. GHGs are global pollutants because even local GHG emissions contribute to global impacts. GHGs have long atmospheric lifetimes (one to several thousand years) and persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any particular GHG molecule is dependent on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration (IPCC 2013).

As noted in Section 3.3 "Air Quality," an Air Quality Impact Analysis Report was prepared for the proposed Project and is provided as Attachment A. GHG emissions from the proposed Project were modelled and identified in the report. It is estimated that the proposed Project would emit 13.3 metric tons of carbon dioxide equivalent per year ($MTCO_2e/yr$) resulting from construction and 412 $MTCO_2e/yr$ resulting from Project operation. The report does not identify this as a significant amount of GHG emissions. The EDCAQMD reviewed the Air Quality Impact Analysis Report for the Project (EDC 2023). In their review of the report, EDCAQMD concurred that the GHG emissions resulting from the project would be less than significant and the project would comply with applicable EDCAQMD rules.

GREENHOUSE GAS EMISSION SOURCES AND SINKS

As discussed previously, GHG emissions are attributable in large part to human activities. CO_2 is the main byproduct of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, organic material decomposition in landfills, and the burning of forest fires. Nitrous oxide emissions are

largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water); respectively, these are the two of the most common processes for removing CO_2 from the atmosphere.

STATEWIDE GHG EMISSION TARGETS AND THE CLIMATE CHANGE SCOPING PLAN

Reducing GHG emissions in California has been the focus of the state government for approximately two decades (State of California 2018). GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). EO S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. EO B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets align with the scientifically established levels needed globally to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (UN 2015).

CARB adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022, which traces the State's pathway to achieve its carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045. It identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals. (CARB 2022)

Unlike thresholds of significance established for criteria air pollutants in the EDCAQMD's CEQA guidance (EDCAQMD 2002), the EDCAQMD has not adopted GHG emissions thresholds for land use development projects. In the absence of County adopted thresholds, El Dorado County AQMD recommends using the adopted thresholds of other lead agencies, which are based on consistency with the goals of AB 32. Since climate change is a global problem and the location of the individual source of GHG emissions is somewhat irrelevant, it's appropriate to use thresholds established by other jurisdictions as a basis for impact significance determinations. Projects exceeding these thresholds would have a potentially significant impact and be required to mitigate those impacts to a less than significant level. Until the County adopts a CAP consistent with CEQA Guidelines Section 15183.5, and/or establishes GHG thresholds, the El Dorado County AQMD has recommended the use of thresholds adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD). The thresholds of significance established by SMAQMD, and used by EDCAQMD, were developed to identify emissions levels for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. Per the SMAQMD Thresholds of Significance Table, most recently updated in 2020, if a proposed project results in emissions less than 1,100 $MTCO_2e$/yr during both construction and/or operation, the proposed project would result in a less-than-significant impact related to GHG emissions.

3.8.2 Discussion

a, b) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment of conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant. As stated above, the EDCAQMD recommends the use of thresholds adopted by the SMAQMD for assessing the significance of GHG emissions from individual projects. The SMAQMD thresholds were developed to identify emissions levels for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. Within these thresholds is the criteria that if a proposed project results in emissions less than 1,100 $MTCO_2e$/yr during both construction and operation, the proposed project would result in a less-than-significant impact related to GHG emissions.

As identified above in Section 3.8.1, an Air Quality Impact Analysis Report was prepared for the proposed Project and is provided as Attachment A. GHG emissions from the proposed Project were modelled and identified in the report. It is estimated that the proposed Project would emit 13.3 MTCO2e/yr resulting from construction and 412 MTCO2e/yr resulting from Project operation. Both emission estimates are below the 1,100 $MTCO_2e$/yr threshold, resulting in a less than significant impact. The EDCAQMD reviewed the Air Quality Impact Analysis Report for the Project (EDC 2023) and concurred that the GHG emissions resulting from the project would be less than significant.

Because both the construction and operational GHG emissions associated with the proposed development within the Project site would be below 1,100 $MTCO_2e$, any potential impacts related to GHG emissions would be less than significant. Because emissions would be less than significant, the project also would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

3.9 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hazards and Hazardous Materials.				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

3.9.1 Environmental Setting

There are no hazardous materials sites at or near the Project site (DTSC 2025, SWRCB 2025). There is a leaking underground storage tank (LUST) clean-up site on the opposite side of SR 49 from the Project site that is no longer an open record (RB Case #: 090101). There are no existing or proposed schools within 0.25 miles of the project site. The nearest school is the Northside Elementary School, located at 860 Cave Valley Rd, Cool, CA 95614, approximately one mile southwest of the Project site. The Auburn Municipal Airport is the closest public airport, located approximately 6 miles northwest of the project site.

The project and surrounding vicinity are subject to the County's 2022 General Plan Safety Element Update (EDC 2004a), as well as the El Dorado County Multi-Jurisdictional Hazard Mitigation Plan (EDCHMP) (EDCSO 2024), which provides guidance for the County's response in emergency situations, including wildfire and emergency evacuation.

According to the California Department of Forestry and Fire Protection (CAL FIRE), the project site is in a state responsibility area (SRA) within a high fire hazard severity zone (CAL FIRE 2025). Wildfire risks are discussed further in Section 3.20. Development at the Project site would be subject to vegetation management requirements of El Dorado County Municipal Code Chapter 8.09 addressing Hazardous Vegetation and Defensible Space.

3.9.2 Discussion

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

Less than Significant. A hazardous material is defined as any material that due to its quantity, concentration, physical or chemical characteristics, poses a significant present or potential hazard to human health or to the environment if released. Development at the Project site would involve the temporary use, transport, and disposal of hazardous materials in the form of inorganic and organic chemicals, solvents, paints, oil, gasoline, cleansers. However, any construction-related transport, use, and disposal of hazardous materials would be temporary, and all materials would be used, stored, and disposed of in accordance with applicable laws and regulations and manufacturers' instructions. Furthermore, any emissions from the use of such materials would be temporary in nature and localized to the Project site.

Land uses that involve the routine transport, use, and disposal of hazardous materials include but are not limited to manufacturing plants, dry cleaning facilities, gas stations, agricultural properties, recycling centers, refineries, and shipyards. These land uses, including gas stations, are heavily regulated with requirements related to monitoring, spill response, safety, inspection, and material handling. Although there are hazards inherent with the transport, storage, and handling of hydrocarbon fuels (e.g., gasoline, diesel, propane), the regulatory regime applied to gas stations substantially reduces these hazards. In addition, the Air Quality Impact Analysis Report prepared for the Project (Attachment A) and the EDCAQMD review of that report (EDCAQMD 2023) includes an analysis of human health risks that might result from gas station operation. The analysis concluded that sensitive receptors would not be exposed to substantial pollutant concentrations or pollutants that would result in a significant health risk. Considering both Project construction and operation, the proposed Project would not create a significant hazard to the public or the environment.

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

Less than Significant. Refer to Section 3.9.2(a) above. The conditions and regulatory environment described regarding the transport, use, and disposal of hazardous materials would also apply to the prevention of, and response to, reasonably foreseeable upset and/or accident conditions involving the potential release of hazardous materials at the Project site. The proposed Project would not create a significant hazard to the public or the environment.

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

No Impact. As discussed in Section 3.9.1, there are no existing or proposed schools within 0.25 miles of the project site. Therefore, the project would have no impact related to the emission or handling of hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.

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

Less than Significant. The Project site is not located near any hazardous materials sites on the California Department of Toxic Substance Control (DTSC) EnviroStor or SWRQCB's Geotracker database (DTSC 2025, SWRQCB 2025). There is a LUST clean-up site on the western side of SR 49, opposite the Project site, that is no longer an open record (RB Case #: 090101). The Project site is located at a site that is mapped as likely to contain NOA (CDC 2000). However, with implementation of an approved ADMP (required if activities on the subject parcel move more than 20 cubic yards of soil) would prevent adverse effects from NOA. The potential impacts of the project would be less than significant.

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

No Impact. The Auburn Municipal Airport is the closest public airport, located approximately 6 miles northwest of the Project site. The Project site is not within the airport's land use plan. There would be no impact.

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

Less than Significant. Development at the Project site would occur in a manner consistent with the existing zoning for the site and planned population growth for the region. At SR 49 a widened 45 ft full-access driveway would serve the project site and be located approximately 400 ft north of SR 193 (Georgetown Road). A second 35 ft full-access driveway would be located on SR 193 directly opposite Ellinghouse Drive approximately 600 ft east of SR 49. This project driveway would form a standard four-way intersection (southbound leg) with the SR 93/Ellinghouse Drive intersection. These roadway improvements would improve access to the Project site. As a result, the proposed alteration of roadways would not hinder emergency response or evacuation. For each point of access, an encroachment permit would be obtained from the County Department of Transportation and driveways would be constructed in accordance with County Design and Improvements Standards Manual. The Project would not increase population in a way that would add appreciable numbers of vehicles to an evacuation. The Project could benefit evacuation efficiency by providing additional capacity for evacuees to fuel their vehicles prior to, or during an evacuation. The Project would not impair or physically interfere with implementation of the EDCHMP.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less than Significant. The Project site is in the SRA in an area designated as having a high fire hazard severity zone (CAL FIRE 2025). However, with compliance with existing laws and regulation, such as El Dorado County Municipal Code Chapter 8.09 addressing Hazardous Vegetation and Defensible Space, the Project itself would be more resilient to wildfire. The Project would not bring new homes or large populations into a fire hazard area. The existing unmanaged vegetation on the project site, which is embedded within existing development, would be replaced with structures meeting current fire codes, which could reduce wildfire risk for existing development. The Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

3.10 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Hydrology and Water Quality.				
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
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 substantial on- or offsite erosion or siltation;	☐	☐	☒	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
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?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

3.10.1 Environmental Setting

According to the USGS Watershed Boundary Dataset, the project site is in the North Fork American River Subbasin and the Lower Middle Fork American River (USGS 2025). There are no streams, creeks, or other water bodies on the Project site. The nearest aquatic feature is Knickerbocker Creek located several hundred feet south of the Project site. is an unnamed seasonal stream that flows south to north through the Project site and that supports a constructed seasonal pond. Knickerbocker Creek joins the North Fork American River approximately 1.5 miles upstream of the upper reaches of Folsom Lake reservoir, which is located approximately 4 miles southwest of the Project site.

According to groundwater basin maps developed under DWR's SGMA, the Project site is located within a non-basin area, which refers to areas that are not part of a defined groundwater basin (DWR 2025).

According to the Federal Emergency Management Agency, the project site is within an area of minimal flood hazard (FEMA 2008). The project site is not within a tsunami hazard area (CDC 2024e) and is not in proximity to an enclosed body of water that is susceptible to seiche.

3.10.2 Discussion

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less than Significant. Development associated with the proposed Project could adversely affect surface or groundwater quality through ground disturbance, such as excavation, grading, and trenching; as well as construction of new areas of impervious surfaces.

The Project site is under the jurisdiction of the Central Valley RWQCB. The Central Valley RWQCB adopted the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan) in 1975, with the current fifth edition approved in 2019, as amended in 2020. The purpose of the Basin Plan is to designate beneficial uses of waters within the Sacramento and San Joaquin River basins, establish water quality objectives to protect those beneficial uses, and implement a program needed to achieve those objectives. The Basin Plan establishes water quality standards for both surface and ground waters (Central Valley RWQCB 2019).

Discretionary projects must comply with the County's West Slope Development and Redevelopment Standards (EDC 2024c), the storm water management plan (SWMP) for Western El Dorado County (EDC 2004b), and the County's Grading, Erosion, and Sediment Control Ordinance (EDC 2013). Any future development with a disturbance area of more than 1 acre (43,560 sq. ft.) would also be required to obtain coverage under the NPDES General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2022-0057-DWQ). Through compliance with all applicable regulations and requirements, potential future development at the Project site would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

The unincorporated portion of El Dorado County's west slope, including the Project site, is subject to the State of California's Phase II NPDES municipal separate storm sewer system (MS4) permit. As such, the County's post-construction water quality requirements follow those outlined in Section E.12 of the MS4 permit. Under the MS4 Permit, projects that create or replace less than 2,500 sf of impervious surface are exempt from post construction requirements; small projects, including single family homes, which create or replace between 2,500 and 4,999 sf of impervious surface, must follow a set of standard site design measures, found in Section E.12.b of the MS4 Permit (EDC 2024c). Future development at the Project site will be required to comply with applicable NPDES permit requirements, which may include treatment of stormwater prior to the water leaving the site or entering a waterbody, submittal of an Erosion and Sediment Control Plan, and/or other requirements, as applicable. Through compliance with all applicable standard County and State regulations, impacts would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant. The Project site is located in a non-basin area and does not include groundwater wells and would receive water from the GDPUD (For an analysis of the projects effects on water supply, see Section 3.19, "Utilities and Service Systems."). Potential new impervious cover would not reach levels that could substantially affect groundwater recharge; however, development would be subject to applicable stormwater infrastructure requirements for treating stormwater runoff and allowing it to percolate back into the soil. Therefore, development would avoid substantial impacts to groundwater supplies and groundwater recharge.

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 substantial on- or offsite erosion or siltation;

Less than Significant. Development within the Project site would include ground disturbance, such as excavation, grading, and trenching, which could increase the potential for erosion to occur. As described under Question a), potential future development would be required to comply with all applicable regulations and requirements, including the NPDES MS4 permit; the County SWMP, the County Grading, Erosion, and Sediment Control Ordinance; and the Construction General Permit issued by the Central Valley RWQCB, which would require a SWPPP with BMPs to control erosion. With adherence to applicable rules and regulations and implementation of BMPs, potential future development would result in a less than significant impact related to erosion and siltation.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Less than Significant. Development at the Project site could result in the introduction of new impervious surfaces; however, this would be subject to applicable stormwater infrastructure requirements for treating stormwater runoff and allowing it to percolate back into the soil. Therefore, the proposed development would not increase the rate or amount of surface runoff in a manner that 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

Less than Significant. Development within the Project site would result in the introduction of new impervious surfaces through ground disturbance activities, such as excavation, grading, and trenching. However, the proposed development would be required to comply with all applicable regulations related to stormwater drainage and water quality protection, including regulations related to the containment of gasoline and gasoline spills. Therefore, the Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

iv) Impede or redirect flood flows?

No Impact. As discussed in Section 3.10.1, the project site is within an area of minimal flood hazard (FEMA 2008). Therefore, any development on the Project site would not result in impacts related to impeding or redirecting flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. As discussed in Section 3.10.1, the Project site is not within a flood hazard zone, a tsunami hazard area, or in proximity to an enclosed body of water that is susceptible to seiche (FEMA 2008; CDC 2025e). Therefore, the Residences Project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant. The Project site is located in a non-basin area and is not subject to a sustainable groundwater management plan. The proposed development at the Project site would be required to comply with requirements of the NPDES MS4 permit, the County SWMP, the County Grading, Erosion, and Sediment Control Ordinance, and the Construction General Permit issued by the Central Valley RWQCB. As part of the development, BMPs would be implemented during construction activities and project operation to prevent stormwater contamination, control sedimentation, and erosion, and comply with stormwater discharge requirements. Because the proposed development would comply with applicable rules and regulations and implementation of BMPs, the project would not conflict with or obstruct implementation of the Basin Plan.

3.11 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Land Use and Planning.				
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.11.1 Environmental Setting

The Project site is in a rural setting in the unincorporated community of Cool, in El Dorado County, at the intersection of SR 49 and SR 193. The Project site is predominately characterized by annual grasslands, remnants of past development, and scattered oaks and chaparral. Adjoining properties support various commercial developments and widely spaced rural residences.

The project site is designated as C in the County General Plan Land Use Diagram (EDC 2004a). As described in the County's General Plan Land Use Element, the C designation establishes areas for commercial retail, office, service uses to serve the residents, businesses, and visitors of El Dorado County. The zoning designation for the Project is CL and DC, which designates areas suitable for lower intensity retail sales, office, and service needs.

3.11.2 Discussion

a) Physically divide an established community?

No Impact. As described in Section 3.11.1, the project site consists of a rural commercial parcel surrounded by similar rural commercial parcels. The project would be compatible with surrounding land uses and would not include physical features that would restrict access to neighboring communities. Therefore, the project would not physically divide an established community.

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?

No Impact. As discussed in Section 3.11.1, the Project site is designated C for land uses and is zoned CL and DC. The proposed Project is consistent with the objectives of these designations. The proposed Project would not conflict with any land use plan, policy, or regulation. The proposed development at the Project site would be required to conform to all applicable land use and zoning regulations and all applicable policies from the County's General Plan, which may include the following permits or approvals:

- approval of improvement plans, indicating that the appropriate County agencies have reviewed and approved the project's connection to public utilities and roadways;
- a grading permit, according to the requirements in the County's Grading, Erosion, and Sediment Control Ordinance (County Code Section 110.14);
- pad certification, which requires that a soil engineer confirm that the site is adequately compacted to meet engineering requirements and a surveyor or engineer verify that the site is elevated above the floodplain; and

- a building permit, which requires payment of various fees (e.g., schools, roads), site plan review, and presentation of various other permits obtained from County departments relating to traffic, public services, and safety.

Because the proposed development would be consistent with existing land use and zoning designations for the project site and all applicable policies from the County's General Plan, and because the development at the Project site would also be required to conform to applicable policies and regulations, the project would not 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.

3.12 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Mineral Resources.				
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.12.1 Environmental Setting

The California Surface Mining and Reclamation Act of 1975 requires the State Geologist to classify land into Mineral Resource Zones (MRZ) according to the known or inferred mineral potential of that land. Areas classified as MRZ-2 include areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. The process is based solely on geology, without regard to existing land use or land ownership. The primary goal of mineral land classification is to ensure that the mineral resource potential of land is recognized by local government decision-makers and considered before land-use decisions that could preclude mining are made. According to the El Dorado County General Plan EIR, the project site is not within an area classified as MRZ-2 (EDC 2003).

3.12.2 Discussion

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

No Impact. The Project site is not known to support significant mineral deposits; therefore, any future development would not result in the loss of availability of a known mineral resource of regional value or of a locally important mineral resource recovery site delineated on a land use plan.

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?

See response in item (a) above.

3.13 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII.Noise.				
Would the project result in:				
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 in other applicable local, state, or federal standards?	☐	☐	☒	☐
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?	☐	☐	☐	☒

3.13.1 Environmental Setting

ACOUSTIC FUNDAMENTALS

Acoustics is the scientific study that evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Noise is typically expressed in decibels (dB), which is a common measurement of sound energy. Definitions of acoustical terms used in this section are provided in Table 3-3.

Table 3-3 Acoustic Term Definitions

Term	Definition
Noise	Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted.
Decibel (dB)	Sound levels are measured using the decibel scale, developed to relate to the range of human hearing. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy.
A-weighted decibel (dBA)	The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed, identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels. For this reason, the A-weighted sound levels are used to predict community response to noise from the environment, including noise from transportation and stationary sources, and are expressed as A-weighted decibels. All sound levels discussed in this section are A-weighted decibels unless otherwise noted.

Term	Definition
Equivalent Noise Level (L_{eq})	The average noise level during a specified time period; that is, the equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period (i.e., average noise level).
Maximum Noise Level (L_{max})	The highest instantaneous noise level during a specified time period.

Source: Caltrans 2013.

Noise Generation and Attenuation

Noise can be generated by many sources, including mobile sources such as automobiles, trucks, and airplanes and stationary sources such as activity at construction sites, machinery, and commercial and industrial operations. As sound travels through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers. Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates at a rate of 6 dB for each doubling of distance from a point source. Noise from a line source, such as a road or highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. Noise attenuation from ground absorption and reflective wave canceling provides additional attenuation associated with geometric spreading. For acoustically absorptive sites such as soft dirt, grass, or scattered bushes and trees, additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuation rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric conditions such as wind speed, wind direction, turbulence, temperature gradients, and humidity also alter the propagation of noise and affect levels at a receiver. Furthermore, the presence of a barrier (e.g., topographic feature, intervening building, and dense vegetation) between the source and the receptor can provide substantial attenuation of noise levels at the receiver. Natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may function as noise barriers.

To provide some context to noise levels described throughout this section, common sources of noise and associated noise levels are presented in Table 3-4.

Table 3-4 Typical Noise Levels

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 ft	100	
Gas lawnmower at 3 ft	90	
Diesel truck moving at 50 mph at 50 ft	80	Food blender at 3 ft, garbage disposal at 3 ft
Noisy urban area, gas lawnmower at 100 ft	70	Vacuum cleaner at 10 ft, normal speech at 3 ft
Commercial area, heavy traffic at 300 ft	60	
Quiet urban daytime	50	Large business office, dishwasher in next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	30	Library, bedroom at night, concert hall (background)
Quiet rural nighttime	20	Broadcast/recording studio
	10	
Threshold of human hearing	0	Threshold of human hearing

Notes: dB = A-weighted decibels; mph = miles per hour

Source: Caltrans 2013.

Effects of Noise on Humans

Exposure to excessive noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Non-auditory behavioral effects of noise on humans are primarily subjective effects such as annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep, and learning.

EXISTING NOISE SOURCES AND LEVELS

As a rural area with commercial and residential uses, the project site has low levels of ambient noise, with existing noise sources consisting primarily of vehicular traffic along SR 49 and SR 193 and vehicle and operational noise associated with nearby commercial uses. There would also be occasional sirens associated with El Dorado County Fire Protection District Station 72, located approximately 400 feet northwest of the Project site.

NOISE- AND VIBRATION-SENSITIVE LAND USES AND RECEPTORS

Noise- and vibration-sensitive land uses generally include those uses where noise exposure could result in health-related risks to individuals, places where a quiet setting is an essential element of the intended purpose (e.g., schools and libraries), and historic buildings that could sustain structural damage due to vibration. The project is primarily surrounded by commercial land uses, with dispersed residences beyond these commercial uses. The closest sensitive receptors are residences located approximately 400 ft east of the eastern edge of the Project site.

AIRPORTS AND PRIVATE AIRSTRIPS

The Auburn Municipal Airport is the closest public airport, located approximately 6 miles northwest of the Project site. There are no private airstrips within 5 miles of the Project site.

COUNTY NOISE STANDARDS

County Municipal Code Chapter 9.16 (Noise) and Chapter 130.37 (Noise Standards) establish standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses, in compliance with General Plan Goal 6.5 (Acceptable Noise Levels). Section 6.5 of the General Plan identifies noise criteria for various stationary and transportation noise sources, including those related to construction.

3.13.2 Discussion

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 in other applicable local, state, or federal standards?

Less than Significant. Project implementation could result in temporary or permanent increases in ambient noise levels. During construction, temporary increased noise levels could result from equipment use, construction activities, and increased vehicle trips to the site. Construction-related noise sources would include both mobile and stationary on-site equipment (e.g., dozers, loaders, generators). Construction noise would be short-term and temporary (both during Phase 1 and Phase 2 of construction), and operation of heavy-duty construction equipment would be intermittent throughout the day during construction.

County code exempts certain activities, including construction, from noise standards as long as the construction occurs between the hours of 7:00 p.m. and 7:00 a.m. Monday through Friday, and between the hours of 8:00 a.m. and 7:00 p.m. on weekends and on federally-recognized holidays.

Construction activities would occur within the timeframe identified by the County's noise ordinance when construction noise is exempt from noise standards. Thus, the Project would not generate a substantial temporary increase in ambient noise levels in excess of allowable standards in the vicinity of the project.

Operation of the proposed commercial building, convenience store, drive-thru quick serve restaurant, gas station, and car wash would result in increased operational noise, from both traffic and stationary sources. With new customers and employees at the project site, there would be an increase in average daily traffic volumes and associated increases in traffic noise levels along affected roadway segments near the site. Operational noise would also be generated car wash blower arches and vacuums, and the heating, ventilation, and air conditioning (HVAC) associated with the commercial buildings. Noise levels generated from HVAC equipment vary substantially depending on unit efficiency, size, and location. Generally, HVAC equipment generates noise levels of 60 dBA at 6 meters (19.6 ft). Car wash generated noise would be somewhat louder. However, residential uses to the east would be shielded by vegetation (oak trees) and topography. The Project site slopes upward to the east, and the topography then slopes downwards on the east side of the Project site. Therefore, the eastern portion of the project site that would not be developed provides a topographic noise barrier. Given the predominance of existing commercial development around the Project site (i.e., grocery story, gas station, food service, strip malls) and barriers between Project development and the nearest residential uses, Project operations would not generate a substantial temporary or permanent increase in ambient noise levels in excess of applicable standards.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant. Project construction would not use ground vibration–intensive activities, such as pile driving or blasting, although pieces of equipment that generate lower levels of ground vibration, such as dozers and pavers, may be used during construction. However, any potential vibration would be minor and temporary and would not result in structural damage or human annoyance. Operation of the proposed Project would involve vehicle trips to and from the site, which could result in some ground vibration. However, the types of vehicles that use SR 49 and SR 193 under current conditions would not change with the proposed Project. There is no evidence of an existing problem with vehicle induced groundborne vibration in the Project area. Although Project operation may result in a small increase in the number of trucks that use SR 49 and SR 193 in the project vicinity (e.g., gasoline delivery trucks), there is no evidence that truck trips on these roadways currently result in excessive groundborne vibration at nearby land uses.

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?

No Impact. There is no private airstrips within 5 miles of the Project site. The nearest public airport is the Auburn Municipal Airport, located approximately 6 miles northwest of the Project site. The Project is not located within an airport land use planning area. Given these circumstances, onsite employees of the proposed Project would not be exposed to airport-related noise in excess of County standards.

3.14 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Population and Housing. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.14.1 Environmental Setting

According to the County General Plan Housing Element 2021-2029 Update, the 2020 population of the unincorporated areas of El Dorado County was 159,722 residents, which was an increase of 7 percent from the 2010 population. Projections estimate that the population will increase an additional 8.8 percent between 2020 and 2030, with an average growth of 0.9 percent per year. In 2018 there were approximately 68,094 housing units in the unincorporated portions of the County. Of these, 56,478 units (82.9 percent) were occupied, and 11,616 units (17.1 percent) were vacant. However, 8,946 units (13.1 percent) were classified as vacant for seasonal, recreational, or occasional uses only (EDC 2003).

3.14.2 Discussion

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

No Impact. Development within the Project site consists of a commercial center. The Project would not involve construction of new housing and thus would not directly induce population growth. There would be no extension of roads or other infrastructure related to project development. A small construction crew would be required for development of project, which would lead to a temporary increase in population. Operation of the project would require up to 20 new employees. This could result in minor population growth in the area. However, this would not be unplanned growth, but rather would be consistent with "buildout" levels considered in the County General Plan. The County General Plan and associated EIR growth projections considered "buildout," which is development of land to its full potential or theoretical capacity as permitted under General Plan land use designation or zoning district. Population growth that could result from the proposed Project is within the level of "buildout" covered in the County General Plan and is consistent with the maximum level of development allowable under current zoning. Therefore, the project would not induce substantial unplanned population growth.

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

No Impact. The project would not displace people or housing, necessitating the construction of replacement housing elsewhere.

3.15 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Public Services.				
Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

3.15.1 Environmental Setting

The El Dorado County Fire Protection District (Fire Authority) provides fire protection to the Project site. The nearest staffed station, Station 72, has a service area of approximately 30 square miles and is located at 7200 St Florian Ct, approximately 1 minute from the Project site. Station 72 is staffed 24 hours a day, 7 days a week by an Engine Company. CAL FIRE has wildland fire responsibility in the Project area.

The El Dorado County Sheriff's Office (EDCSO) provides law enforcement services in the unincorporated portions of the County, including the Project site. EDCSO is made up of the South Lake Tahoe patrol and the West Slope patrol, operating out of Placerville, which serves the Project site. In 2023 the Sheriff's Dispatchers answered 99.71 percent of all 911 calls within 15 seconds, exceeding national standards, which recommend 90% of all 911 calls be answered within 15 seconds (EDCSO 2024).

The project site is within the boundaries of the Black Oak Mine Unified School District. The Black Oak Mine Unified School District enrolls approximately 1,300 students at two middle schools and three elementary schools (BOMUSD 2025).

The closest public park is located approximately 12 miles east in Georgetown, outside of the community of Cool. However, there are nearby open space/recreation areas including the Olmstead loop Trailhead, approximately 500 ft west of the Project site, and the Auburn Lake Trails, located near the intersection of Deer Valley Road and Green Valley Road approximately 0.8 miles east of the Project site.

3.15.2 Discussion

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

Fire protection?

Less than Significant. The project could result in a minor increase in population in the area through the addition of new employees. However, this would not result in the need for new or expanded fire protection facilities. The Project site would continue to be served by the Fire Authority. Building permits from County departments would be required relating to traffic, public services, and safety and would require payment of various fees (e.g., schools, roads). Through this process, the project would contribute its proportional amount to support public services operations. The minor addition of population in their service area would not significantly affect the response time, service ratios, or performance of the Fire Authority or any other public service. The Fire Authority would review improvement plans at the time of grading and/or building permit submittal to ensure compliance with applicable fire safety requirements. Thus, the project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection and emergency services facilities.

Police protection?

Less than Significant. The Project site would continue to receive law enforcement services from the EDCSO West Slope patrol, operating out of Placerville. Development on the Project site would consist of a commercial center (drive-thru quick serve restaurant, a convenience store, a fuel canopy, a carwash). The proposed Project would add commercial land uses to the project area similar to, or the same as, those that already existing. This would not significantly increase the demand for EDCSO services, or affect EDCSO service ratios and response times. The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities.

Schools?

Less than Significant. The Black Oak Mine Unified School District enrolls approximately 1,300 students at two middle schools and three elementary schools (BOMUSD 2025). The project includes development of commercial facilities that could employ new employees. This could result in minor population growth and could have the potential to add new students to the school district. While this population growth could include some student enrollment, the amount would be minor and could be accommodated by existing facilities. The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities.

Parks?

Less than Significant. The potential future population growth in the region that could result from the proposed Project is minor and could be accommodated by existing nearby recreational facilities/opportunities. The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered public park facilities.

Other public facilities?

Less than Significant. Given the minor amount of population growth that could result from the proposed Project, it would not cause a substantial adverse physical impact associated with the provision of new or physically altered public facilities.

3.16 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Recreation.				
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Environmental Setting

Section 3.15.1 includes a summary of the existing public parks and recreational facilities in the vicinity of the project site.

3.16.2 Discussion

a) 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?

No Impact. As discussed in Section 3.15.2(a), nearby recreational facilities include Olmstead loop Trailhead and the Auburn Lake Trails. The proposed Project includes development that could generate new employees. This could result in minor population growth that could be accommodated by existing recreational facilities/opportunities. The project would not cause substantial physical deterioration of existing parks or recreational facilities to occur or be accelerated.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No Impact. The Project does not include recreational facilities and would not require the construction or expansion of recreational facilities. There would be no impact.

3.17 TRANSPORTATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Transportation.				
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

3.17.1 Environmental Setting

EXISTING TRANSPORTATION NETWORK

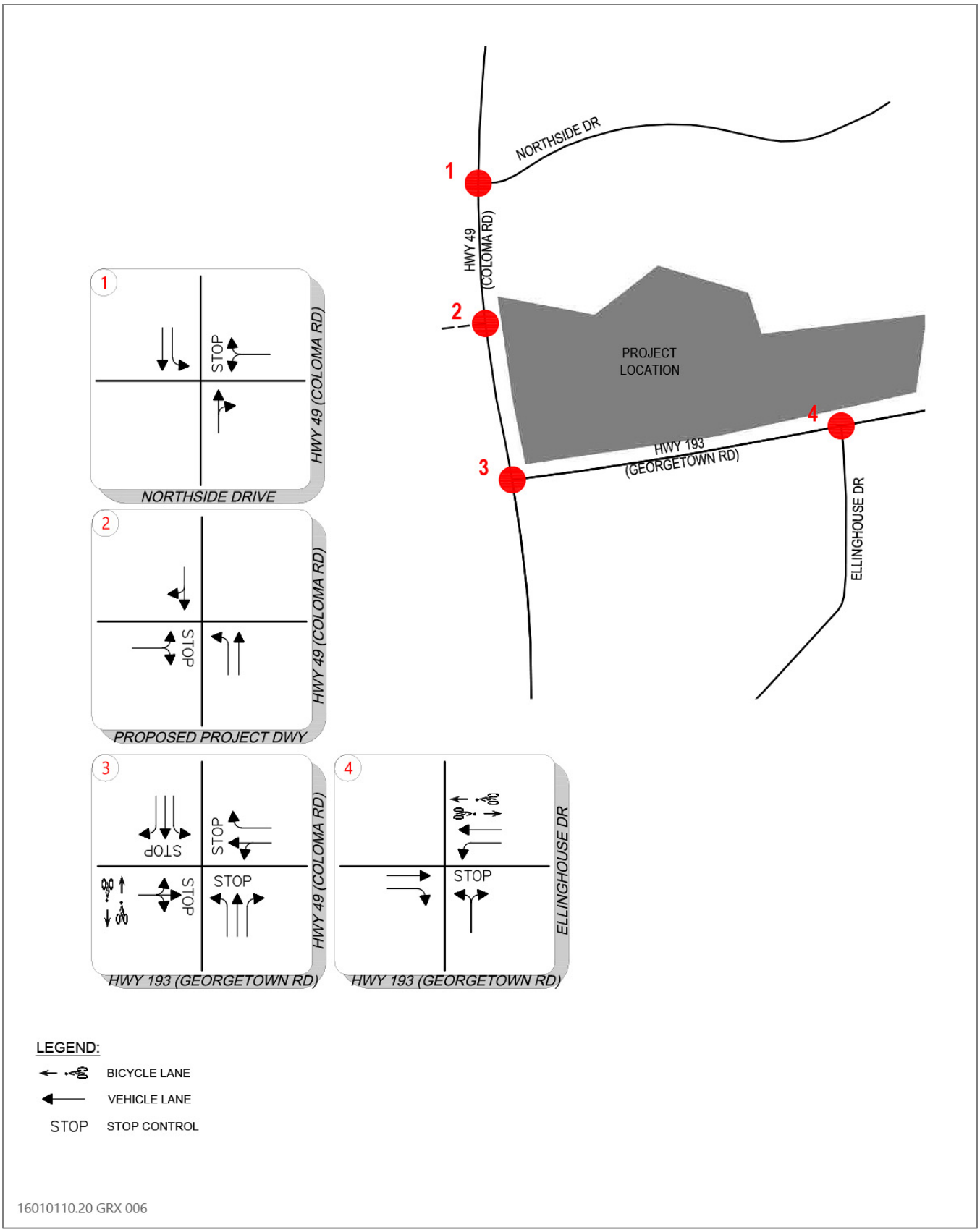
Access to the Project site is provided by the surrounding roadway network, which includes SR 49 and SR 193 (Figures 3-1 and 3-2). SR 193 supports a Class I Bike Route (off-street) pedestrian-bike shared use paths, which continues along SR 49 on the west side of the highway. The project proposes at SR 49 a widened 45 ft full-access driveway that would serve the project site and be located approximately 400 ft north of SR 193 (Georgetown Road). A second 35 ft full-access driveway would be located on SR 193 directly opposite Ellinghouse Drive approximately 600 ft east of SR 49.

Regional access to the project study area is provided by Interstate 80 (I-80) which extends in an east-west direction approximately 9 miles north of the project site via Highway 49 at Auburn. Interstate 80 provides access west to Sacramento and east to Truckee and Reno.

There is no public transit available in the community of Cool. El Dorado Transit provides public transportation for the western slope of El Dorado County. The Placerville route, which runs hourly on weekdays, is the closest El Dorado Transit route to the Project site, providing a stop approximately 14 miles southwest of the Project site. El Dorado Transit did not require any conditions or actions related to the Project.

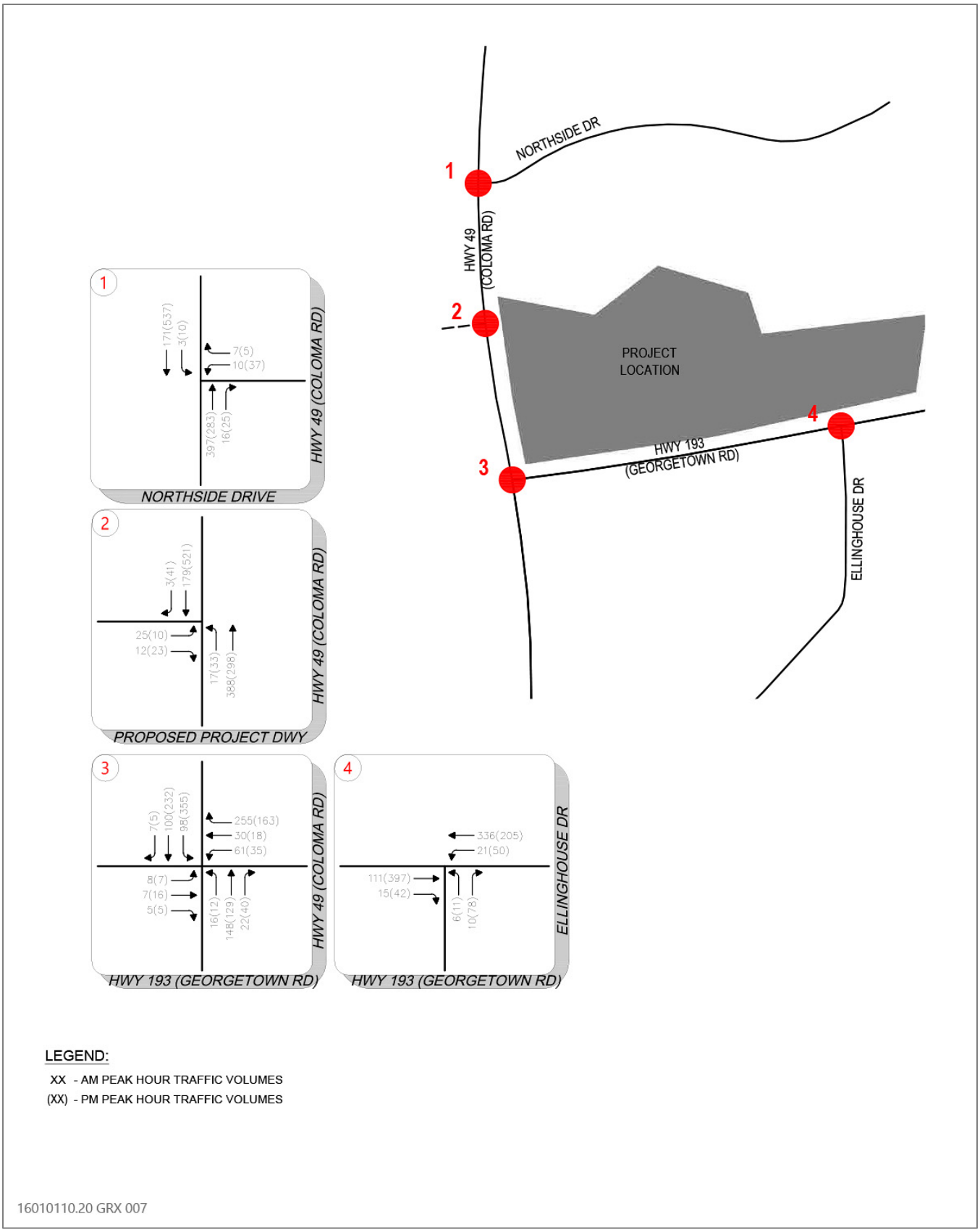
Pedestrian and bicycle access to the Project site is currently limited to existing pedestrian crossings at the SR 49/SR 193 intersection and the Class I pedestrian/bicycle path located along the SR 193 (north side) and SR 49 (west side, south of SR 193). As part of proposed project development, a Class II bike lane along the project site's western frontage would extend north from SR 193 along SR 49 to provide additional access and safety to complement the existing Class I pedestrian/bicycle path.

A traffic study for the proposed Project, included as Attachment C, provides a "preliminary operational level" evaluation of traffic operating conditions at the SR 49/SR 193 study intersection. The evaluation incorporated appropriate heavy vehicle adjustment factors, peak hour factors, lane geometries, etc. The traffic study also compiled data related to traffic collisions. There was a total of six (6) collisions at the three primary intersections along SR 49 and SR 193. There were no fatal or severe injury collisions, and all three intersections are experiencing collision rates below the California State average for similar facilities.



Source: Image produced and provided by GHD in 2023; adapted by Ascent in 2025.

Figure 3-1 Existing Lane Configuration and Traffic Control



Source: Image produced and provided by GHD in 2023; adapted by Ascent in 2025.

Figure 3-2 Existing Peak Hour Volumes

In addition, the proposed project driveway on SR 193 is located directly opposite Ellinghouse Drive serving the existing Holiday Market development directly south of the project site. The creation of a four-way intersection on SR 193 helps to reduce potential vehicle-pedestrian conflicts and provides a uniform operation for vehicle right-of-way (ROW) with no driveway offset.

The traffic study (Attachment C) also evaluated project generated vehicle miles travelled (VMT). Residents of the Cool area drive significantly further than the county-wide average for work trips, shopping trips, and dining trips. However, when Cool is the trip destination for work or for shopping, the trip lengths are shorter than the county-wide average. This is because the jobs/housing balance in the Cool area provides few opportunities to work and shop relative to the number of residents. For that reason, many of the jobs associated with the proposed Project are likely to go to local residents who would otherwise work at jobs further away, and that the retail patrons would likely also be local residents substituting trips to the new establishments for trips to more distant shops. Outside residents who use the shops are likely to be pass-by trips will little net increase in VMT arising from their entering and leaving the site.

REGULATORY SETTING

Senate Bill 743

SB 743, passed in 2013, required OPR to develop new State CEQA guidelines that address traffic metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, "automobile delay, as described solely by level of service (LOS) or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any."

In December of 2018, OPR published the most recent version of the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory) which provides guidance for VMT analysis. The Office of Administrative Law approved the updated State CEQA Guidelines and lead agencies had an opt-in period until July 1, 2020 to implement the updated guidelines as they related to VMT. As of July 1, 2020, implementation of Section 15064.3 of the updated CEQA Guidelines is required statewide.

The OPR Technical Advisory states that lead agencies may screen out VMT using project size, maps, transit availability, and provision of affordable housing. Many agencies use these screening thresholds to identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. The screening criteria applicable to this project is for small projects, stating that projects that generate or attract fewer than 110 trips per day generally may be assumed to result in a less-than-significant transportation impact.

Regional Transportation Planning

El Dorado County is within the boundaries of the Sacramento Area Council of Governments, which oversees the regional transportation plan for the Sacramento region, updated every four years in collaboration with local governments. The El Dorado County Transportation Commission is the Regional Transportation Planning Agency for the west slope of El Dorado County and is responsible for coordinating the regional transportation efforts on the western slope of El Dorado County and the City of Placerville.

The County developed and adopted the El Dorado County and City of Placerville SB 743 Implementation Plan (EDCTC 2019), which shifted the evaluation of transportation impacts from LOS to VMT and describes the CEQA analysis for transportation impacts that shall be used in the County. The El Dorado County Board of Supervisors Resolution 141-2020 adopting VMT thresholds of significance for transportation impacts under CEQA (EDC 2020) includes the following screening criteria to identify projects that are presumed to have less than significant impacts:

- 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 threshold in General Plan Policy TC-Xe;
- Projects that are within 0.5 miles of either a major transit stop, as defined in Public Resources Code Section 21064.3, or a high quality transit corridor, as defined in Public Resources Section 21155. Consistent with CEQA Guidelines section 15064.3(b)(l) and OPR's conclusions in its Technical Advisory; and

- 100% affordable residential development, including moderate, low, and very low categories as defined in the Regional Housing Needs Assessment, consistent with OPR's conclusions in its Technical Advisory.

3.17.2 Discussion

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less than Significant. The Project traffic study (Attachment C) evaluated the project relative to County and Caltrans programs, plans, policies, and ordinances related to vehicle access; delivery truck access; emergency access; transportation facility operations; safety for vehicles, pedestrians, and cyclists; and related transportation topics. Through direct coordination with County staff and Caltrans, project design modifications were adopted to further improve Project traffic operations. Further analysis of the Project with the adopted modifications found that applicable programs, plans, ordinances, and policies would be complied with. The proposed Project adequately integrates with the State Highway system and existing and proposed bicycle and pedestrian facilities. There is no transit service in the Project area; therefore, no conflicts with transit systems would occur.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to vehicle miles travelled?

Less than Significant. The proposed development at the Project site would result in temporary additional trips to the Project site during construction. However, during Project operation, VMT would be reduced relative to existing conditions, Currently residents of the Cool area drive significantly further than the county-wide average for work trips, shopping trips, and dining trips. The VMT analysis provided in the Project traffic study (Attachment C) concluded that, overall, the Project would result in reduced VMT compared to existing conditions because a sufficient number of vehicle trips in the Cool area would be a shorter distance for work, shopping, and dining trips to result in a net reduction in VMT. With a new commercial center the residents of the Cool area would have an additional local option for goods and services. Pass through trips along SR 49 and SR 193 may stop at the project site while travelling from one point to another; however, this would not add to total VMT as these vehicle miles would be travelled whether or not the Project was present. Because of the net reduction in VMT resulting from the Proposed project, it would not conflict with or be inconsistent with CEQA Guidelines section 15064.3(b).

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

Less than Significant. As described above in Section 3.17.2(a), the Project traffic study (Attachment C) evaluated the project relative to County and Caltrans programs, plans, policies, and ordinances related to various topics, including facility operations and safety. Through direct coordination with County staff and Caltrans, project design modifications were adopted to further improve Project traffic operations and safety. Further analysis of the Project with the adopted modifications found that the project did not substantially increase hazards resulting from new or modified transportation facilities or from new uses (e.g., gasoline delivery trucks). The Project would not create dangerous intersections, would not include incompatible uses, and would not substantially increase hazards.

d) Result in inadequate emergency access?

Less than Significant. As described above in Section 3.17.2(a), the Project traffic study (Attachment C) evaluated the project relative to County and Caltrans programs, plans, policies, and ordinances related to various topics, including emergency access. At SR 49 a widened 45 ft full-access driveway would serve the project site and be located approximately 400 ft north of SR 193 (Georgetown Road). A second 35 ft full-access driveway would be located on SR 193 directly opposite Ellinghouse Drive approximately 600 ft east of SR 49. This project driveway would form a standard four-way intersection (southbound leg) with the SR 93/Ellinghouse Drive intersection. The traffic study concluded that these roadway improvements would provide adequate emergency access to the Project site. The

study also concluded that the configuration of facilities and buildings on the Project site would allow for adequate emergency vehicle access and movement within the Project site. In addition, the proposed driveways at the Project site comply with County Design and Improvements Standards Manual, County Regional Fire Protection Standards (EDHFD 2022), and California Fire Code (CFC) requirements, including those that define standards for providing emergency access, including fire apparatus access. The surrounding roadways (SR 49 and SR 193) provide adequate circulation and access for emergency response and the project would not significantly modify any roads or otherwise affect emergency response times. Therefore, the project would not result in inadequate emergency access.

3.18 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Tribal Cultural Resources.				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code section 21080.3.1(b)?		☒ Yes		☐ No
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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)?	☐	☒	☐	☐
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?	☐	☒	☐	☐

3.18.1 Environmental Setting

Please reference the Cultural Resources Chapter for the preliminary Ethnohistory of the historic Indigenous groups that occupied the region. The United Auburn Indian Community (UAIC) is a federally recognized Tribe comprised of both Miwok and Maidu (Nisenan) Tribal members who are traditionally and culturally affiliated with the Project area. The Tribe has a deep spiritual, cultural, and physical ties to their ancestral land and are contemporary stewards of their culture and landscapes. The Tribal community represents a continuity and endurance of their ancestors by maintaining their connection to their history and culture. It is the Tribe's goal to ensure the preservation and continuance of their cultural heritage for current and future generations.

This section focuses on the contemporary tribal communities and Tribal cultural resources as they pertain to AB 52 addressing Tribal Cultural Resources. This section analyzes and evaluates the potential impacts of the project on Tribal cultural resources, both identified and undiscovered. Tribal cultural resources, as defined by AB 52, Statutes of 2014, in PRC Section 21074, are sites, features, places, cultural landscapes, sacred places and objects, with cultural value to a Tribe. A Tribal cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

AB 52, signed by Governor Edmund G. Brown, Jr., in September 2014, established a new class of resources under CEQA: "Tribal cultural resources." AB 52, as provided in Public Resource Code Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete,

and prior to the issuance of a NOP of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration.

The County sent notification letters that the project was being addressed under CEQA, as required by PRC 21080.3.1, to the Native American tribes that had previously requested such notifications. Notifications were sent to, Ione Band of Miwok Indians, Wilton Rancheria, 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 February 16, 2023. No responses were received from six of the seven tribes (Ione Band of Miwok Indians, Wilton Rancheria, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Shingle Springs Band of Miwok Indians, T'si-Akim Maidu, Washoe Tribe of California and Nevada).

The County received a request from the UAIC for consultation on March 6, 2023. In response to the County's notification of the project to UAIC, UAIC conducted a records search for the identification of Tribal Cultural Resources for this project which included a review of pertinent literature and historic maps, and a records search using UAIC's Tribal Historic Information System (THRIS). UAIC's THRIS database is composed of UAIC's areas of oral history, ethnographic history, and places of cultural and religious significance, including UAIC Sacred Lands that are submitted to the NAHC. The THRIS resources shown in this region also include previously recorded indigenous resources identified through the California Historic Resources Information System Center (CHRIS) as well as historic resources and survey data. UAIC expressed great concern related to the protection of precontact component of P-09-003627, which include chert outcropping that were used as quarry for the material of native people.

UAIC responded on March 13, 2023, requesting that the unanticipated discovery mitigation measure be included in the environmental document. Consultation, undertaken between March 13, 2023, and November 16, 2023, resulted in project design changes which would avoid the rock formations on the western side of the Project site (P-09-003627) and would place fencing around these formations as buffers. UAIC requested and reviewed the cultural resources report prepared for the project. In addition, UAIC also requested review of the Tribal cultural resources section in order to close consultation. On July, 2, 2025, UAIC reviewed the section and identified P-09-003627 as a Tribal cultural resource and requested proper protection.

3.18.2 Discussion

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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,b) 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)? 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?

Less than Significant. Less than Significant Impact with Mitigation. Consultation under AB 52 result in the identification of a Tribal cultural resources as defined by PRC Section 21074. UAIC identified P-09-003627, chert outcroppings that were used as quarry for the material of native people, as a Tribal cultural resource. In addition, the possibility exists that previously unknown resources that could quality as a Tribal cultural resource could be encountered during construction-related ground disturbing activities. This impact is potentially significant.

Mitigation Measure 3.18-1: Protection of Known Tribal Cultural Resources

Components of the project that require earth-moving and excavation could impact the known Tribal cultural resource (P-09-003627). The project, as currently designed, would not result in ground disturbance within the known Tribal cultural resource. However, final engineering and other factors could change, which could cause project activities to move towards the Tribal cultural resource. To better protect the Tribal cultural resource in the event of unforeseen circumstances. a paid Tribal monitor authorized by UAIC will be present when the fencing is placed around the Tribal cultural resource. The monitor shall provide guidance on the placement of the fencing to achieve the desired protection of the Tribal cultural resource. A Tribal monitor from UAIC shall also be present during the removal of the fence. The applicant, or applicant's representative, shall fund the presence of the monitor during fence installation. In addition, the applicant, or applicant's representative, shall contact and coordinate with the tribe 7 days prior to the installation of the fencing as well as 7 days prior to the removal of the fence.

Mitigation Measure 3.18-2: Protection of Unanticipated Discoveries of Tribal Cultural Resources

If any suspected Tribal cultural resources are discovered during ground disturbing construction activities, all work shall cease within 100 ft of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a Tribal cultural resource (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment as necessary.

When avoidance is infeasible, preservation in place is the preferred option for mitigation of Tribal cultural resources under CEQA and UAIC protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of Tribal cultural resources will not take place unless approved in writing by UAIC or by the California Native American Tribe that is traditionally and culturally affiliated with the project area.

The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a Tribal cultural resources may include Tribal monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, including AB52, have been satisfied.

Significance after Mitigation

Implementation of Mitigation Measure 3.18-1 would ensure proper protection of the known tribal cultural resource by installing protective fencing, and Mitigation Measure 3.18-2 would reduce impacts to tribal cultural resources to a less-than-significant level by requiring, in the case of a discovery, appropriate treatment (processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts) and proper care of significant tribal cultural resources.

3.19 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. Utilities and Service Systems.				
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☒	☐
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?	☐	☐	☒	☐
e) Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 Environmental Setting

Water would be supplied to the proposed Project by the GDPUD. The site is entitled to derive service, subject to the district's water service priority policy, upon proper application and payment of the appropriate charges. The Project site is currently served by a ten-inch water main located in SR 193. There is also a 10-inch water main in SR 49 adjacent to the Project site. The project would make use of a private on-site septic system that would manage wastewater. PG&E provides electrical service with existing power lines along SR 193 and SR 49. Gas would be provided by on-site propane tanks.

El Dorado Disposal Services provides solid waste collection, disposal, and recycling services in the region. Solid waste is transported to the Western El Dorado Recovery Systems (WERS) Transfer Station and Material Recovery Facility, located at 4100 Throwita Way in Placerville, which handles a maximum permitted throughput of 400 tons per day (CalRecycle 2025a). After undergoing processing, non-recyclable waste from the WERS Transfer Station and Material Recovery Facility are delivered to the Potrero Hills Landfill, located at 3675 Potrero Hills Lane, in Suisun City, which has a maximum permitted capacity of 83.1 million cubic yards and, as of the year 2006, a remaining estimated capacity of approximately 13.9 million cubic yards, or 16.7 percent of the landfill's total capacity. The landfill receives a maximum disposal of 4,330 tons per day (CalRecycle 2025b).

Chapter 8.42- Solid Waste Management Ordinance No. 4525 describes the County's requirements related to the provision of solid waste disposal services including collection and transport. The California Integrated Waste Management Act of 1989 (AB 939) required a diversion of a minimum of 50 percent of discarded materials away from disposal in landfills.

3.19.2 Discussion

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant. As described in Section 3.19.1, there is utility infrastructure already available on the project site, or along SR 193 and SR 49 adjacent to the Project site. A septic system and leach field would be installed on the Project site. The environmental impacts of installing/connecting utility infrastructure on the project site are evaluated throughout this IS. For example, impacts pertaining to grading, soils, and stormwater are addressed in Section 3.7, "Geology and Soils," and 3.10, "Hydrology and Water Quality."

b) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant. As stated previously, GDPUD reviewed the Project and found that the Project is within the district's service boundaries. Per the "will serve" letter provided by GDPUD, the site is entitled to derive service, subject to the district's water service priority policy, upon proper application and payment of the appropriate charges. GDPUD has sufficient water delivery infrastructure and supply to serve the site.

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

Less than Significant. The Project site is in a rural area where wastewater treatment is accomplished through onsite septic systems. Development of the new septic system at the Project site would require approval from the County's EMD and compliance with the County's Private Sewage Disposal System Ordinance (EDC 2025). Before the proposed Project can be approved by the County, information about soil depth, soil percolation rate, and the proposed leach field area for proposed septic system must be submitted to the LAMP and must demonstrate sufficient percolation rates to meet projected wastewater generation rates.

Wastewater service for the proposed Project would be provided by an onsite septic tank and leach field. The septic system will meet the requirements for a commercial facility, including a grease interceptor to prevent grease from entering the leach field. Preliminary evaluations of soil conditions have found that percolation rates may require a specialized leach field system to accommodate poor drainage rates. A location for a leach field system considered sufficient to support the proposed Project has been identified east of the oak trees that are to be preserved. Additional land south of the proposed leach field has been reserved to allow installation of additional leach line if needed. Sufficient reserved land is available to potentially triple the length of leach line currently being considered. With the ability to substantially expand the leach field in response to poor soil drainage conditions, the Project is expected to have sufficient capacity to accommodate use of an onsite septic systems.

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?

Less than Significant. The proposed Project would generate solid waste from construction as well as solid waste once occupied, including organic waste and recyclable material. Solid waste services to the project site are provided by El Dorado Disposal Services and waste generated at the site would be disposed of at the Potrero Hills Landfill. The

project would not generate waste in excess of local standards or in excess of the capacity of local infrastructure and would not impair the attainment of solid waste reduction goals.

e) Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant. Solid waste services to the project site are provided by El Dorado Disposal Services and waste generated at the site would be disposed of at the Potrero Hills Landfill. Development at the Project site would be provided with trash, recycling, and organics disposal services in accordance with local, state, and federal regulations. The project would, therefore, comply with regulations including the County's ordinances and AB 939. The Project would not fail to comply with federal, state, and local management and reduction regulations related to solid waste.

3.20 WILDFIRE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Wildfire.				
Is the project located in or near state responsibility areas or lands classified as high fire hazard severity zones?		☐ Yes		☒ No
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Require the installation 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

3.20.1 Environmental Setting

According to CAL FIRE, the project site is within the SRA for fire protection and is located within a designated high fire hazard severity zone (CAL FIRE 2025). The Project is in a rural area, with most properties in the region being privately owned. The topography of the project site is hilly with relatively gentle slopes. There are no steep slopes within or adjacent to the project site

The project site is in an area susceptible to wildland fires. Surrounding properties support widely spaced commercial structures, amongst blue oak-foothill pine woodlands, annual grasslands, and shrublands. Nearby roads that may be used for access to Project site access are SR 49 and SR 193.

3.20.2 Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant. The project and surrounding vicinity are subject to a number of emergency response plans, including the El Dorado County Multi-Jurisdictional Hazard Mitigation Plan (EDCSO 2024), which provides guidance for the County's response in emergency situations, including wildfire and emergency evacuation. Impairment of emergency response plans or emergency evacuation plans would occur if the project would introduce an undue or extraordinary burden on emergency responders as they respond to an emergency incident. The proposed Project

would not affect emergency response or evacuation. Development at the Project site would be required to conform to applicable County Development Standards and Guidelines, County Regional Fire Protection Standards, and CFC requirements, including those that define standards for providing emergency access, including fire apparatus access. The surrounding roadways provide adequate circulation and access for emergency response and the Project would not significantly modify any roads or otherwise affect emergency response times. The Project would not increase population in a way that would add appreciable numbers of vehicles to an evacuation. The Project could benefit evacuation efficiency by providing additional capacity for evacuees to fuel their vehicles prior to, or during an evacuation. Therefore, the Project would not impair or physically interfere with an adopted emergency response plan or emergency evacuation plan.

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?

Less than Significant. The Project site is in an area susceptible to wildland fires. However, there are no steep slopes in the Project area that exacerbate wildfire risk. The Project would increase human activity at the Project site, thereby incrementally increasing the ignition risk. However, the project would also increase the potential to quickly respond to ignitions via the presence of individuals to identify and report ignitions. The Western El Dorado Community Wildfire Protection Plan (CWPP) describes wildfire risks and mitigation strategies for the portion of the County that includes the project site (EDC 2022). Implementation of the County CWPP would reduce the likelihood of an ignition at the project site becoming an out-of-control wildfire. In addition, El Dorado County Fire Protection District Station 72 is located approximately 400 feet northwest of the Project site, allowing a quick response to any ignitions that might occur on the Project site.

The project would also be required to adhere to all fire prevention and protection requirements and regulations of El Dorado County including the El Dorado County Fire Hazard Ordinance and the Uniform Fire Code, as applicable. Pertinent measures include, but are not limited to, the use of equipment with spark arrestors and non-sparking tools during project activities. The project applicant would also be required to develop the project structures to meet defensible space requirements as specified under Objective 6.2.1 of the Safety Element of the El Dorado County General Plan. With adherence to these requirements, the project would not exacerbate wildfire risks or expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

c) Require the installation 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?

Less than Significant. All elements of the proposed project are included in the project description evaluated in this IS and all temporary and ongoing impacts are disclosed in this document. The project would be served by an onsite an onsite wastewater treatment system. Water service is available via an existing water main that serves the site. Electrical lines already exists on adjacent roadways and electrical service would be provided by PG&E. The project would avoid exacerbating fire risk during infrastructure installation through compliance with the most current building and fire codes, CFC requirements, and County Regional Fire Protection Standards, including those for access and roadways, rural water supply, and firefighting. The installation of new infrastructure would also be required to comply with all applicable County regulations to protect the environment, including the ORMP and other measures. Actions associated with development of new utility facilities, including transmission or utility lines, are not exempt from the mitigation requirements of the ORMP. Actions taken to maintain existing utility facilities, as well as action taken pursuant to an approved Fire Safe Plan, including fuel break construction, are exempt from the ORMP mitigation requirements.

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?

Less than Significant. The development of the proposed Project would result in construction and operational activities that could introduce new ignition sources that could increase wildfire hazards. However, as discussed in 3.20.2(b), implementation of the Project would not exacerbate wildfire risk. As discussed in Section 3.7.2(a)(iv), the potential for landslides to occur is negligible because the site generally has gentle topography and there are no steep slopes within or adjacent to the Project site. In addition, as discussed in Section 3.10.1, the project site is within an area of minimal flood hazard (FEMA 2008). Development at the Project site could change the drainage patterns of the project site by increasing impervious surfaces; however, development would be designed to comply with the County's West Slope Development and Redevelopment Standards (EDC 2024c), the SWMP for Western El Dorado County (EDC 2004b), and the County's Grading, Erosion, and Sediment Control Ordinance (EDC 2013) to prevent drainage, flooding, and erosion impacts from site runoff (see Section 3.10.2[c] for additional information). Therefore, the Project would not expose people or structures to significant risks from runoff, post-fire slope instability, or drainage changes.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially 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, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

3.21.1 Environmental Setting

The environmental setting for this section is presented above in the environmental settings for each of the checklist issue areas. No additional environmental setting is necessary.

3.21.2 Discussion

a) Does the project have the potential to substantially 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, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact with Mitigation. Based on evaluations and discussions contained in Sections 3.1 through 3.20 of this Initial Study, the Project is not anticipated to substantially degrade the quality of the environment. As discussed in Section 3.4, "Biological Resources," the Project would implement Mitigation Measures 3.4-1 and 3.4-2. Therefore, the Project would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. In addition, as discussed in Section 3.5, "Cultural Resources," and Section 3.18, "Tribal Cultural Resource," although unlikely, ground-disturbing activities during

project construction may result in the unanticipated discovery of archaeological resources or Tribal cultural resources; however, the County requires that specific procedures be followed in the event of unanticipated discoveries (refer to Section 3.5 Mitigation Measure 3.5-1 and Section 3.18 Mitigation Measure 3.18-1) as a condition of project approval. Therefore, the project would not eliminate important examples of the major periods of California history or prehistory or Tribal cultural resources.

b) Does the project have impacts that are individually limited, but cumulatively considerable?

Less than Significant. The Project would not result in significant cumulatively considerable impacts for the following reasons:

- The Project would not make a substantial contribution to the cumulative condition for agricultural and forest resources, biological resources, cultural and tribal cultural resources, and mineral resources due to the lack of Important Farmland and forest land and known mineral resources at the project site. Potential impacts to special-status species, archaeological resources, and Tribal cultural resources would be reduced to less than significant levels through mitigation.
- Impacts related to geology, soils, and hazards and hazardous materials are generally site-specific and would not substantially contribute to the cumulative condition.
- The project would be consistent with existing land use and zoning designations for the project site, the County's Municipal Code and ordinances, and the County's Design Guidelines. In addition, population growth from the Project would be minor (if any at all) and would be consistent with the growth anticipated in the County's General Plan. Therefore, the Project would not substantially contribute to the cumulative condition for aesthetics, land use and planning, population and housing, public services, recreation, and wildfire.
- The Project could indirectly increase impervious surfaces and change drainage patterns within the watershed; however, the Project would not substantially contribute to the cumulative condition for hydrology and water quality because the proposed development would be designed to meet all applicable stormwater quality requirements.
- With respect to air quality, energy, noise, transportation, and utilities, the project would be consistent with the existing land use designation and the population assumptions for the area. GHG emissions impacts, which are inherently cumulative, would be less than significant.

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

Less than Significant. The project's potential effects on the way residents experience the existing environment (aesthetics) and plans for future use of the area (land use and population and housing) would be less than significant. Elements of the project that could physically affect sensitive populations, including air quality impacts and generation of noise, were also found less than significant. GHG emissions, which are understood to result in global warming, would be less-than-significant.

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4 REFERENCES

Chapter 2, Project Description

El Dorado County. 2004a. *El Dorado County General Plan,* as amended. Most recently amended May 21, 2024. El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan#section-1. Accessed March 26, 2025.

Chapter 3, Environmental Checklist

No citations are used in this section.

Aesthetics

California Department of Transportation. 2025. Scenic Highway Online Map Viewer. Available: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa. Accessed: March 12, 2025.

El Dorado County. 2003. *El Dorado County General Plan Draft Environmental Impact Report*. State Clearinghouse No. 2001082030. Placerville, CA: El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan/General-Plan-Supporting-Documents/Draft-Environmental-Impact-Report-DEIR#section-2. Accessed: March 10, 2025.

Caltrans. *See* California Department of Transportation

Agriculture and Forest Resources

California Department of Conservation. 2025a. California Important Farmland Finder. Available: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed: February 27, 2025.

———. 2025b. California Important Farmland Finder. Available: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed: February 27, 2025.

———. 2025c. Wiliamson Act Enrollment Finder. Available: https://maps.conservation.ca.gov/dlrp/WilliamsonAct/App/index.html. Accessed: February 27, 2025.

El Dorado County. 2004b. *El Dorado County General Plan,* as amended. Most recently amended May 21, 2024. El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/land-use/planning-amp-zoning/adopted-general-plan/af-1.pdf. Accessed February 27, 2025.

Air Quality

California Air Resources Board. 2023. *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. Available: https://www.airquality.org/ProgramCoordination/Documents/Sacramento%20Regional%202015%20NAAQS%208%20Hour%20Ozone%20Attainment%20and%20Reasonable%20Further%20Progress%20Plan.pdf. Accessed February 27, 2025.

———. 2025. Attainment Designations by County. Available: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Accessed May 21, 2025.

El Dorado County. 2023. Subject: AQMD Comments for DR22-007 Higginbotham Cool Commercial Center Review AQ Report Air Quality and Greenhouse Gas Technical Report.

EDC. *See* El Dorado County.

EDCAQMD. *See* El Dorado County Air Quality Management District.

El Dorado County. 2018. Asbestos Review Areas, Western Slope County of El Dorado. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/government/air-quality/construction-dust-rules/asbestos-review-map-8-22-18.pdf. Accessed March 10, 2025.

El Dorado County Air Quality Management District. 2002. *Guide to Air Quality Assessment: Determining the Significance of Air Quality Impacts Under the California Environmental Quality Act*. Retrieved from http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx. Accessed March 10, 2025.

———. 2023. *AQMD Comments for DR 22-0007 Higginbotham Cool Commercial Center Review AQ Report Air Quality and Greenhouse Gas Technical Report*. Letter Dated November 28, 2023 to Matthew Aselage, Project Planner, El Dorado County Planning Services.

US Environmental Protection Agency. 2025. *Criteria Air Pollutants*. Available: https://www.epa.gov/criteria-air-pollutants#self. Last updated March 25, 2025. Accessed April 1, 2025.

Biological Resources

California Department of Fish and Wildlife. 2024. CNPS Rare Plant Inventory Search Results. Retrieved May 15, 2025

———. 2025a. California Natural Diversity Database. Commercial Version. Dated November 1, 2024. Report printed March 10, 2025.

———. 2025b. Terrestrial Connectivity Data and Resources. Available: https://wildlife.ca.gov/Data/BIOS. Retrieved May 15, 2025.

CDFW. *See* California Department of Fish and Wildlife.

CNPS. *See* California Native Plant Society.

EDC. *See* El Dorado County.

El Dorado County. 2025a. El Dorado County Ecological Preserve Fee Update and EIR. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Long-Range-Planning-Division/Active-Projects/Ecological-Preserve-Fee-Update-and-EIR. Accessed: Accessed May 5, 2025.

Natural Resources Conservation Service, United States Department of Agriculture. 2025. Web Soil Survey. Available: http://websoilsurvey.sc.egov.usda.gov/. Accessed March 31, 2025.

NRCS. *See* Natural Resources Conservation Service, United States Department of Agriculture.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration. http://bios.dfg.ca.gov. Accessed May 15, 2025.

———. 2025a. U.S. Fish and Wildlife Service. Information for Planning and Conservation. Available online at: http://ecos.fws.gov/ipac/. Accessed April 1, 2025.

———. 2025b. National Wetlands Inventory Wetlands Mapper Online Viewer. Available on: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/ Accessed May 15, 2025.

USFWS. *See* U.S. Fish and Wildlife Service.

US Geological Survey. 2025a. National Hydrography Dataset Online Viewer. Available on: https://apps.nationalmap.gov/downloader/#/ Accessed May 15, 2025.

USGS. *See* US Geological Survey.

Cultural Resources

Jensen, S.M. 2022. Cultural Resources Inventory Survey for the Cool Commercial Development Project Circa 5-Acres, El Dorado County, California. Prepared for Melvin Higginbotham. CONFIDENTIAL DOCUMENT.

Energy

Bureau of Transportation Statistics. 2023. *Transportation Statistics Annual Report 2023*. Available: https://rosap.ntl.bts.gov/view/dot/72943. Accessed December 12, 2024.

California Energy Commission. 2025. 2025 Building Energy Efficiency Standards. Available: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency. Accessed May 21, 2025.

CEC. *See* California Energy Commission.

EIA. *See* US Energy Information Administration

US Energy Information Administration. 2024. California State Profile and Energy Estimates. Available: https://www.eia.gov/state/analysis.php?sid=CA#115. Accessed May 21, 2025.

Geology and Soils

California Department of Conservation. 1990. Fault Evaluation Reports for Northern California. Open File Report 90-10. Sacramento, CA, *as cited in EDC 2003*.

———. 2000. *Areas More Likely to Contain Natural Asbestos in Western El Dorado County, California. Open-File Report 2000-02*. Prepared by R. K. Churchill, C. T. Higgins, and B. Hill. Sacramento, CA.

———. 2025d. EQ Zapp: California Earthquake Hazards Zone Application. Available on: https://www.conservation.ca.gov/cgs/geohazards/eq-zapp. Accessed March 31, 2025.

CDC. *See* California Department of Conservation.

EDC. *See* El Dorado County.

California Department of Water Resources. 2025. Sustainable Groundwater Management Act Basin Prioritization Dashboard. Available on: https://gis.water.ca.gov/app/bp-dashboard/final/ Accessed March 31, 2025.

El Dorado County. 2003. *El Dorado County General Plan Draft Environmental Impact Report*. State Clearinghouse No. 2001082030. Placerville, CA: El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan/General-Plan-Supporting-Documents/Draft-Environmental-Impact-Report-DEIR#section-2. Accessed: February 27, 2025.

Natural Resources Conservation Service, United States Department of Agriculture. 2025. Web Soil Survey. Available: http://websoilsurvey.sc.egov.usda.gov/. Accessed March 31, 2025.

NRCS. *See* Natural Resources Conservation Service, United States Department of Agriculture.

California Department of Water Resources. 2025. Sustainable Groundwater Management Act Basin Prioritization Dashboard. Available on: https://gis.water.ca.gov/app/bp-dashboard/final/

Wagner, D.L., C.W. Jennings, T.L. Bedrossian, and E.J. Bortugno. 1981. Geologic Map of the Sacramento 7.5' Quadrangle, Sacramento County, California. California Department of Conservation, California Geological Survey.

UCD Soils Web. 2025. University of California Agriculture and Natural Resources. Available: https://casoilresource.lawr.ucdavis.edu/gmap/. Accessed March 31, 2025.

Greenhouse Gas Emissions

California Air Resources Board. 2022. *California's 2022 Climate Change Scoping Plan*. Available: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf. Accessed December 12, 2024.

El Dorado County. 2023. Subject: AQMD Comments for DR22-007 Higginbotham Cool Commercial Center Review AQ Report Air Quality and Greenhouse Gas Technical Report.

EDC. See El Dorado County.

EDCAQMD. *See* El Dorado County Air Quality Management District.

El Dorado County Air Quality Management District. 2002. *Guide to Air Quality Assessment: Determining the Significance of Air Quality Impacts Under the California Environmental Quality Act*. Retrieved from http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx. Accessed April 14, 2025.

Intergovernmental Panel on Climate Change. 2013. Chapter 6, Carbon and Other Biogeochemical Cycles. Pages 465–570 in *Climate Change 2013: The Physical Science Basis*. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available: https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_TS_FINAL.pdf. Accessed April 14, 2025.

———. 2014. *Climate Change 2014 Synthesis Report: Summary for Policymakers*. Available: https://archive.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf. Accessed April 14, 2025.

IPCC. *See* Intergovernmental Panel on Climate Change.

State of California. 2018. *California's Fourth Climate Change Assessment Statewide Summary Report*. Available: https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf. Accessed April 15, 2025.

UN. *See* United Nations.

United Nations. 2015 (December 13). Historic Paris Agreement on Climate Change: 195 Nations Set Path to Keep Temperature Rise Well Below 2 Degrees Celsius. Available: https://unfccc.int/news/finale-cop21. Accessed April 15, 2025.

Hazards and Hazardous Materials

CAL FIRE. See California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2025. Fire Hazard Severity Zones in State Responsibility Area. Available: https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008. Accessed April 1, 2025.

California Department of Conservation. 2000. Areas More Likely to Contain Natural Asbestos in Western El Dorado County, California. Open-File Report 2000-02. Prepared by R. K. Churchill, C. T. Higgins, and B. Hill. Sacramento, CA.

California Department of Toxic Substances Control. 2025. EnviroStor database query for Project site. Available: https://www.envirostor.dtsc.ca.gov/public/map/. Accessed April 1, 2025.

CDC. *See* California Department of Conservation.

DTSC. *See* California Department of Toxic Substances Control.

EDC. *See* El Dorado County.

EDCSO. *See* El Dorado County Sheriff's Office.

El Dorado County. 2004a. El Dorado County General Plan, as amended. Most recently amended May 21, 2024. El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan#section-1. Accessed March 10, 2025.

El Dorado County Sheriff's Office. 2024. El Dorado County Multi-Jurisdictional Hazard Mitigation Plan. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/public-safety-amp-justice/public-safety/sheriff/operations/oes/eldoradocounty_mjhmp_final_7.10.24.pdf. Accessed April 1, 2025.

El Dorado County Air Quality Management District. 2023. AQMD Comments for DR 22-0007 Higginbotham Cool Commercial Center Review AQ Report Air Quality and Greenhouse Gas Technical Report. Letter Dated November 28, 2023 to Matthew Aselage, Project Planner, El Dorado County Planning Services.

EDCAQMD. *See* El Dorado County Air Quality Management District.

State Water Resources Control Board. 2025. Geotracker Database. Available: https://geotracker.waterboards.ca.gov/map/?global_id=T0607302824#. Accessed April 23, 2025.

SWRCB. *See* State Water Resources Control Board.

Hydrology and Water Quality

California Department of Conservation. 2025e. CGS Information Warehouse: Tsunami Hazard Area Map. Available: https://maps.conseravtion.ca.gov/cgs/informationwarehouse/ts_evacuation/ Accessed April 1, 2025.

CDC. See California Department of Conservation.

California Department of Water Resources. 2025. Sustainable Groundwater Management Act Basin Prioritization Dashboard. Available on: https://gis.water.ca.gov/app/bp-dashboard/final/ Accessed March 31, 2025.

CDC. *See* California Department of Conservation.

Central Valley Regional Water Quality Control Board. 2019. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, The Sacramento River Basin and San Joaquin River Basin, Fifth Edition. Adopted July 25, 1975; reflects amendments through February 2019. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201902.pdf. Accessed April 1, 2025.

Central Valley RWQCB. *See* Central Valley Regional Water Quality Control Board.

DWR. *See* California Department of Water Resources.

EDC. *See* El Dorado County.

El Dorado County. 2004b. *El Dorado County General Plan,* as amended. Most recently amended May 21, 2024. El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/land-use/planning-amp-zoning/adopted-general-plan/af-1.pdf. Accessed April 9, 2025.

———. 2013. El Dorado County Grading, Erosion, and Sediment Control Ordinance. Chapter 15.14. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/2/documents/land-use/building-services-documents/forms-checklist-tab/grading-ordinance.pdf. Accessed March 11, 2025.

———. 2024c. County's West Slope Development and Redevelopment Standards. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Tahoe-Planning-and-Building-Division-Stormwater-Unit/West-Slope-Development-and-Redevelopment-Standards. Accessed April 1, 2025.

Federal Emergency Management Agency. 2008 (September). *Flood Insurance Rate Map, Map Number 06017C0175E. Available: https://msc.fema.gov/portal/home.* Accessed April 1, 2025.

FEMA. *See* Federal Emergency Management Agency.

US Geological Survey. 2025. Watershed Boundary Dataset Online Viewer. Available: https://www.arcgis.com/home/webmap/viewer.html?webmap=2c786babdaa34c93b7f9d37e82ba4748 Accessed April 1, 2025.

USGS. *See* US Geological Survey.

Land Use and Planning

EDC. *See* El Dorado County.

El Dorado County. 2004a. *El Dorado County General Plan,* as amended. Most recently amended May 21, 2024. El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan#section-1. Accessed March 10, 2025.

Mineral Resources

EDC. *See* El Dorado County.

El Dorado County. 2003. El Dorado County General Plan Draft Environmental Impact Report. State Clearinghouse No. 2001082030. Placerville, CA: El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan/General-Plan-Supporting-Documents/Draft-Environmental-Impact-Report-DEIR#section-2. Accessed: February 27, 2025.

Noise

California Department of Transportation. 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol.* California Department of Transportation Division of Environmental Analysis. Sacramento, CA. Prepared by ICF Jones & Stokes. Available: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf, Accessed: February 27, 2025.

Caltrans. *See* California Department of Transportation.

Population and Housing

EDC. *See* El Dorado County.

El Dorado County. 2003. *El Dorado County General Plan Draft Environmental Impact Report*. State Clearinghouse No. 2001082030. Placerville, CA: El Dorado County Planning Services. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Planning-Division/Adopted-General-Plan/General-Plan-Supporting-Documents/Draft-Environmental-Impact-Report-DEIR#section-2. Accessed: February 27, 2025.

Public Services

EDCSO. *See* El Dorado County Sheriff's Office.

BOMUSD. *See* Black Oak Mine Union School District.

Black Oak Mine Union School District. 2024. School Website. Available: https://www.bomusd.org/. Accessed April 15, 2025.

El Dorado County Sheriff's Office. 2024. Annual Sheriff Report. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/public-safety-amp-justice/public-safety/sheriff/2024_annual_report.pdf. Accessed April 15, 2025.

Recreation

No citations are used in this section.

Transportation

EDC. *See* El Dorado County.

EDCTC. *See* El Dorado County Transportation Commission.

El Dorado County. 2020. County VMP Resolution for CEQA Compliance. Resolution 141.2020. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/government/transportation/executed-resolution-141-2020.pdf. Accessed April 1, 2025.

El Dorado County Transportation Commission. 2019. El Dorado County and City of Placerville SB 743 Implementation Plan. Available: https://www.edctc.org/files/26cb184e7/SB743+Final+Implementation+Plan+2019.pdf. Accessed April 1, 2025.

EDHFD. *See* El Dorado Hills Fire Department.

El Dorado Hills Fire Department. 2022. *County Fire Protection Standards*. Available https://www.edhfire.com/prevention-safety/fire-prevention/el-dorado-county-standards. Accessed: April 1, 2025.

Tribal Cultural Resources

No citations are used in this section.

Utilities and Service Systems

California Department of Resources Recycling and Recovery. 2025a. Facility/Site Summary Details: Western El Dorado Recovery Systems MRF. Available: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/313. Accessed: April 10, 2025.

———. 2025b. Facility/Site Summary Details: Potrero Hills Landfill. Available: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1194?siteID=3591 Accessed: April 10, 2025.

Calrecycle. *See* California Department of Resources Recycling and Recovery.

EDC. *See* El Dorado County.

El Dorado County. 2025. County Environmental Management Division's Private Sewage Disposal System Ordinance. Available: https://www.eldoradocounty.ca.gov/County-Government/County-Departments/Environmental-Management/Environmental-Health/Septic-System-Components/Private-Sewage-Disposal-System-Ordinance. Accessed May 12, 2025.

Wildfire

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2025 (April). Fire Hazard Severity Zones in State Responsibility Area. Available: https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008. Accessed April 1, 2025.

EDC. *See* El Dorado County.

El Dorado County. 2004b. *Storm Water Management Plan for Western El Dorado County*. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/land-use/stormwater/swmp.pdf. Accessed April 10, 2025.

———. 2013. El Dorado County Grading, Erosion, and Sediment Control Ordinance. Chapter 15.14. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/2/documents/land-use/building-services-documents/forms-checklist-tab/grading-ordinance.pdf. Accessed April 10, 2025.

———. 2022. *El Dorado County Community Wildfire Protection Plan*. Available: https://www.eldoradocounty.ca.gov/Public-Safety-Justice/Wildfire-Disaster/Office-of-Wildfire-Preparedness-and-Resilience/Community-Wildfire-Protection-Plan-CWPP.

———. 2024c. *County's West Slope Development and Redevelopment Standards*. Available: https://www.eldoradocounty.ca.gov/Land-Use/Planning-and-Building/Tahoe-Planning-and-Building-Division-Stormwater-Unit/West-Slope-Development-and-Redevelopment-Standards. Accessed April 10, 2025.

EDCSO. *See* El Dorado County Sheriff's Office.

El Dorado County Sheriff's Office. 2024. *El Dorado County Multi-Jurisdictional Hazard Mitigation Plan*. Available: https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/public-safety-amp-justice/public-safety/sheriff/operations/oes/eldoradocounty_mjhmp_final_7.10.24.pdf. Accessed April 10, 2025.

Federal Emergency Management Agency. 2008 (September). Flood Insurance Rate Map, Map Number 06017C0175E. Available: https://msc.fema.gov/portal/home. Accessed April 10, 2025.

FEMA. *See* Federal Emergency Management Agency.

Mandatory Findings of Significance

No citations are used in this section.

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Attachment A - Air Quality Analysis - DR22-0007

Analysis of Impacts to Air Quality, and Public Health from Proposed Gasoline Station and Convenience Store, Restaurant with Drive Thru

Cool, California

August 28, 2023

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3: Detail Emission Calculations

4: SCREEN Modeling Results

SECTION 1: INTRODUCTION

Environmental Permitting Specialists (EPS) has been retained by HDB Capitol, LLC to evaluate impacts to air quality and public health from a proposed gasoline station, convenience store with a restaurant and drive thru (Project) to be located in Cool, California. This analysis is required as part of the environmental review by El Dorado County Planning Department.

The Project would be located on a 3.8 acre parcel at the Northeast corner of Highway 49 and Georgetown Road in Cool (El Dorado County). It has been assigned an Assessor's Parcel Number 071-080-007. Figures 1 and 2 illustrate the project location and site map respectively. Construction is expected to begin in April 2024 and finish by December, 2024. Occupancy is expected in late 2024 or early 2025.

The objective of the proposed analysis is to evaluate three (3) categories of impacts associated with the construction and operational phase of this Project:

1. Air Quality Impacts, including impacts from greenhouse gas emissions
2. Impacts to Public Health
3. Impacts associated with greenhouse gas (GHG) emissions

The significance of the project's impacts is determined by comparing construction and operational emissions and health risk with thresholds of significance established by the El Dorado County Air Quality Management District (EDCAQMD). The project is considered to have potentially significant environmental impact if emissions or health risks exceed the thresholds of significance.

This report is divided into 6 sections. Immediately following this Introduction, the projects metrics are described in Section 2. Next, the methodology for calculating air quality and public health risks are discussed in Section 3. The Project impacts are discussed in Section 4. The report concludes with a discussion of the significance of the project's air quality and public health impacts (Section 5). References, technical details and calculations are provided in Section 6 and in the Appendix.

Figure 1-1
Vicinity Maps

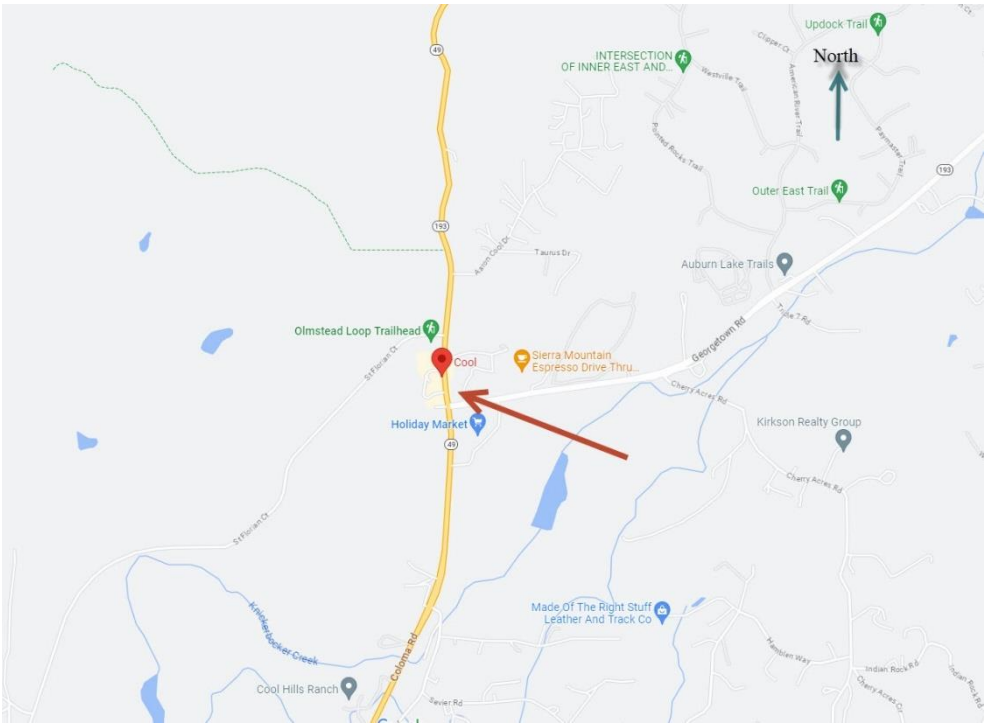
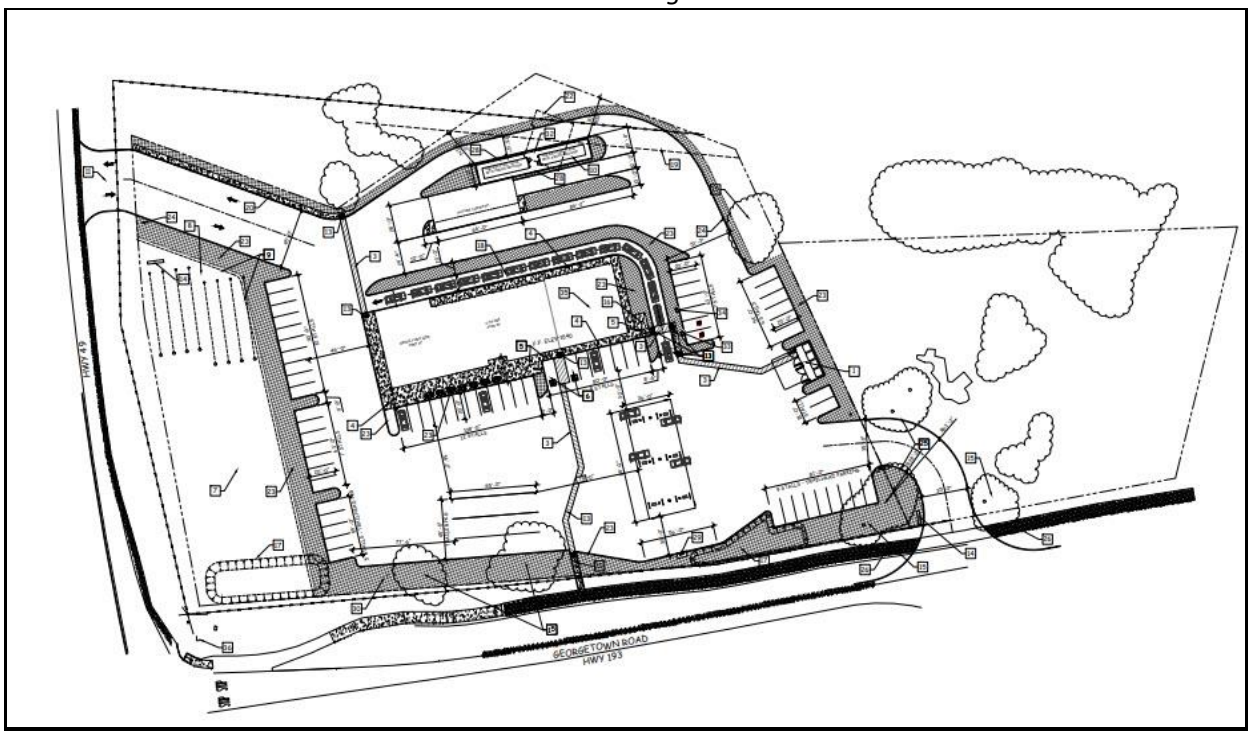
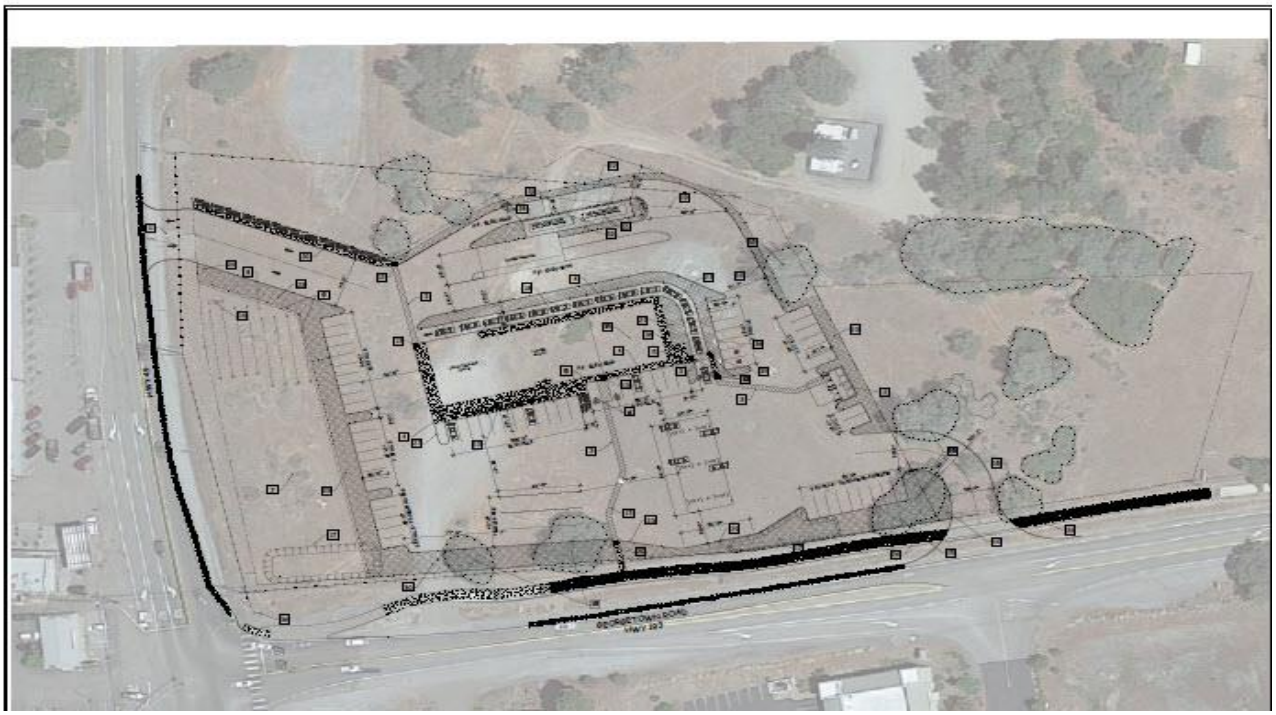


Figure 1-2
Site Map

Source: MHA Design Services





SECTION 2: PROJECT DETAILS

As noted in the Introduction, the proposed project would occupy a 3.83 acre site in Cool. The convenience store, restaurant and and drive through would occupy 9,854 square feet. There would be a total of eight fuel dispensers dispensing 1 million gallons of gasoline annually. A total of 81 parking spaces are planned. A car wash is planned for the future but is not included in the current development.

There are no structures at the site, therefore, no demolition would be required. The site is already graded and level, therefore minimal grading will be required and no soil would have to be imported or exported. Electrical, water and sewage services are available at the site, therefore, minimal infrastructure development is required.

The actual building would be constructed with hand tools, portable compressors, and a forklift. On-site electrical power is already available at the site so there would be minimal usage of portable gasoline fueled generators. No heavy construction equipment would be used during the actual building and the canopy over the gasoline dispensing stations.

The project is subject to EDCAQMD CEQA Guidelines (February 2002) that requires control of fugitive dust emissions at construction sites. Due to the small size of the project, there are no access roads, trucks transporting soil, or storage piles of soil that may be subject to wind erosion. The project would use water sprays as needed on exposed/disturbed area and limit truck idling to no more than 5 minutes.

A traffic study was completed that determined the project would generate 4,442 new trips per day. Excerpts of the traffic study are attached.

Table 2-1 summarizes all the project metrics based on information from the Project developer. As noted in the Introduction, the construction is expected to begin in the Spring of 2024 and be completed by the end of 2024. Occupancy is expected in late 2024 or early 2025.

Table 2-1

Phase		Details	Comments
	Start Date	April 1, 2024	Based on data provided by MHA Design Group.
	End Date	December 15, 2024	
	Lot Size	3.83 acres	
	Parking Spaces	81	
	Convenience Store Area	4,685 sq ft	
	Drive Thru Restaurant	2,526 sq ft	
	Quick Serve Restaurant	1,493 sq ft	
	Construction Related Traffic	Default Values	Note 1.
Operational	Start Date	December 2024 or Early 2025	
	Average Daily Traffic	4,442 new trips per day	GHD Consultants
	Volume of Gasoline Dispensed	1 million gallons per year Max 5,000 gallons per day Total 8 pumps	Fuel would be delivered in 8,500 gallon tanker trucks. 118 annual fuel deliveries per year

	Trip Length	25	Note 1
	Energy Usage (Electricity)	CalEEMod Default Values	Note 1
	Energy Usage (Natural Gas)		
	Water Usage		
	Solid Waste		
	Restaurant Emissions	Default quantities estimated by SJVAPCD	Note 2

Note 1.
Based on recommended default value for Convenience Store with Gas Pumps and drive-thru. Ref: CalEEMod emissions model version 2022.1.1.7. Information available at: www.caleemod.com

Note 2.
Emissions from commercial cooking estimated and default values using procedures developed by San Joaquin Valley APCD. Information at: https://www.valleyair.org/busind/pto/emission_factors/emission_factors_idx.htm

SECTION 3: CALCULATION METHODOLOGY

The construction and operation of the proposed gas station and convenience store would release a variety of air pollutants, including GHG emissions and emissions of toxic air pollutants (TACs). Project impacts are directly related to short-term and long-term emissions of these pollutants. This section identifies these pollutants and describes how they will be quantified.

3.1 Emissions of Criteria Air Pollutants

Criteria air pollutants refers to those pollutants for which the state and/or the federal government has established ambient (outside) air quality standards. The following criteria air pollutants will be quantified for the current project:

- Oxides of Nitrogen (NOx)
- Reactive Organic Compounds (ROG)
- Particulate Matter (PM-10)
- Fine Particulate Matter (PM-2.5)
- Carbon Monoxide
- Sulfur Dioxide (SO_2)
- GHG Emissions

The maximum daily and annual emission rates of each of these air pollutants will be quantified using the CalEEMod emissions model. This model is recommended by the El Dorado County Planning Department. Version 2022.1.1.7 of this model will be used to calculate emissions released during the construction and operational phases

3.2 Emissions of Toxic Air Contaminants

There are two categories of TACs that would be released from the current project:

1. Diesel Particulate Matter (DPM) from use of construction equipment and idling of fuel delivery trucks.

2. BTEX Compounds (benzene, toluene, xylene) from gasoline dispensing, storage, delivery. PAH emissions from the drive through restaurant associated with food preparation.

Toxic Air Contaminants that may be released and the calculation methodology is summarized below in Table 3-1.

Table 3-1
Sources of Toxic Air Contaminants

Toxic Air Contaminant	Construction Phase	Operational Phase	Calculation Methodology
Diesel Particulate Matter	Use of Diesel fueled Construction Equipment	Idling of Fuel Delivery Truck	For construction phase, use "Exhaust PM-10" emission rates calculated using CalEEMod Emissions Model For Operational Phase – Use idling emission factors for HD Trucks using EMFAC 2017 for CY 2021. Assume 15 minutes idle time per truck delivery
Benzene	N/A	Storage and Dispensing of Gasoline EVR Phase I and II for Underground Storage Tanks	Recommended emission factors in Appendix A in the 1997 CAPCOA Air Toxics "Hot Spots" Program document, *Gasoline Service Station Industrywide Risk Assessment Guidelines*.
Ethyl Benzene	N/A	Storage and Dispensing of Gasoline	Same as Benzene
Toluene	N/A	Storage and Dispensing of Gasoline	Same as Benzene
Xylene	N/A	Storage and Dispensing of Gasoline	Same as Benzene
PAHs	N/A	Cooking	Use SJVAPCD District recommended methodology and default data
Naphthalene	N/A	Cooking	

SECTION 4: PROJECT IMPACTS

This section discusses the air quality, GHG and public health impacts associated with the Project. The significance of the impacts is discussed in Section 5.

4.1 Impacts to Air Quality (Construction Phase)

Impacts to air quality were determined by calculating the maximum daily and annual emission rate of each criteria air pollutant identified earlier in Section 3.1.

Based on the use of the CalEEMod emissions model, the annual emission rates are summarized in Table 4-1.

Table 4-1
Summary of Maximum Daily and Annual Emissions
Construction Phase

Pollutant	Pounds per day	Tons per year
ROG	43.3	0.05
NOx	1.34	0.08
CO	1.55	0.08
SO2	<0.005	<0.005
PM10	4.7	0.13
PM2.5	0.52	0.02
CO2 /GHG	895	13.3

Copies of the CalEEMod emissions report are provided in Appendix C. Electronic copies are available on request.

4.2 Impacts to Air Quality (Operational Phase)

Impacts to air quality were determined by calculating the maximum annual emission rate of each criteria air pollutant identified in Section 3.1. Annual emissions are summarized in Table 4-2.

Table 4-2
Summary of Maximum Daily and Annual Emissions
Operational Phase
(in tons/year)

Pollutant	Pounds per day	Tons per year
ROG	0.35	0.06
NOx	0.08	0.01
CO	0.50	0.05
SO2	<0.005	<0.005
PM10	0.01	<0.005
PM2.5	0.01	<0.005
CO2 / GHG	2,489	412

Copies of the CalEEMod emissions report are attached. Electronic copies are available on request.

4.3 Impacts from Toxic Air Emissions

Construction Phase

Diesel Particulate Matter (DPM)

As noted previously, there are no structures at the site, therefore, no demolition would be required. The site is already graded and level, therefore no grading will be required and no soil would have to be imported or exported. Electrical, water and sewage services are available at the site, therefore, minimal infrastructure development will be needed.

The main toxic air pollutant released during the construction phase is diesel particulate matter (DPM) released from construction equipment. This is limited to the grading and site preparation. The actual building would be constructed with hand tools, portable compressors, a forklift. On-site electrical power is available minimizing the need for electric generators. No diesel fueled heavy construction equipment would be used during the actual building of the store or drive thru.

DPM emissions for the construction phase were calculated using the CalEEMod emissions model. The annual emission rates of "Exhaust PM-10E" were used as a surrogate for DPM. The specific quantity is summarized in Table 4-3

Table 4-3
Summary of On-Site Construction DPM Emissions

	DPM Emissions (Exhaust PM-10)	
Construction Phase	**(tons/year)**	**(pounds/year)**
PM-10E	<0.005	<10

Operational Phase

Two categories of TACs would be released during the operational phase:

1. DPM from trucks delivering gasoline. On-site DPM emissions occur from truck idling and truck movement near the site.

2. Volatile organic emissions that are associated with gasoline dispensing and storage and restaurant emissions from food preparation.

Diesel Particulate Matter (DPM)

The main source of DPM for the operational phase is heavy duty fuel delivery trucks. It is estimated there would be 118 fuel deliveries annually based on 8,550 gallons per delivery for a total of 1 million gallons of fuel delivered. Each truck was assumed to idle for a maximum of 15 minutes. Based on the EMFAC 2021 emissions model, annual emissions of DPM are estimated to equal only 0.0006 pounds per year from truck idling and 0.016 pounds from truck movement near the project site. Detailed calculations are provided in Tables 4 and 5 in Attachment 3.

Toxic Organic Compounds

The dispensing, storage and delivery of gasoline will result in emissions toxic air contaminants. A two-step procedure is used to estimate maximum hourly and annual emissions rates. First, the emission rate of VOCs is calculated based on recommended emission factors by the California Air Pollution Control Officers Association (CAPCOA) *Gasoline Service Station Industrywide Risk Assessment Guidelines (1997)*. VOCs include toxic air contaminants such as benzene, acetaldehyde, etc. The VOCs are then speciated into individual toxic compounds. The speciation data have been compiled by the San Joaquin Valley Air Pollution Control District (2017). A copy of this data is provided in Appendix C.

TAC Emissions from the drive thru restaurant are limited to PAHs and naphthalene. The calculation is shown in Appendix C.

The maximum hourly and annual emissions of TACs is summarized in Table 4-4. Detailed calculations are provided in Table 6, Appendix C.

Table 4-4
Summary of Maximum Hourly and Annual TAC Emissions
(Note: 1.10E-06 lbs/hr = 1.10 x 10^{-6} lbs/hr)

	On-Site Truck Idle	Off-Site Truck Travel	On-Site Gasoline Dispensing and Storage	Drive-Thru Food Prep	TOTAL (lbs/yr)
	Table 4	Table 5	Table 3	Table 6	
Benzene			5.79		5.79
DPM	0.001	0.016			0.017
Ethyl Benzene			15.18		15.18
PAHs				0.00079	7.86E-04
Toluene			75.92		75.92
Xylene			22.78		22.78
Naphthtalene				0.15236	0.15236

These emissions were used to calculate a screening level risk score for each of the 3 types of risks. "Screening Level" refers to a rough estimate of potential risk based on conservative assumptions, such as worst-case exposure, and emissions.

Unlike a detailed health risk assessment that provides a numerical probability of cancer risk, a screening level risk analysis yields a "Risk Score". The objective in preparing a screening level risk analysis is to avoid preparing a detail HRA if the screening level risk scores are below the thresholds of significance. These are summarized in Table 4-5.

Table 4-5
Types of Health Risks Evaluated

Cancer Risk	Calculated as a Cancer Risk Score
Chronic (non-cancer) Risk	Calculated as a Chronic Score
Acute (non-cancer risk)	Calculated as an Acute Score

The screening level risk calculations are based on the Air Toxics "Hot-Spots" Emissions Potency Method under the AB-2588 regulation. The results of the evaluation are summarized in Tables 4-6 and 4-7 for the construction and operational phases respectively for distances up 2,000 meters (1.2 miles) from the Project site. Detailed calculations are provided in Appendix C.

The results of the analysis show that the cancer risk score for the construction phase range from 23.1 to less than 0.01 depending on distance from the project site. The cancer risk at the nearest residence located 530 meters to the North east is 0.011. The cancer risk for the operational phase vary between 23.1 to less than 0.001 depending on distance. The cancer risk score at the nearest residence is 0.254. Non-cancer risks are below 0.1 at all locations for both construction and operational phases. The significance of the risk scores is discussed in the next section.

Table 4-6
Summary of Screening Level Risk Evaluation
Construction Phase

	A	B	C	D	E	F
1	**Name**	**Prioritization Calculator**				
2	**Applicability**	Use to provide a Prioritization score based on the emission potency meth required in yellow areas, output in gray areas.				
3	*Author or updater*	Ray Kapahi		*Last Update*	June 10, 2021	
4	**Facility:**	Cool Station Risk Screen				
5	**ID#:**	Construction Phase				
6	**Project #:**	Annual DPM Emissions Less than 0.005 tons/yr				
7	**Unit and Process#**	Less than 10 pounds/yr				
8	**Operating Hours hr/yr**	8,760.00				
9	Receptor Proximity and Proximity Factors	**Cancer**	**Chronic**	**Acute**		Receptor proxi
10		**Score**	**Score**	**Score**	**Max Score**	scores are cal
11	**0< R<100 1.000**	2.31E+01	3.42E-02	0.00E+00	2.31E+01	scores sum
12	**100≤R<250 0.250**	5.78E+00	8.56E-03	0.00E+00	5.78E+00	factors. Re
13	**250≤R<500 0.040**	9.24E-01	1.37E-03	0.00E+00	9.24E-01	receptor distan
14	**500≤R<1000 0.011**	2.54E-01	3.77E-04	0.00E+00	2.54E-01	unit is longer th
15	**1000≤R<1500 0.003**	6.93E-02	1.03E-04	0.00E+00	6.93E-02	if there are mu
16	**1500≤R<2000 0.002**	4.62E-02	6.85E-05	0.00E+00	4.62E-02	worksheets a
17	**2000<R 0.001**	2.31E-02	3.42E-05	0.00E+00	2.31E-02	
18		Enter the unit's CAS# of the substances emitted and their amounts.				Prioritzatio
19	**Less than 10 pounds/yr**					generated
20	**Substance**	**CAS#**	**Annual Emissions (lbs/yr)**	**Maximum Hourly (lbs/hr)**	**Average Hourly (lbs/hr)**	**Cancer**
21	**Diesel engine exhaust, particulate matter (Diesel PM)**	**9901**	1.00E+01	1.14E-03	1.14E-03	2.31E+01
22					0.00E+00	0.00E+00
23					0.00E+00	0.00E+00
24					0.00E+00	0.00E+00
25					0.00E+00	0.00E+00
26					0.00E+00	0.00E+00

Table 4-7
Summary of Screening Level Risk Evaluation
Operational Phase

Name	Prioritization Calculator				
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.				
Author or updater	Ray Kapahi	*Last Update*	August 18, 2023		
Facility:	Cool Station Screening Risk Analysis				
ID#:	Operational Phase				
Project #:					
Unit and Process#					
Operating Hours hr/yr	8,760.00				

Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100 1.000	1.63E+00	3.69E-02	7.23E-02	1.63E+00
100≤R<250 0.250	4.08E-01	9.22E-03	1.81E-02	4.08E-01
250≤R<500 0.040	6.52E-02	1.48E-03	2.89E-03	6.52E-02
500≤R<1000 0.011	1.79E-02	4.06E-04	7.95E-04	1.79E-02
1000≤R<1500 0.003	4.89E-03	1.11E-04	2.17E-04	4.89E-03
1500≤R<2000 0.002	3.26E-03	7.38E-05	1.45E-04	3.26E-03
2000<R 0.001	1.63E-03	3.69E-05	7.23E-05	1.63E-03

Receptor proximity is in meters. Priortizatio scores are calculated by multiplying the tot scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for th unit is longer than the number of rows here if there are multiple processes use additiona worksheets and sum the totals of the Max Scores.

0

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	9901	1.70E-02	1.94E-06	1.94E-06	3.93E-02	5.82E-05	0.00E+00
Benzene	71432	5.79E+00	1.21E-03	6.61E-04	1.29E+00	3.30E-02	6.72E-02
Ethyl benzene	100414	1.52E+01	3.16E-03	1.73E-03	2.92E-01	1.30E-04	0.00E+00
PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	1151	7.86E-04	1.35E-07	8.97E-08	6.66E-03	0.00E+00	0.00E+00
Toluene	108883	7.59E+01	1.58E-02	8.67E-03	0.00E+00	3.10E-03	4.74E-03
Xylene	1330207	2.28E+01	4.75E-03	2.60E-03	0.00E+00	5.57E-04	3.24E-04
				0.00E+00	0.00E+00	0.00E+00	0.00E+00

Given the low level of screening risk scores, a detailed health risk assessment is not warranted.

SECTION 5: SIGNIFICANCE OF PROJECT IMPACTS

Criteria Air Pollutants

The results of the current analysis for criteria air pollutants are compared with mass emission thresholds established by EDCAQMD. The significance of project impacts for the construction and operational phases is summarized in Table 5-1. These results demonstrate that impacts to air quality are less than significant.

Table 5-1
Summary of Project Level Air Quality Impacts
(pounds/day)

Pollutant	Construction Phase	Operational Phase (Includes emissions from Drive Thru)	Significance Threshold	Significant?
NOx	82	82	82	No
VOC	82	82	82	No
CO2 /GHG	No Thresholds			

Under the District CEQA Guidelines, emissions of CO, PM10, SO2, NO2, sulfates, lead and H2S are considered significant if they cause or contribute to a violation of ambient air quality standard. The current project is not a significant source of lead, sulfate or sulfur dioxide as California mandates the use of non-leaded, ultra low sulfur content in gasoline and diesel. The air quality impacts for the remaining pollutants are summarized in Table 5-2. Details are provided in Attachment 4.

Table 5-2
Summary of Maximum Project Level Air Quality Impacts
(Based on EPA's SCREEN Model)

Pollutant	Averaging Time (hrs)	Project Impact (ug/m3)	Air Quality Standard (ug/m3)	Significant?
NO2	1	16.1	339	No
PM10	24	22.5	50	No
CO	1	18.5	23,000	No

Impacts from GHG Emisisons

Project impacts from exposure to toxic air pollutants is summarized in Table 5-3. He results show impacts to be less than significant for both the construction and operational phases.

Table 5-3 Summary of Project Level Risk Scores at Nearest Residence				
Risk Metric	Construction Phase	Operational (Occupancy) Phase	Significance Threshold	Significant?
Maximum Cancer Risk Score	0.254	0.0179	10	No
Maximum Chronic Risk Score	3.77×10^{-4}	4.0×10^{-4}	1	No
Maximum Acute Score	N/A	7.95×10^{-4}	1	No

These results indicate that the project would not pose a significant public health risk. By its very nature, a screening level health risk evaluation is very conservative that substantially overstates the actual public health risks. Given the low health risks, a detailed HRA is not necessary.

SECTION 6: REFERENCES

CalEEMod (2022) CalEEMod User's Guide. Available at: https://www.caleemod.com/user-guide

CAPCOA (1997) Gasoline Service Station Industrywide Risks Assessment Guidelines. Available at: https://ww2.arb.ca.gov/sites/default/files/classic//ab2588/rrap-iwra/gasiwra.pdf

CARB (2003) HARP User's Guide. Available at: http://www.arb.ca.gov/toxics/harp/harp.htm December 2003.

EDCAQMD (2002): El Dorado County APCD DEQA Guide, First Editon. February 2002.

OEHHA (2014) Consolidated Table of Approved health Risk Values. Cal EPA, Office of Environmental Health Hazard Assessment. Available at: file:///C:/2014%20Feather%20River%20AQMD/Hollycross%20Cemetary/OEHHA%20contable.pdf. October 2, 2020.

ATTACHMENTS

1. CalEEMod Emissions Report
2. Excerpts of Traffic Study
3. Detailed Emission Calculations
4. SCREEN Modeling Results

1. CalEEMod Emissions Report

MEH COOL Detailed Report

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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

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

3.3. Grading (2024) - Unmitigated

3.5. Building Construction (2024) - Unmitigated

3.7. Paving (2024) - Unmitigated

3.9. Architectural Coating (2024) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

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

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

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	MEH COOL
Construction Start Date	4/1/2024
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.30
Precipitation (days)	23.0
Location	38.887265870277304, -121.015754013003
County	El Dorado-Mountain County
City	Unincorporated
Air District	El Dorado County AQMD
Air Basin	Mountain Counties
TAZ	403
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.17

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	9.80	1000sqft	3.83	9,854	87,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

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.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.61	5.81	5.51	0.01	0.26	6.38	6.63	0.24	2.00	2.24	895
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	34.3	1.34	1.55	< 0.005	0.06	4.65	4.70	0.06	0.47	0.52	252
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.25	0.46	0.42	< 0.005	0.02	0.70	0.72	0.02	0.11	0.13	80.2
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.08	0.08	< 0.005	< 0.005	0.13	0.13	< 0.005	0.02	0.02	13.3

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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	0.61	5.81	5.51	0.01	0.26	6.38	6.63	0.24	2.00	2.24	895

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	34.3	1.34	1.55	< 0.005	0.06	4.65	4.70	0.06	0.47	0.52	252
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2024	0.25	0.46	0.42	< 0.005	0.02	0.70	0.72	0.02	0.11	0.13	80.2
Annual	—	—	—	—	—	—	—	—	—	—	—
2024	0.05	0.08	0.08	< 0.005	< 0.005	0.13	0.13	< 0.005	0.02	0.02	13.3

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.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35	0.08	0.50	< 0.005	0.01	—	0.01	0.01	—	0.01	2,489
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.28	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	2,487
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.31	0.08	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	2,488
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.01	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	412

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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Area	0.34	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.77

Energy	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	381
Water	—	—	—	—	—	—	—	—	—	—	8.10
Waste	—	—	—	—	—	—	—	—	—	—	55.5
Refrig.	—	—	—	—	—	—	—	—	—	—	2,043
Total	0.35	0.08	0.50	< 0.005	0.01	—	0.01	0.01	—	0.01	2,489
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Area	0.27	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	381
Water	—	—	—	—	—	—	—	—	—	—	8.10
Waste	—	—	—	—	—	—	—	—	—	—	55.5
Refrig.	—	—	—	—	—	—	—	—	—	—	2,043
Total	0.28	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	2,487
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Area	0.31	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.87
Energy	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	381
Water	—	—	—	—	—	—	—	—	—	—	8.10
Waste	—	—	—	—	—	—	—	—	—	—	55.5
Refrig.	—	—	—	—	—	—	—	—	—	—	2,043
Total	0.31	0.08	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	2,488
Annual	—	—	—	—	—	—	—	—	—	—	—
Area	0.06	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14
Energy	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	63.0
Water	—	—	—	—	—	—	—	—	—	—	1.34
Waste	—	—	—	—	—	—	—	—	—	—	9.19
Refrig.	—	—	—	—	—	—	—	—	—	—	338
Total	0.06	0.01	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	412

3. Construction Emissions Details

3.1. 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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	5.79	5.17	0.01	0.26	—	0.26	0.24	—	0.24	837
Dust From Material Movement	—	—	—	—	—	3.28	3.28	—	1.68	1.68	—
Onsite truck	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	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.16	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	22.9
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.80
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.34	0.00	0.00	3.10	3.10	0.00	0.32	0.32	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.01	0.00	0.00	0.08	0.08	0.00	0.01	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	1.70	1.82	< 0.005	0.09	—	0.09	0.09	—	0.09	285
Dust From Material Movement	—	—	—	—	—	0.27	0.27	—	0.03	0.03	—
Onsite truck	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	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	7.80
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.29
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	1.55	1.55	0.00	0.16	0.16	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.00	0.00	0.04	0.04	0.00	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—

3.5. 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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.24	0.92	< 0.005	0.06	—	0.06	0.06	—	0.06	158
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.24	0.92	< 0.005	0.06	—	0.06	0.06	—	0.06	158
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.22	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	28.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.74
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.21	0.00	0.00	1.96	1.96	0.00	0.20	0.20	—
Vendor	< 0.005	0.08	0.01	< 0.005	< 0.005	0.62	0.62	< 0.005	0.06	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.02	0.17	0.00	0.00	1.96	1.96	0.00	0.20	0.20	—
Vendor	< 0.005	0.09	0.01	< 0.005	< 0.005	0.62	0.62	< 0.005	0.06	0.06	—
Hauling	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	0.03	0.00	0.00	0.33	0.33	0.00	0.03	0.03	—
Vendor	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.10	0.11	< 0.005	0.01	0.01	—
Hauling	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	0.01	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—

3.7. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.01	1.15	< 0.005	0.05	—	0.05	0.04	—	0.04	174
Paving	1.18	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.91
Paving	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—

Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.32
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.40	0.00	0.00	4.65	4.65	0.00	0.47	0.47	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.00	0.00	0.05	0.05	0.00	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—

3.9. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Architectural Coatings	34.3	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Architectural Coatings	0.19	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.39	0.39	0.00	0.04	0.04	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
Hauling	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

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	285
Total	—	—	—	—	—	—	—	—	—	—	285
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	285
Total	—	—	—	—	—	—	—	—	—	—	285
Annual	—	—	—	—	—	—	—	—	—	—	—

Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	47.2
Total	—	—	—	—	—	—	—	—	—	—	47.2

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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	95.8
Total	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	95.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	95.8
Total	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	95.8
Annual	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.9
Total	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.9

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.77
Total	0.34	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06	—	—	—	—	—	—	—	—	—	—
Total	0.27	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.04	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14
Total	0.06	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	8.10
Total	—	—	—	—	—	—	—	—	—	—	8.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	8.10
Total	—	—	—	—	—	—	—	—	—	—	8.10
Annual	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	1.34
Total	—	—	—	—	—	—	—	—	—	—	1.34

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	55.5
Total	—	—	—	—	—	—	—	—	—	—	55.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	55.5

Total	—	—	—	—	—	—	—	—	—	—	55.5
Annual	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	9.19
Total	—	—	—	—	—	—	—	—	—	—	9.19

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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	2,043
Total	—	—	—	—	—	—	—	—	—	—	2,043
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	2,043
Total	—	—	—	—	—	—	—	—	—	—	2,043
Annual	—	—	—	—	—	—	—	—	—	—	—
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	338
Total	—	—	—	—	—	—	—	—	—	—	338

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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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
Site Preparation	Site Preparation	4/1/2024	4/22/2024	3.00	10.0	—
Grading	Grading	5/1/2024	5/22/2024	3.00	10.0	—
Building Construction	Building Construction	6/1/2024	10/30/2024	3.00	66.0	—
Paving	Paving	11/1/2024	11/15/2024	2.00	4.00	—
Architectural Coating	Architectural Coating	12/1/2024	12/10/2024	1.00	2.00	—

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
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	4.00	367	0.40

Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	4.00	148	0.41
Building Construction	Cranes	Diesel	Average	1.00	2.00	80.0	0.29
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	4.00	10.0	0.56
Paving	Paving Equipment	Diesel	Average	1.00	2.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	4.00	36.0	0.38
Architectural Coating	Air Compressors	Electric	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	2.50	14.3	LDA,LDT1,LDT2
Grading	Vendor	—	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	3.15	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	1.62	8.80	HHDT,MHDT

Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	7.50	14.3	LDA,LDT1,LDT2
Paving	Vendor	—	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.63	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	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	9,855	4,927	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	2.50	0.00	—

Grading	—	—	2.50	0.00	—
Paving	0.00	0.00	0.00	0.00	2.00

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	2.00	90%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	79.5	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
Total all Land Uses	4,442	4,442	4,442	16,211,330	111,050	111,050	111,050	49,533,250

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

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	14,781	4,927	—

5.10.3. Landscape Equipment

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	504,690	204	0.0330	0.0040	297,962

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	725,911	933,663

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)

Convenience Market with Gas Pumps	29.5	—

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

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

5.16. 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. Biomass Cover Type

5.18.1.1. Unmitigated

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)

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	30.0	annual days of extreme heat
Extreme Precipitation	13.2	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	10.3	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	74.1
AQ-PM	9.77
AQ-DPM	1.80
Drinking Water	6.92
Lead Risk Housing	7.73
Pesticides	37.7
Toxic Releases	7.34
Traffic	3.63
Effect Indicators	—

CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	23.9
Solid Waste	70.4
Sensitive Population	—
Asthma	17.3
Cardio-vascular	34.2
Low Birth Weights	39.9
Socioeconomic Factor Indicators	—
Education	8.42
Housing	18.5
Linguistic	0.00
Poverty	17.7
Unemployment	13.2

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	75.42666496
Employed	46.28512768
Median HI	75.28551264
Education	—
Bachelor's or higher	53.54805595
High school enrollment	22.2764019
Preschool enrollment	1.873476197

Transportation	—
Auto Access	64.27563198
Active commuting	23.32862826
Social	—
2-parent households	84.83254202
Voting	94.90568459
Neighborhood	—
Alcohol availability	93.86629026
Park access	21.91710509
Retail density	3.965096882
Supermarket access	22.1865777
Tree canopy	97.71589888
Housing	—
Homeownership	87.02681894
Housing habitability	58.65520339
Low-inc homeowner severe housing cost burden	85.51263955
Low-inc renter severe housing cost burden	0.82124984
Uncrowded housing	96.93314513
Health Outcomes	—
Insured adults	80.68779674
Arthritis	0.0
Asthma ER Admissions	80.4
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	86.6
Cognitively Disabled	43.0
Physically Disabled	49.3
Heart Attack ER Admissions	73.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	49.1
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	28.6
SLR Inundation Area	0.0
Children	94.0
Elderly	15.1
English Speaking	98.1
Foreign-born	0.9
Outdoor Workers	48.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	98.5
Traffic Density	5.5
Traffic Access	0.0

Other Indices	—
Hardship	26.6
Other Decision Support	—
2016 Voting	93.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	3.00
Healthy Places Index Score for Project Location (b)	66.0
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	Per Project Design Specifications
Construction: Construction Phases	No demolition. Site contains no structures. Site preparation involves trenching for building foundations and utilities hookup and final grading.

Construction: Off-Road Equipment	Per project design and specification. Site will require temporary portable generator for 2 weeks before on-site power connection is established.
Construction: Paving	Total paved area assumes 0.21 ac concrete + 1.79 ac asphalt per project design specifications
Construction: Architectural Coatings	Per EDCAQMD Rule 215. VOC limit of 50 to 150 g/L depeding on type of coatings

2. Excerpts of Traffic Study

Technical Memorandum

August 21, 2023

To	El Dorado County – Zack Oates, Senior Civil Engineer Caltrans District 3 – Satwinder Dhatt, Local Development Review, Equity, and System Planning,		
From	Frank Penry, PE, TE, PTOE Peter Galloway, Senior Transportation Planner Emily Darke, Staff Engineer, EIT		
CC	Sandeep Dhanda, Owner Melvin Higginbotham, Architect, MHA Design Services	Email	Sandeepdhanda@yahoo.com
Subject	PA21-0021 Cool Automotive & Commercial Project – Traffic Impact Analysis Memorandum (Revised)	Project no.	12579129

1. Introduction

The following technical memorandum prepared by GHD presents the results of a revised traffic impact analyses for the proposed Cool Automotive and Commercial Center project (convenience market, fuel facility, drive-through restaurant, future retail pad, and car wash). A previous technical memorandum assessing the traffic impacts of the proposed project was published (*GHD, September 2022*) and reviewed by both the County of El Dorado and Caltrans.[1] [2] As a result of comments received from both agencies, the project site plan has been revised/improved and proposed project land uses have been consolidated. Agency comments related to proposed project trip generation and vehicle miles traveled (VMT) analyses have been addressed. In addition, circulation related to truck access, vehicle queuing, and pedestrian/bicycle safety associated with the adjacent Class I multi-use path has been further evaluated.

The proposed project site would be located on the northeast quadrant of the State Route 49 and State Route 193 intersection in Cool, California. The proposed project would develop an existing vacant parcel (APN# 071-080-007). This updated Traffic Impact Analysis Memorandum (TIAM) satisfies the requirements per the County of Eldorado and Caltrans Guidelines. **Figure 1.1** presents the study area map and project location.

[1] DKS Associates, Peer Review of the Transportation Impact Analysis for the Cool Automotive & Commercial Project, Project #21197-015, Memorandum from Josh Pilachowski (DKS) to Zach Oates (El Dorado County), May 11, 2023.
[2] Satwinder Dhatt, Local Development Coordinator, Caltrans, District 3, PA21-0021, Higginbotham (Cool Automotive & Commercial Project), June 19, 2023.

This document is in draft form. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document.

The term “project,” as used in this report, refers to the updated development uses as follows:

- Development of the existing vacant lot on the northeast quadrant of the State Route 49 (SR 49) and State Route 193 (SR 193) intersection. The proposed developments are as follows:
    - **Main building(s) comprising of 9,787 square feet**
        - Convenience Store - 4,620 square feet
        - Drive-Through QSR Restaurant - 2,585 square feet
        - Future Retail Pad – 2,582 square feet
    - **Fueling facility with island and canopy and car wash of 6,176 square feet**
        - Above ground fueling tanks (2-20,000-gallon tanks)
        - 8-pump (12 vehicle fueling positions) fuel facility/canopy – 3,024 square feet
        - Automated Car Wash – 1,892 square feet

The proposed project is located in the Town of Cool in Eldorado County. Currently, the adjacent parcel located directly north of the project site contains a United States Post Office. The parcel(s) directly west of the proposed project site (across SR 49) contain a mix of restaurant, fuelling, and retail uses. Finally, the parcels located on the southeast quadrant of the SR 49/SR 193 intersection contain a florist and larger retail center with a Holiday Market, medical facilities, brewpub, and other smaller retail stores.

Included in this memorandum are analyses and discussion of the following items:

- Technical analysis parameters and methodologies.
- Existing study locations, data collection, and existing conditions assumptions.
- Project description including quantification of trip generation and trip distribution associated with the proposed project.
- Existing Plus Project Conditions (Year 2022)
- Near-Term plus Project (Year 2032).
- Vehicle Miles Traveled (VMT) analysis related to the SB 743 and the trip characteristics of the proposed project associated with location, size, and screening criteria.
- Cumulative Analysis, including No Project and Plus Project Conditions (Year 2042).
- Impact Determination and Mitigation Measures.

Consistent with the City’s guidelines, the following traffic scenarios were analyzed for this project:

- Existing Conditions (Year 2022)
- Existing (Year 2022) Plus Project Conditions
- Near-Term (Year 2032) No Project Conditions
- Near-Term (Year 2032) Plus Project Conditions
- Cumulative (2042) No Project Conditions
- Cumulative (2042) Plus Project Conditions

The above traffic scenarios are described in further detail and evaluated in subsequent sections.



Paper Size ANSI A

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Miles

Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

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COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

STUDY AREA MAP

Project No. **12579129**
Revision No. **-**
Date **07/10/2022**

FIGURE 1.1

\\Mcc-svr-001\ghd\US\San Luis Obispo\Projects\561\12579129\GIS\Maps\Working\12579129 Vicinity Map.mxd
Print date: 10 Aug 2022 - 10:47

Data source: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community. Created by: edarke

2. Project Background

The prosed project includes development of a gas station with 12 vehicle fueling positions, a 4,620 square- foot convenience market, a 2,585 square-foot quick service restaurant (QSR) with drive-through lane, , a 2,582 square-foot future retail pad, and an 1,892 square- foot car wash on APN# 071-080-007. The proposed project is located at the corner of SR 49 (Coloma Road) and SR 193 (Georgetown Road) on the northeast quadrant of the intersection.

The proposed development has two (2) primary access driveways to distribute the stie traffic on the adjacent State Highways. From SR 49, a full-access driveway would serve the project site and be located approximately 400-feet north of SR 193 (Georgetown Road). A second full-access driveway would be located on SR 193 directly opposite Ellinghouse Drive approximately 600-feet east of SR 49. This project driveway would form a standard four-way intersection (southbound leg) with the SR 93/Ellinghouse Drive intersection. The project site plan is shown in **Figure 2.1**.

2.1 Purpose and Need

The purpose of this development is to provide improved fueling, convenience market, and restaurant services to vehicles traveling to their destinations. The proposed project is consistent with the County of El Dorado's General Plan land use and regional travel demand model zoned for General Commercial (GC-DC). The proposed site is located along two State Highways (SR 49 and SR 193) with access north to Auburn and south to Coloma and Sutter's Mill.

Regional connection to the project site would be via SR 49 to/from the north to Interstate 80 at Auburn.

2.2 Study Intersections and Roadway Segments

Four primary intersections adjacent to and providing access to the project site were selected for evaluation in coordination with the County of El Dorado and Caltrans Highway Operations staff for the weekday AM and PM peak hour conditions. The study intersections for the project are listed below:

1. Northside Drive at Highway 49 (Coloma Road)
2. Project Driveway at Highway 49 (Coloma Road)
3. Highway 49 (Coloma Road) at Highway 193 (Georgetown Road)
4. Project Driveway at Ellinghouse Road and Highway 193 (Georgetown Road)

In addition to key intersection analyses, the following roadway segments were evaluated for volume capacities adjacent to the proposed project site:

- Highway 49 (Coloma Road) north of Highway 193 (Georgetown Road)
- Highway 49 (Coloma Road south of Highway 193 (Georgetown Road)
- Highway 193 (Georgetown Road) east of Highway 49 (Coloma Road)

The roadway network that provides primary vehicle circulation for the project study area includes Highway 49, Highway 193, Northside Drive, and Ellinghouse Road. Regional access is provided by Interstate 80 north of the project site. A brief description of each roadway follows:

Highway 49 (SR 49) is a regional highway that extends north-south through California's foothills and Gold Country. Starting in the north state, Highway 49 extends south from SR 70 extending through Sierra City, Downieville, Nevada City, Grass Valley, Auburn, Coloma, Placerville, and Mariposa to Oakhurst. In the project study area, SR 49 is a two-lane facility with a two-way-left-turn lane. The roadway also has wide (4-5') painted shoulders both north and south of Highway 193 but lacks frontage improvements.



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TRAFFIC IMPACT ANALYSIS MEMORANDUM

PROJECT SITE PLAN

Project No. **12579129**
Date **7/18/2023**

FIGURE 2.1

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The posted speed limit on Coloma Road is 45 mph. Based on the most recent Caltrans volume data, SR 49 carries 8,800 annual average daily traffic (AADT) with 5.6% truck traffic. It is noted that a Class I pedestrian-bike shared use path extends along the west side of SR 49 starting immediately south of its intersection with SR 193 to Cave Valley Road (a distance of approximately 1 mile).

Highway 193 (SR 193) extends east from SR 49 is a two-lane facility with no frontage improvements. SR 193 provides access east to Greenwood and Georgetown before extending south to Spanish Flat, Kelsey, and Placerville. SR 193 has left-turn/right-turn pockets at major street intersections in the study area with a posted speed limit of 55 mph. Based on the most recent Caltrans volumes, SR 193 carries 7,800 AADT with 7.3% truck traffic. It is noted that a Class I pedestrian-bike shared use path extends along the north side of SR 193 between SR 49 and American River Trail (a distance of approximately 0.9 miles).

Northside Road is located immediately north of the proposed project site and extends east from Highway 49 approximately 600-feet north of SR 193. A narrow roadway (18-feet), Northside Road provides access to existing United States Post Office facilities and self-storage areas. New development that occurred on the south side of the roadway (Dollar General Store) improved Northside Road (i.e., widened) along its frontage to Highway 49.

Ellinghouse Road is located south of the proposed project site extending a relatively short distance (1,200 - feet) between Highway 193 and Highway 49. Ellinghouse Road provides access to the newer Holiday Market commercial-retail center located on the southeast quadrant of the Highway 49/Highway 193 intersection and has two travel lanes.

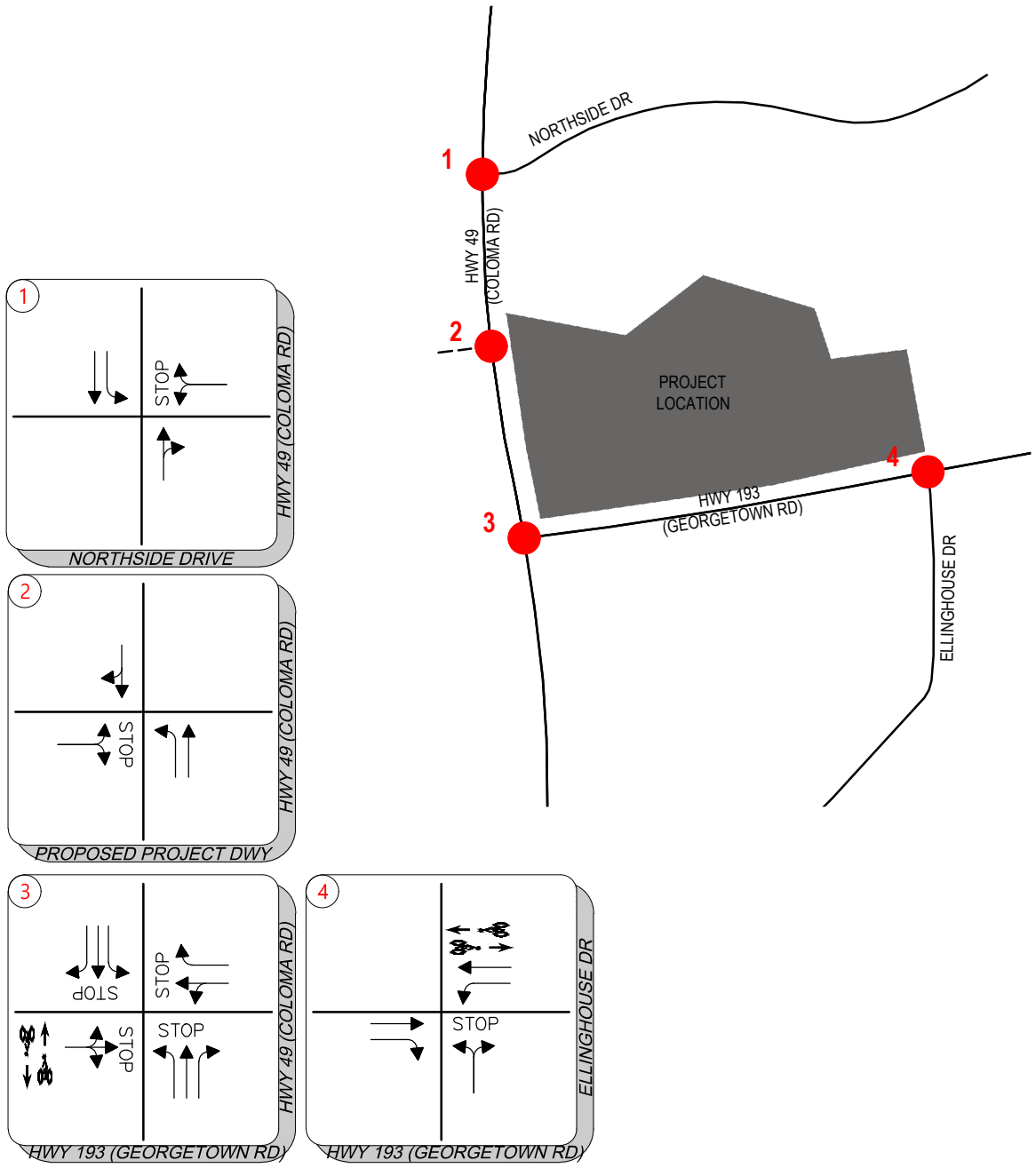
Regional access to the project study area is provided by **Interstate 80** which extends in an east-west direction approximately 9 miles north of the project site via Highway 49 at Auburn. Interstate 80 provides access west to Sacramento, Davis, and the Bay Area. To the east, Interstate 80 provides access to Truckee and Reno before continuing to through the adjacent states of Nevada, Utah, and Wyoming all the way to the east coast. I-80 is a multi-lane facility at Auburn.

2.3 Data Collection and Analysis

Recent transportation analyses were conducted for the Cool General Retail Project DEIR (El Dorado County, *SCH# 2020049050*, January 2021). Currently under construction, the project (Dollar General Store) is located immediately north of the proposed project site and gains vehicle access from Northside Drive. Vehicle count data for associated traffic analyses was collected for both the weekday AM peak period (7:00-9:00 a.m.) and PM peak period (4:00-6:00 p.m.) at the SR 49 intersections located at Northside Drive and SR 193. Vehicle count data collected as part of the Dollar General Store (KDA, 2020) traffic analysis was used for comparison purposes and consistency to ensure a conservative estimate of overall vehicle operations in the study area.

For the purposes of proposed project analysis, new intersection turning movement counts for the ***four*** existing intersections were collected on Thursday, July 28, 2022 during the AM peak and PM peak periods based on Caltrans direction. The traffic data collection was conducted to capture peak summer tourist traffic during weekday conditions. The AM peak hour is defined as the one continuous hour of peak traffic flow counted between 7:00 AM and 9:00 AM, and the PM peak hour is defined as the one continuous hour of peak traffic flow counted between 4:00 PM and 6:00 PM under typical weekday conditions. **Figure 2.2** presents the study intersections with existing lane configuration and traffic control. Intersection peak hour counts are included in **Attachment A** of this memorandum and shown in **Figure 2.3**.

Northside Drive is stop-sign controlled at SR 49 (T- intersection) for the westbound direction. A two-way-left-turn lane (TWLTL) is present on SR 49. The SR 49/SR 193 intersection is all-way-stop-controlled with a flashing beacon. Finally, the existing Ellinghouse Drive/SR 193 intersection is stop-sign controlled for the northbound (T- intersection) approach at SR 193. There is a separate westbound left-turn lane and separate eastbound right-turn lane from SR 193 providing access onto Ellinghouse Drive.



LEGEND:

BICYCLE LANE

VEHICLE LANE

STOP STOP CONTROL

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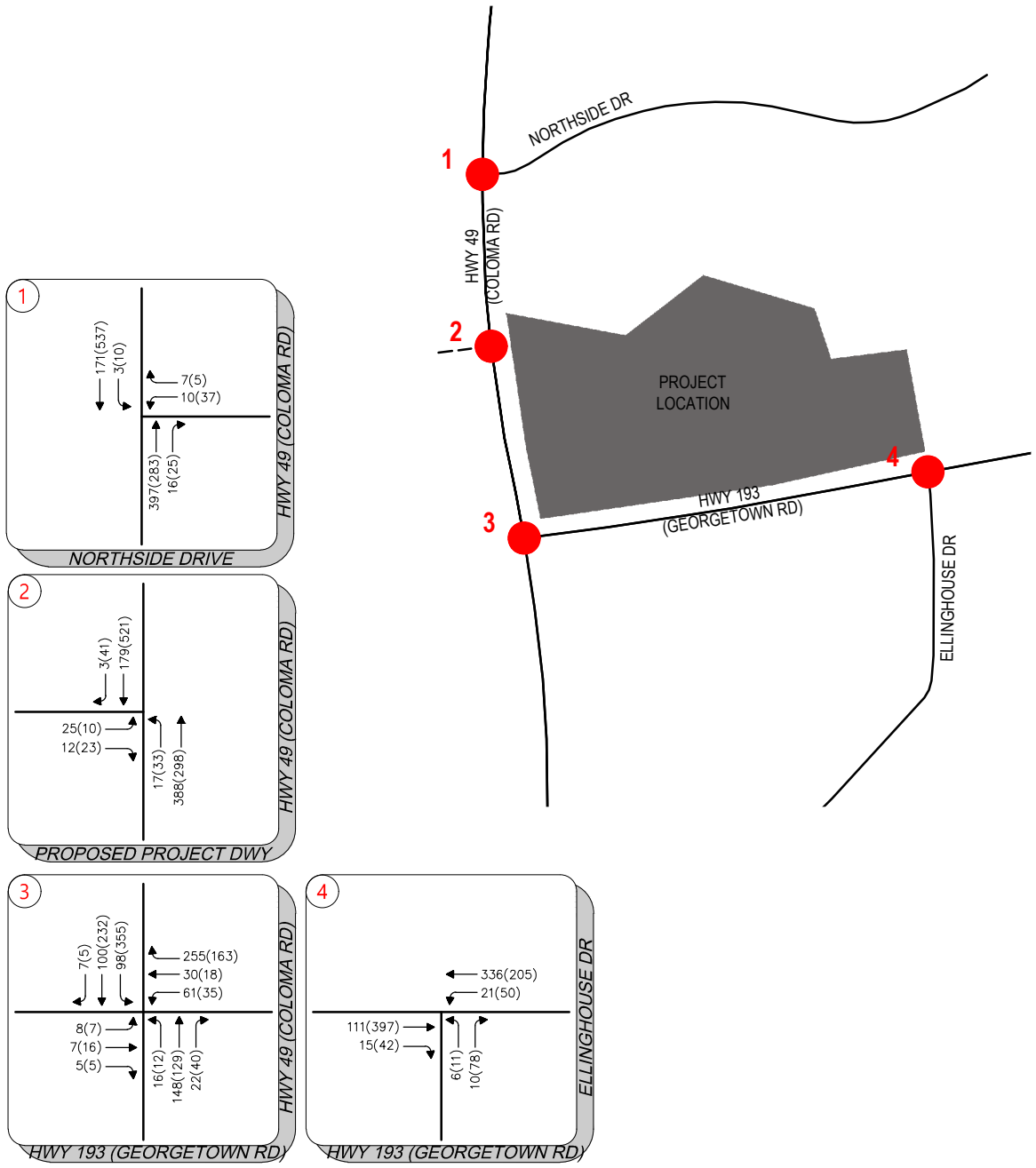
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TRAFFIC IMPACT ANALYSIS MEMORANDUM

EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Project No. **12579129**
Date **7/18/2023**

FIGURE 2.2

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LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

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EXISTING PEAK HOUR VOLUMES

Project No. **12579129**
Date **7/18/2023**

FIGURE 2.3

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Plot Date: 18 July 2023 9:17 AM

3. Technical Analysis Parameters & Methodologies

3.1 Level of Service Methodologies

Technical analysis parameters and methodologies for the traffic study have been based on the County of El Dorado traffic impact analysis guidelines, *Transportation Impact Study Guidelines, November 2014,* and consistent with policies adopted in *2004 El Dorado County General Plan Transportation and Circulation Element (Amended December 10, 2019).*

Senate Bill (SB) 743 was signed into law in 2013, with the intent to better align CEQA practices with statewide sustainability goals related to efficient land use, greater multimodal choices, and greenhouse gas reductions. The provisions of SB 743 became effective Statewide on July 1, 2020. Under SB 743, automobile delay, traditionally measured as level of service (LOS), are no longer considered an environmental impact under CEQA. Instead, impacts are determined by changes to VMT. Based on Office of Planning and Research (OPR) guidance, this project could likely be screened out (see below) based on additional information on commercial-retail VMT..

The following section outlines the analysis parameters and methodologies that will be used in the transportation impact study to quantify the measures of effectiveness for the analysis scenarios.

3.2 Vehicle Miles Traveled (VMT)

Caltrans recently published an update for their Transportation Impact Study Guidelines (TISG, May 20, 2020). The Caltrans' TISG is intended for use in preparing a transportation impact analysis of land use projects or plans they may impact of affect the State Highway System and replaces the prior 2002 Guidelines. The TISG heavily references OPR's Technical Advisory as a basis for its guidance. The TISG recommends use of OPR's recommended thresholds for land use projects (15% below existing city or regional VMT per capita or per employee). As each lead agency develops and adopts its own VMT thresholds for land use projects, Caltrans will review them for consistency with OPR's recommendations, and with the state's greenhouse gas emissions reduction targets and California Air Resources Board Scoping Plan. Caltrans identifies possible mitigation framework for projects found to have a potentially significant impact on VMT. These include the following programmatic measures:

- Impact fee programs that contain a demonstrated nexus and proportionality between a fee and capital projects that result in VMT reduction;
- VMT mitigation bank programs; and,
- VMT mitigation exchange programs.

Caltrans also indicates that additional future guidance will include the basis for requesting transportation impact analysis that is not based on VMT, but rather a simplified safety analysis approach that reduces risk to all road users and focuses on multimodal analysis as well as access management issues.

Understanding Caltrans requirements for VMT, GHD evaluated the proposed project considering the TISG guidelines and its likely VMT impact. Based on TISG guidelines, it was determined a Vehicle Miles Traveled (VMT) analysis will not be required for this proposed project due to its size, land use, and overall characteristics. However, recent VMT ordinance(s) adopted by the County of El Dorado indicate that further VMT analysis is required for proposed commercial-retail development projects. Based on the OPR guidance, the proposed project is a locally serving commercial-retail development and falls under the 50,000 square foot threshold for such VMT analyses (see below).

The OPR Technical Advisory also addresses various types of commercial-retail projects as follows:

- "Because new retail development typically redistributes shopping trips rather than creating new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts. 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. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant. Many cities and counties define local-serving and regional-serving retail in their zoning codes. Lead agencies may refer to those local definitions when available, but should also consider any project-specific information, such as market studies or economic impacts analyses that might bear on customers' travel behavior. Because lead agencies will best understand their own communities and the likely travel behaviors of future project users, they are likely in the best position to decide when a project will likely be local-serving. 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."

The proposed project is a purely local-serving commercial-retail development and does not exceed 50,000 square feet. However, based on CEQA guidance and input from El Dorado County staff, the proposed project does require additional VMT analysis as follows:

3.2.1 El Dorado County VMT Resolution

The County of El Dorado (County Board of Supervisors) has adopted Resolution 141-2020 associated with "Vehicle Miles Traveled" and thresholds of significance for traffic impact analyses.[3] A review of resolution 141-2020 indicates the following VMT policies associated with proposed project development:

> The County shall generally use the El Dorado County Travel Demand Model for establishing the baseline VMT for the unincorporated County as a whole and calculating VMT for specific projects in order to apply the significance thresholds and screening tools adopted herein. However, a different method of calculating VMT may be used if, in the exercise of sound engineering judgement, a different method is determined to be more accurate because the unique circumstances of a particular project or particular use that are not captured in the El Dorado County Travel Demand Model result in an underestimation or overestimation of VMT. Any such deviations in calculating VMT shall be explained in the written analysis relied on in the environmental analysis for CEQA.

The County shall apply the significant threshold of 15%, as recommended by OPR's Technical Advisory Committee, below baseline for residential and office land use and no net increase for retail projects. Consistent with OPR's Technical Advisory, the Board finds that a proposed project exceeding a level of 15 percent below the existing VMT per capita may indicate a significant transportation impact.

3.2.2 OPR Technical Advisory VMT Guidance on Retail Uses and VMT Retail Case Studies

Based on OPR's Technical Advisory, the proposed project's retail uses (gasoline, convenience market, car wash, and quick-service restaurant) could all be defined as "locally serving." As noted, "Many cities and counties define local-serving and regional-serving retail in their zoning codes. Lead agencies may refer to those local definitions when available, but should also consider any project-specific information, such as market

[3] County of El Dorado, Board of Supervisors, Resolution 141-2020, Adopting the El Dorado County "Vehicle Miles Traveled" Thresholds of Significance for Purposes of Analyzing Transportation Impacts Under the California Environmental Quality Act, October 6, 2020.

studies or economic impacts analyses that might bear on customers' travel behavior. 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." However, OPR's guidance on retail-related VMT is an *opinion* and not substantive evidence of retail VMT behavior. Therefore, as indicated by OPR in support of such retail behavior (improving retail destination proximity and shortening trip lengths), before and after market studies have been conducted to show that locally serving retail can generally shorten vehicle trip lengths. Specifically, VMT research was conducted in the City of Davis, CA on the introduction of a "Big Box" retail store and its effect on shopping behavior titled *Measuring the Impacts of Local Land Use Policies on Vehicle Miles of Travel: The Case of the First Big Box Store in Davis, California*.[4] The study concluded that there was "a probable reduction in overall VMT associated with shopping for the types of items carried by the Target." However, the study also noted that reducing retail VMT trip lengths depends on the other retail alternatives that exist and how far those opportunities are located. Given the rural nature of Cool and the somewhat limited retail opportunities, a strong case could be made that proposed project retail uses would benefit local residents allowing them to make shorter trips rather than traveling to Auburn or other outlying areas for similar services.

3.2.3 Proposed Project Locally Serving Retail

From a CEQA standpoint, a strong case could be made that all proposed project uses (gasoline, convenience market, car wash, and quick-service restaurant) are locally serving retail. None of the proposed project uses would be considered a regional draw in that all of these similar retail uses are available in Auburn and/or the Georgetown areas. In addition, "strip commercial centers", "mini-marts", and/or "convenience stores" are considered purely local in nature serving the needs of the adjacent communities. Based on research conducted by the International Council of Shopping Centers, strip-convenience centers typically have a trade area of one-mile or less. As shown in **Table 3.1**, strip-convenience centers with a convenience store as its anchor (or anchor-less) draw from areas of one-mile or less.

Based on these retail case studies and shopping center characteristics for retail uses (strip commercial-convenience stores) provided above, the development of proposed project uses would likely reduce overall VMT in the Cool area. By providing locally serving retail uses, area residents would be less likely to travel longer distances to access similar retail services.

3.3 Level of Service Methodologies

The following section presents a summary of the general level of service (LOS) methodologies and guidelines used in the analysis of intersections.

Levels of Service (LOS) will be calculated for all study intersection control types using the methods documented in the Transportation Research Board Publication, *Highway Capacity Manual, Sixth Edition, A Guide for Multimodal Mobility Analysis, 2016* (HCM 6). HCM 6 methodology is consistent with both the County of El Dorado and Caltrans guidelines. In addition, per the County of El Dorado's, *Transportation Impact Study Guidelines*, this analysis will also include project access, circulation, and analysis of multimodal infrastructure.

In an effort to maintain consistency with the County of El Dorado's *General Plan* policies for transportation facilities, level of service methodologies for intersections will be used to determine if the project causes an increase in traffic that is substantial and adverse in relation to the traffic load and capacity of the existing street system. 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 conditions. LOS "A" represents free-flow operating conditions and LOS "F" represents over-capacity conditions.

Table 3.1 U.S. Shopping Center Classification and Characteristics

[4] UC Davis, Institute of Transportation Studies (ITS), Research Report -UCD-ITS-RR-12-03, Measuring the Impacts of Local Land Use Policies on Vehicle Miles Travel: The Case of the First Big Box Store in Davis, California, March 2012.

U.S. Shopping-Center Classification and Characteristics												
Type of Shopping Center	Concept	Center Count	Aggregate GLA (Sq. Ft.)	% Share of Industry GLA	Average Size (Sq. Ft.)	Typical GLA Range (Sq. Ft.)	Acres	# of Anchors	% Anchor GLA	Typical Number of Tenants	Typical Type of Anchors	Trade Area Size
General-Purpose Centers		**112,520**										
Super-Regional Mall	Similar in concept to regional malls, but offering more variety and assortment.	620	778,336,548	10.2%	1,255,382	800,000+	60-120	3+	50-70%	NA	Full-line or junior department store, mass merchant, discount department store and/or fashion apparel store.	5-25 miles
Regional Mall	General merchandise or fashion-oriented offerings. Typically, enclosed with inward-facing stores connected by a common walkway. Parking surrounds the outside perimeter.	600	353,795,548	4.7%	589,659	400,000-800,000	40-100	2+	50-70%	40-80 stores	Full-line or junior department store, mass merchant, discount department store and/or fashion apparel store.	5-15 miles
Community Center ("Large Neighborhood Center")	General merchandise or convenience- oriented offerings. Wider range of apparel and other soft goods offerings than neighborhood centers. The center is usually configured in a straight line as a strip, or may be laid out in an L or U shape, depending on the site and design.	9,776	1,930,849,736	25.4%	197,509	125,000-400,000	10-40	2+	40-60%	15-40 stores	Discount store, supermarket, drug, large-specialty discount (toys, books, electronics, home improvement/furnishings or sporting goods, etc.)	3-6 miles
Neighborhood Center	Convenience oriented.	32,588	2,340,711,371	30.8%	71,827	30,000-125,000	3-5	1+	30-50%	5-20 stores	Supermarket	3 miles
Strip/Convenience	Attached row of stores or service outlets managed as a coherent retail entity, with on-site parking usually located in front of the stores. Open canopies may connect the store fronts, but a strip center does not have enclosed walkways linking the stores. A strip center may be configured in a straight line, or have an "L" or "U" shape. A convenience center is among the smallest of the centers, whose tenants provide a narrow mix of goods and personal services to a very limited trade area.	68,936	911,202,922	12.0%	13,218	< 30,000	<3	Anchor-less or a small convenience-store anchor.	NA	NA	Convenience store, such as a mini-mart.	<1 mile
Specialized-Purpose Centers		**3,275**										
Power Center	Category-dominant anchors, including discount department stores, off-price stores, wholesale clubs, with only a few small tenants.	2,258	990,416,667	13.0%	438,626	250,000-600,000	25-80	3+	70-90%	NA	Category killers, such as home improvement, discount department, warehouse club and off-price stores	5-10 miles
Lifestyle	Upscale national-chain specialty stores with dining and entertainment in an outdoor setting.	491	164,903,247	2.2%	335,852	150,000-500,000	10-40	0-2	0-50%	NA	Large format upscale specialty	8-12 miles
Factory Outlet	Manufacturers' and retailers' outlet stores selling brand-name goods at a discount.	367	87,368,113	1.2%	238,060	50,000-400,000	10-50	NA	NA	NA	Manufacturers' and retailers' outlets	25-75 miles
Theme/Festival	Leisure, tourist, retail and service-oriented offerings with entertainment as a unifying theme. Often located in urban areas, they may be adapted from older—sometimes historic—buildings and can be part of a mixed-use project.	159	23,498,769	0.3%	147,791	80,000-250,000	5-20	Unspecified	NA	NA	Restaurants, entertainment	25-75 miles
Limited-Purpose Property		**62**										
Airport Retail	Consolidation of retail stores located within a commercial airport	62	15,452,860	0.2%	249,240	75,000-300,000	NA	NA	NA	NA	No anchors; retail includes specialty retail and restaurants	NA
Total Industry		**115,857**										
Total Industry	Traditional + Specialty + Special Purpose	115,857	7,596,535,781	100.0%	65,568							

Sources: ICSC Research and CoStar Realty Information, Inc. (www.costar.com) January 2017

3.3.1 Intersection Operations

The Synchro 10 (Cubic) software program will be used to implement the HCM 6 analysis methodologies for the study intersections. Intersection Level of Service (LOS) will be calculated for all control types using the methods documented in HCM 6. For unsignalized intersections, the intersection LOS represents the worst minor-street movement controlled by a stop sign.

Vehicles queue lengths at project driveways and intersection turn pockets will be evaluated using microsimulation. *Simtraffic* traffic simulation software was used in capturing real world queuing conditions. The average of five (5) microsimulation runs were used in capturing 95th percentile queue.

The vehicular-based LOS criteria for different types of intersection controls are presented in **Table 3.2.**

To determine whether "significance" should be associated with unsignalized intersection operations, a supplemental traffic signal "warrant" analysis will also be completed. The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an otherwise unsignalized intersection. This study will employ the signal warrant criteria presented in the latest edition of California's Manual on Uniform Traffic Control Devices (CA MUTCD) for all study intersection(s). The signal warrant criteria are based upon several factors including volume of vehicular and pedestrian traffic, frequency of accidents, location of school areas etc. The CA

TABLE 3.2 – LEVEL OF SERVICE (LOS) CRITERIA FOR INTERSECTIONS

LOS	Type of Flow	Delay	Maneuverability	Stopped Delay / Vehicle (sec)	
				Signalized	Unsignalized / AWSC, TWSC, and Roundabouts
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	≤10.0	≤10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and ≤20.0	>10 and ≤15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20 and ≤35.0	>15 and ≤25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable	Maneuverability is severely limited during short periods due to temporary back-ups.	>35 and ≤55.0	>25 and ≤35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55 and ≤80.0	>35 and ≤50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0

MUTCD indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. The ultimate decision to signalize an intersection should be determined after careful analysis of all intersections and area characteristics.

This traffic operations analysis will specifically utilize the Peak-Hour-Volume based Warrant 3 as one representative type of traffic signal warrant analysis. Warrant 3 criteria are identical for both Warrant 3 provides the option to use the lower threshold criteria (*CA MUTCD Figure 4C-4*) if the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000.

Highway (Two-Lane) Roadway Segment Levels of Service

Two-lane roadway segments will be analyzed using methodologies based on the Highway Capacity Manual 2010 (HCM) consistent with El Dorado County TIS guidelines and other recent transportation studies conducted for development projects in the study area. HCM classifies two-lane highways into three types including Classes I, II, and III based on travel speeds, trip lengths, and demographic/developed areas. Based on measures of effectiveness or (MOE) the LOS calculations incorporate average travel speeds (ATS), Percent Time Spent Following (PTSF), and Percent of Free-Flow Speed (PFFS). The LOS criteria for two-lane highways per El Dorado County peak hour segment volumes are shown in **Table 3.3**.

TABLE 3.3 EL DORADO COUNTY PEAK HOUR ROADWAY SEGMENT LOS CRITERION

		HCM 2010 Planning Level Volumes				
Code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	Two-Lane Arterial	---	---	850	1,540	1,650

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h

Volumes are for both directions unless noted

Agency LOS Guidelines and Policies

The four study intersections are within the County of El Dorado's and Caltrans jurisdictions. Key policies and thresholds are listed below.

3.3.2 County of El Dorado Policies and LOS Guidelines

In conformance with the County of El Dorado General Plan Transportation and Circulation Element (July 2004, Amended August 2019), the following policies would apply to proposed project development:

> **Policy TC-Xc** Developer paid traffic impact fees combined with any other available funds shall fully pay for building all necessary road capacity improvements to fully offset and mitigate all direct and cumulative traffic impacts from new development during peak hours upon any highways, arterial roads, and their intersections during weekday, peak-hour periods in unincorporated areas of the county. (Resolution 201-2018, September 25, 2018)
>
> **Policy TC-Xd** 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. The volume to capacity

ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table. Level of Service will be as defined in the latest edition of the Highway Capacity Manual (Transportation Research Board, National Research Council) and calculated using the methodologies contained in that manual. Analysis periods shall be based on the professional judgment of the Department of Transportation which shall consider periods including, but not limited to, Weekday Average Daily Traffic (ADT), AM Peak Hour, and PM Peak Hour traffic volumes.

Policy TC-Xe For the purposes of this Transportation and Circulation Element, "worsen" is defined as any of the following number of project trips using a road facility at the time of issuance of a use and occupancy permit for the development project:

A. A 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.

Policy TC-Xf For all other discretionary projects that worsen (defined as a project that triggers Policy TC-Xe [A] or [B] or [C]) traffic on the County road system, the County shall do one of the following: (1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards detailed in this Transportation and Circulation Element; or (2) ensure the construction of the necessary road improvements are included in the County's 20-year CIP.

Policy TC-Xg Each development project shall dedicate right-of-way, design and construct or fund any improvements necessary to mitigate the effects of traffic from the project. The County shall require an analysis of impacts of traffic from the development project, including impacts from truck traffic, and require dedication of needed right-of-way and construction of road facilities as a condition of the development. This policy shall remain in effect indefinitely unless amended by voters.

Policy TC-3c The County shall encourage new development within the Community Regions and Rural Centers to provide appropriate on-site facilities that encourage employees to use alternative transportation modes. The type of facilities that may include bicycle parking, shower and locker facilities, and convenient access to transit, depending on the development size and location.

Policy TC-4i. Within Community Centers and Rural Centers, all development shall include pedestrian/bike paths connecting to adjacent development and to schools, parks, commercial areas, and other facilities where feasible. In Rural Regions, pedestrian/bike paths shall be considered as appropriate.

As noted in Section 3.3 (VMT Analysis), while LOS policies may apply to the findings of consistency for the proposed project, LOS may not be used to determine a significant transportation impact under CEQA. However, the County's transportation policies do include related LOS thresholds for County maintained roads and state highways within unincorporated areas. For operational purposes, the County's policies are generally consistent with Caltrans policies that strive to "maintain a target LOS at the transition between LOS C and LOS D on state highway facilities." For the purpose of this analysis (when evaluating the operational characteristics of intersections and roadways), a target LOS of D will be the threshold.

This traffic study will specifically utilize the Peak-Hour-Volume based Warrant 3 as one representative type of traffic signal warrant analysis. Since Warrant 3 provides specialized warrant criteria for intersections with rural characteristics (e.g., located in communities with populations less than 10,000 persons or with adjacent major streets operating above 40 mph), the study intersection will be evaluated with this specialized criterion.

This traffic study focuses on the evaluation of the traffic operating conditions and any subsequent traffic impacts and the recommended mitigation. The study incorporates appropriate heavy vehicle adjustment factors, peak hour factors, and lane geometry/storage capacity and reports the resulting intersection delays and LOS as estimated using the HCM 6 based analysis methodologies. The Synchro 11 (Trafficware) software program was used to implement the HCM 6 analysis methodologies. Synchro 11 has the capability to produce results using HCM 2016 methodologies, and takes into account intersection geometry, delay, and queue lengths.

3.4 Technical Analysis Parameters

The traffic study provides a "preliminary operational level" evaluation of traffic operating conditions at the study intersection. The evaluation incorporated appropriate heavy vehicle adjustment factors, peak hour factors, lane geometries, etc. **Table 3.4** summarizes the intersection technical analysis parameters used within the study.

TABLE 3.4 – TECHNICAL ANALYSIS PARAMETERS

Technical Parameters	Assumption
1. Intersection Peak Hour Factor (PHF)	Field recorded PHF for Existing & Existing plus Project Scenarios 0.92 PHF in AM and PM peak hours for Cumulative and Cumulative Plus Project Scenarios
2. Intersection Heavy Vehicle	Minimum of 2% and/or Heavy Vehicle Counts per movement recorded in field

4. Transit

Transit service in El Dorado County is provided primarily by the El Dorado County Transit Authority (EDCTA) in community and rural areas adjacent to SR 50. These include the communities of Placerville, Diamond Springs, Cameron Park, and Pollock Pines. There are also commuter routes extending between western El Dorado County and downtown Sacramento. Dial-a-Ride service is provided to outlying areas not served by standard routes. Between fixed route and commuter service routes, there are a total of 9 routes in western El Dorado County. In addition, life-line service is provided to elderly and/or disabled patrons as well as Sacramento commuters. Currently, no EDTCA bus route serves the Community of Cool.

In addition to EDTCA service, there is a Sacramento/South Lake Tahoe connecting bus service (Lake Tahoe Transit). Based on the EDCTA's website, "The Sacramento Commuter provides 11 trips in the morning for 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."

5. Pedestrian-Bicycle

Pedestrian and bicycle facilities in the project study area consist primarily of pedestrian crosswalks, and Class I (off-street) pedestrian-bike shared use paths. In the immediate project study area, pedestrian and bicycle facilities are limited to the immediate SR 49/SR193 intersection. An all-way-stop-controlled facility (with stop-sign warning lights and flashing beacon); the SR 49/SR 193 intersection has a north-south pedestrian crosswalk on SR 193 (east side of intersection) and an east-west pedestrian crosswalk on SR 49 (south side of intersection). As noted, Class I (off-street) pedestrian-bike shared use paths are located along the north side of SR 193and SR 49 along the west side of the highway. The pedestrian crosswalks at the SR 49/SR 193 link the two Class I shared use paths.

6. Collision Analysis

A collision analysis was conducted for the study area to determine any trends or patterns that may indicate a safety issue at adjacent intersections and roadways in the study area. Collision rates are calculated based on records provided by the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. In addition, a collision rate analysis using the Traffic Accident Surveillance and Analysis System (TASAS) records (*Caltrans, 2022*) was incorporated for the SR 49 segment between. The most current five (5) year period from January 1, 2017 through December 31, 2021 was analyzed.

Collision characteristics and rates for the three primary existing study intersections are shown in **Table 6.1.**

There were no fatal or severe injury collisions recorded for the study locations in the past five years. In addition, the calculated collision rates for the study locations were compared to the average collision rates for similar facilities statewide, as indicated in the *2018 Collision Data on California State Highways* (Caltrans).

As presented in **Table 6.1**, all three primary intersections are experiencing collision rates below the State average for similar facilities. The SR 49/SR 193 intersection has experienced four (4) collisions in the last five years which were recorded as "property damage (2)" and "rear-end (2)." The Ellinghouse Drive/SR 193 intersections experienced two (2) collisions including "property damage (1)" and "broadside (1)". Broadside collisions typically occur when vehicles do not yield the right of way or violate the stop signs. There were no pedestrian or bicycle to vehicle collisions.

TABLE 6.1 – STUDY INTERSECTIONS COLLISION ANALYSIS

		By Severity					By Type							By Year										
Intersection ID	**Intersection**	Fatal	Severe Injury	Injury (Other Visible)	Injury (Complaint of Pain)	Property Damage Only	Head-On	Sideswipe	Rear End	Broadside	Hit Object	Vehicle/Pedestrian	Other	2016	2017	2018	2019	2020	Bicycle Involved Collisions	Pedestrian Involved Collisions	**Total Collisions** (2016-2020)	**24-Hr Entering Volume**	**Collision Rate** (Per Million Entering Vehicles)	**CA Average Collision Rate** (Per Million Entering Vehicles)
1	Northside Drive / Highway 49 (Coloma Road)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8800	**0.0000**	0.19
2	Proposed Project Driveway / Highway 49 (Coloma Road)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8800	**0.0000**	0.19
3	Highway 49 (Coloma Road) / Highway 193 (Georgetown Road)	0	0	1	1	2	1	0	2	1	0	0	0	0	0	2	0	2	0	0	4	12890	**0.1700**	0.56
4	Ellinghouse Drive / Highway 193 (Georgetown Road)	0	1	0	0	1	0	0	0	1	1	0	0	1	1	0	0	0	0	0	2	7410	**0.1479**	0.19

In addition to intersection collisions, roadway segments along SR 49 and SR 193 were analyzed for collision characteristics as shown in **Table 6.2** and **Table 6.3**. As presented, the roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49). Again, there were no fatal or severe injury collisions on the segments with just three collisions over the five-year period well below the state average.

TABLE 6.2—STUDY ROADWAY SEGMENT COLLISION ANALYSIS

		By Severity					By Type							By Year										
Segment ID	**Segment**	Fatal	Severe Injury	Injury (Other Visible)	Injury (Complaint of Pain)	Property Damage Only	Head-On	Sideswipe	Rear End	Broadside	Hit Object	Vehicle/Pedestrian	Other	2016	2017	2018	2019	2020	Bicycle Involved Collisions	Pedestrian Involved Collisions	**Total Collisions** (2016-2020)	**24-Hr Entering Volume**	**Collision Rate** (Per Million Entering Vehicles)	**CA Average Collision Rate** (Per Million Entering Vehicles)
A	Highway 49 (Coloma Road) from Highway 193 (Georgetown Road) to 150' North of Northside Drive	0	0	1	0	1	0	0	0	1	1	0	0	1	0	0	1	0	0	0	2	8800	**0.0008**	0.78
B	Highway 193 (Georgetown Road) from Highway 149 (Coloma Road) to 500' West of Ellinghouse Drive	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	7410	**0.0001**	0.78
C	Highway 49 (Coloma Road) from Highway 193 (Georgetown Road) to 500' South of Highway 193 (Georgetown Road)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8805	**0.0000**	0.78

In addition to inventorying the Statewide Integrated Traffic Records System for collisions at the study intersections and roadway segments, Caltrans performed an additional collision analysis for the SR 49 segment starting south of Ellinghouse Road and extending to Northside Drive (mileposts 34.237-34.582 or 0.40 miles). Using the Traffic Accident Surveillance and Analysis System (TASAS), vehicle collisions were recorded for the five-year period between January 1, 2017 and December 31, 2021 and are shown in **Table 6.3**. Comparing the actual collision rates for the roadway segment to the average rates for similar facilities, the segment is currently experiencing a total rate of fatal and injury rate below the state average. However, the segment is experiencing a collision rate (2.05) higher than the state average (1.41) for similar facilities.

TABLE 6.3—TASAS ROADWAY SEGMENT COLLISION RATES

Segment	Total # of Collisions	Fatal Collisions	Injury Collisions	ACTUAL (per million vehicle miles)			AVERAGE (per million vehicle miles)		
				Fatal Collisions	Fatal + Injury Collisions	Total	Fatal Collisions	Fatal + Injury Collisions	Total
ED-49 PM 34.237-34.582	7	0	2	0.000	0.59	2.05	0.037	0.67	1.41

Source: Caltrans, District 3 Office of Traffic Safety, TASAS collision analysis, March 23, 2022.

7. Existing Conditions (Year 2022)

The Existing Conditions have been modelled to analyze current traffic volumes and establish the baseline traffic performance. The existing scenario reflect opening year 2022 conditions.

7.1 Intersection Operations

Table 7.1 summarizes the intersection performance during the AM and PM peak hour at Existing Conditions.

TABLE 7.1 -EXISTING CONDITIONS INTERSECTION LOS

ID	Intersection	Peak Hour	Existing		
			Control	Delay	LOS
1	**Highway 49 (Coloma Road) & Northside Drive**	AM	TWSC	12	B
		PM		14.7	B
2	**Highway 49 (Coloma Road) & Retail Driveway/Project Driveway**	AM	TWSC	11.6	B
		PM		14	B
3	**Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)**	AM	AWSC	10.9	B
		PM		14.6	B
4	**Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)**	AM	TWSC	10.2	B
		PM		13.1	B

BOLD Indicate LOS of D or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).

As presented in **Table 7.1**, all four project study intersections along SR 49 and SR 193 are operating at acceptable conditions (LOS B or better) during the AM and PM peak hour. All *Synchro* results are included in **Attachment C**.

The 95th percentile queue lengths were also analyzed using microsimulation (through *Simtraffic* Software) for the study intersection. All Simtraffic results are included in **Attachment D**.

As shown in **Table 7.2**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation. Field observations did indicate minor (3-5 vehicles) vehicle queuing for the westbound right-turn movement from SR 193 at SR 49 and the northbound through-movement on SR 49 at SR 193. However, all observed vehicle queuing at the SR 49/SR 193 quickly dissipated and overall vehicle progression was acceptable.

TABLE 7.2 – EXISTING CONDITIONS QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Existing No Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TWSC	40	50	100
	Southbound Left		10	20	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Right	TWSC	50	50	75
	Northbound Left		15	45	100
	Southbound Thru/Right		0	5	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193***				
	Eastbound Left/Thru/Right	AWSC	30	30	140
	Westbound Left/Thru		45	45	540
	Westbound Right		75	60	90
	Northbound Left		30	30	150
	Northbound Thru		80	70	650
	Northbound Right		45	45	110
	Southbound Left		50	115	200
	Southbound Thru		50	70	340
	Southbound Right		15	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Right	TWSC	0	0	175
	Westbound Left		15	35	220
	Northbound Left/Right		45	65	155

Note: **Bold** text indicates queues that exceed available storage
Weekday AM & PM peak hour and Weekend midday peak hour

7.2 Roadway Segment Level of Service

Table 7.3 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) are operating at LOS D or better during the AM and PM peak hour (worst case volumes shown).

TABLE 7.3 ROADWAY SEGMENT LOS; EXISTING CONDITIONS

		HCM 2010 Planning Level Volumes				
Code	**Functional Class Codes (Updated to HCM 2010)**	**A**	**B**	**C**	**D**	**E**
2A	Two-Lane Arterial	---	---	850	1,540	1,650
	State Route 49 north of State Route 193				855	
	State Route 49 south of State Route 193			481		
	State Route 193 east of State Route 49			627		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h

Volumes are for both directions unless noted

7.3 Signal Warrants

Based on the CA MUTCD peak hour signal warrant criteria (Warrant #3) for all four study intersections were evaluated using Warrant 3: Peak Hour Factor. The peak hour warrant is one of several warrants used to determine if installation of a traffic signal is appropriate. Qualifying for signalization using the peak hour warrants does not necessarily mean a signal should be installed as other hours of the day might experience undue delay. Therefore, the decision to install a traffic signal should be based on further analysis utilizing the additional warrants for signalization as presented in the CA MUTCD. Under Existing Conditions, the SR 49/SR 193 intersection would qualify for signalization under Figure 4C-4 (70% Option) (the warrant graphs are provided in the **Attachment B**) without near-term, proposed project, or cumulative traffic volumes. The remaining three study intersections would not qualify for signalization with existing volumes at this time, due to the low minor street volumes. To be meet the peak hour warrant, the highest minor street approach must be 75 vehicles or greater with a corresponding major street volume of approximately 1200 vehicles for the 70% condition. For all of the conditions, the remaining three study intersections do not meet these volume thresholds.

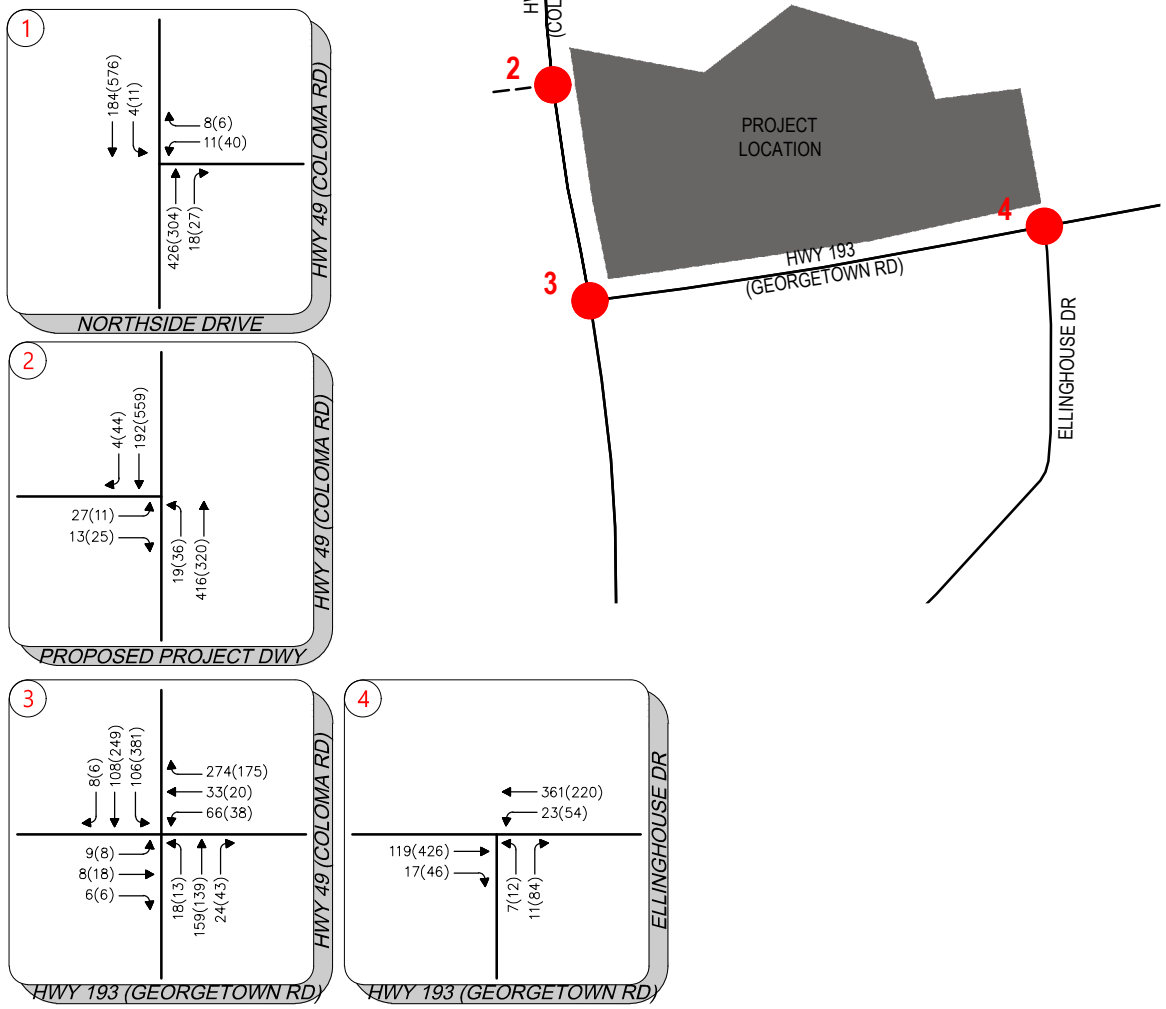
8. Near-Term Year 2032 (No Project) Condtions

8.1 Traffic Model Projections

Near-Term Year 2032 (No Project) Conditions refer to the analysis scenario that would exist following approximately ten years of development in El Dorado County and the surrounding area of Cool but excludes the development of the proposed project. Consistent with the County's TIS guidelines, the El Dorado County Travel Demand Model was obtained to generate base year (2018) and future year (2040) project volumes (EDCTDM plots are attached in **Attachment E**). EDCTDM output was used to develop an annual growth rate. Based on future year traffic volumes projections, the existing traffic volumes were grown up by 0.72% per year or 7.4% for the 10-year period (2022 opening year to 2032 near-term year) to coincide with 2032 traffic conditions.

Additionally, El Dorado County Planning and Engineering staff were contacted for any other local approved/pending developments in the area (*August 2022*). At this time, no other development projects are anticipated in the project study area. Peak hour traffic volumes from the recent Dollar General Store development adjacent to the proposed project site are contained within the recent vehicle counts collected for this analysis.

Near-Term Year 2032 (No Project) AM and PM peak hour intersection volumes are shown in **Figure 8.1.**



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

N

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MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

NEAR TERM (NO PROJECT) PEAK HOUR VOLUMES

Project No. **12579129**
Date **7/18/2023**

FIGURE 8.1

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Plot Date: 18 July 2023 9:32 AM

8.2 Planned Circulation Improvements

Based on discussions with County of El Dorado and Caltrans staff, no short-term (or long-term) circulation improvements are planned for the immediate project vicinity area along SR 49 and/or SR 193. The most recent circulation improvements were to Northside Drive located immediately north of the proposed project site. As part of the Dollar General Store development, Northside Drive was improved with new pavement and a pedestrian sidewalk on the south side of the street connecting to SR 49. There is a potential for the Class II on the east side of SR 49 to be extended north past the project frontage to provide access to the Olmstead Loop Trailhead area. However, beyond that provided as part of proposed project frontage improvements nothing is approved at this time.

8.3 Intersection Operations

Table 8.1 summarizes the intersection performance during the AM and PM peak hour and compares Existing (No Project) Conditions and Near-Term Year 2032 (No Project) Conditions.

As presented in **Table 8.1**, all four project study intersections along SR 49 and SR 193 would be operating at acceptable conditions (LOS C or better) during the AM and PM peak hour under Near-Term (No Project) Conditions. All *Synchro* results are included in **Attachment C**.

The 95th percentile queue lengths were also analyzed using microsimulation (through *Simtraffic* Software) for the study intersection. As shown in **Table 8.2**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation under Near-Term (No Project) Conditions.

TABLE 8.1 EXISTING (NO PROJECT) AND NEAR-TERM YEAR 2032 (NO PROJECT) INTERSECTION LOS

ID	Intersection	Peak Hour	Existing			Near Term		
			Control	Delay	LOS	Control	Delay	LOS
1	**Highway 49 (Coloma Road) & Northside Drive**	AM	TWSC	12.0	B	TWSC	12.4	B
		PM		14.7	B		14.9	B
2	**Highway 49 (Coloma Road) & Retail Driveway/Project Driveway**	AM	TWSC	13.6	B	TWSC	14.4	B
		PM		17.1	C		17.5	C
3	**Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)**	AM	AWSC	10.9	B	AWSC	11.8	B
		PM		14.6	B		18.7	C
4	**Ellinghouse Drive/Highway 193 (Georgetown Road)**	AM	TWSC	10.5	B	TWSC	10.9	B
		PM		13.5	B		13.6	B

BOLD Indicates LOS of D or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).

TABLE 8.2 NEAR-TERM YEAR 2032 (NO PROJECT) QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Near Term No Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TW SC	40	50	100
	Northbound Thru/Right		0	0	100
	Southbound Left		15	20	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Right	TWSC	50	55	75
	Northbound Left		15	40	100
	Southbound Thru/Right		0	15	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown***				
	Eastbound Left/Thru/Right	AWSC	30	40	140
	Westbound Left/Thru		45	40	540
	Westbound Right		80	60	90
	Northbound Left		40	30	150
	Northbound Thru		75	70	650
	Northbound Right		40	45	110
	Southbound Left		55	120	200
	Southbound Thru		55	65	340
	Southbound Right		15	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Right	TWSC	0	10	175
	Westbound Left		20	40	220
	Northbound Left/Right		50	70	155

Note: **Bold** text indicates queues that exceed available storage

8.4 Roadway Segment LOS

Table 8.3 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) would be operating at LOS D or better during the AM and PM peak hour under Near-Term (No Project) Conditions (worst case volumes shown).

TABLE 8.3 NEAR-TERM YEAR 2032 (NO PROJECT) ROADWAY SEGMENT LOS

		HCM 2010 Planning Level Volumes				
Code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	**Two-Lane Arterial**	**---**	**---**	**850**	**1,540**	**1,650**
	State Route 49 north of State Route 193				958	
	State Route 49 south of State Route 193			488		
	State Route 193 east of State Route 49			746		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h

Volumes are for both directions unless noted

8.5 Signal Warrants

Based on the CA MUTCD peak hour signal warrant criteria (Warrant #3), the SR 49/SR 193/Shopping Center intersection was evaluated for Near-Term (No Project) Conditions. The SR 49/SR 193/Shopping Center intersection would continue to qualify for signalization under the peak hour warrant (the warrant graphs are provided in **Attachment B**). The remaining three study intersections would not qualify for signalization with existing volumes due to the minor street volumes being too low for analysis (minimum 75 minor street peak hour vehicles).

9. Cumulative Year 2042 (No Project) Conditions

9.1 Future Projections

Cumulative (No Project) Conditions refer to the analysis scenario that would exist following approximately twenty years of development in El Dorado County and the surrounding areas but excludes the development of the proposed project. As with Near-Term (No Project) Conditions, the El Dorado County Travel Demand Model (EDCTDM) was used to develop a growth rate based on the growth within El Dorado County and the immediate project study area. Based on future year traffic volumes projections, the existing traffic volumes were grown up by 0.72% per year for 20 years (2022 opening year to 2042 cumulative year) to coincide with 2042 traffic conditions.

Cumulative (No Project) Year 2042 AM and PM peak hour intersection volumes are presented in **Figure 9.1**.

9.2 Intersection Operations

Table 9.1 presents a summary of the intersection operations for the weekday AM and PM peak hour scenarios for the Cumulative (No Project) Conditions. As presented in **Table 9.1**, all four project study intersections along SR 49 and SR 193 would be operating at acceptable conditions (LOS D or better) during the AM and PM peak hour under Cumulative (No Project) Conditions. All *Synchro* results are included in **Attachment B**.

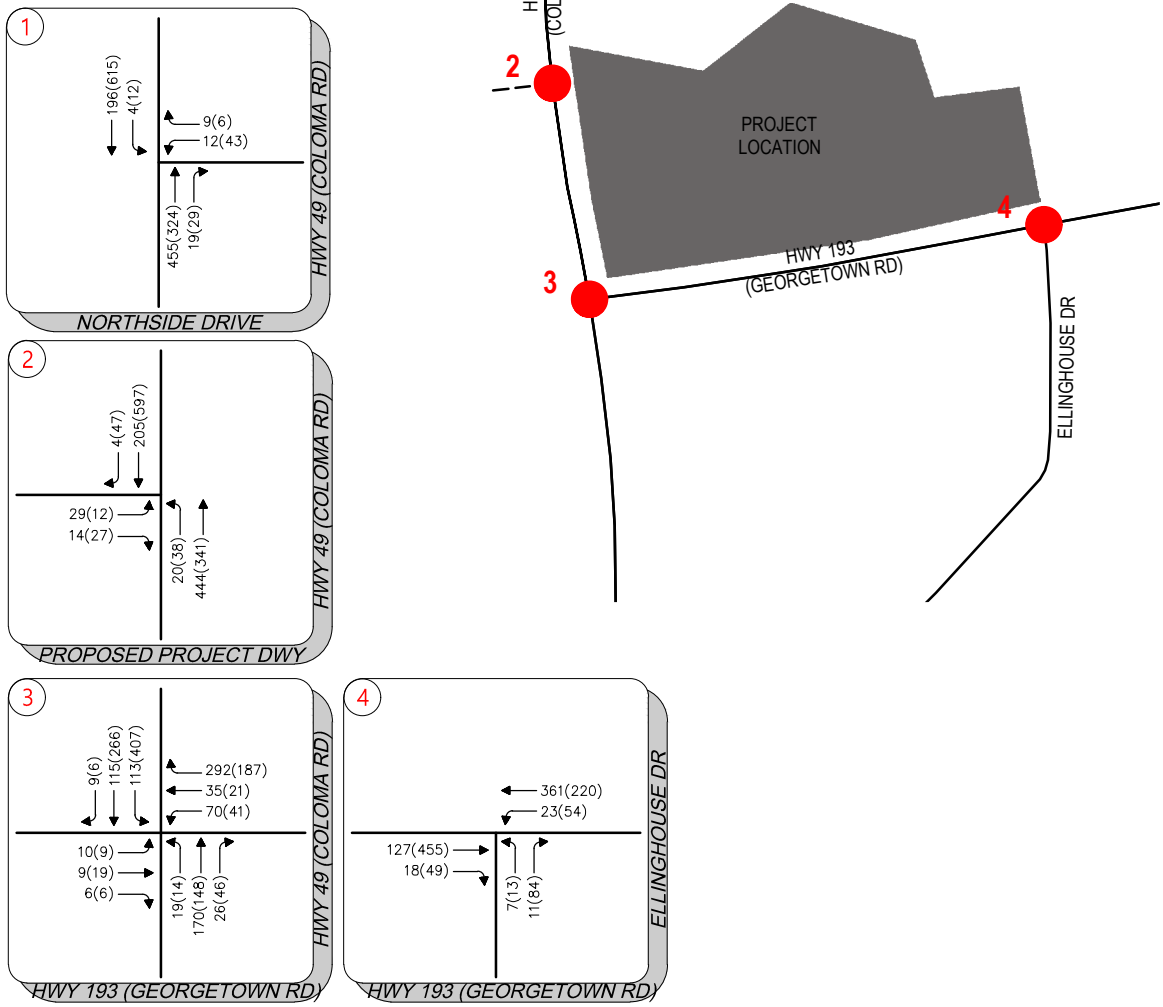
TABLE 9.1 CUMULATIVE YEAR 2042 (NO PROJECT) INTERSECTION LOS

ID	Intersection	Peak Hour	Existing			Near Term			Cumulative		
			Control	Delay	LOS	Control	Delay	LOS	Control	Delay	LOS
1	**Highway 49 (Coloma Road) & Northside Drive**	AM	TWSC	12.0	B	TWSC	12.4	B	TWSC	12.7	B
		PM		14.7	B		14.9	B		16.2	C
2	**Highway 49 (Coloma Road) & Retail Driveway/Project Driveway**	AM	TWSC	13.6	B	TWSC	14.4	B	TWSC	15.0	B
		PM		17.1	C		17.5	C		18.8	C
3	**Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)**	AM	AWSC	10.9	B	AWSC	11.8	B	AWSC	12.3	B
		PM		14.6	B		18.7	C		21.4	C
4	**Ellinghouse Drive/Highway 193 (Georgetown Road)**	AM	TWSC	10.5	B	TWSC	10.9	B	TWSC	11.0	B
		PM		13.5	B		13.6	B		14.2	B

BOLD Indicates LOS of D or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

N

GHD

MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

CUMULATIVE (NO PROJECT) PEAK HOUR VOLUMES

Project No. **12579129**
Date **8/7/2023**

FIGURE 9.1

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Plot Date: 07 August 2023 9:09 AM

The 95th percentile queue lengths were also analyzed using microsimulation (through *Simtraffic* Software) for the study intersection. As shown in **Table 9.2**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation under Cumulative (No Project) Conditions.

TABLE 9.2 CUMULATIVE YEAR 2042 (NO PROJECT) QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Cumulative No Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TW SC	45	60	100
	Northbound Thru/Right		0	10	100
	Southbound Left		15	25	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Right	TWSC	50	55	75
	Northbound Left		15	35	100
	Southbound Thru/Right		0	0	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown***				
	Eastbound Left/Thru/Right	AWSC	35	35	140
	Westbound Left/Thru		50	45	540
	Westbound Right		75	60	90
	Northbound Left		40	35	150
	Northbound Thru		80	80	650
	Northbound Right		45	50	110
	Southbound Left		60	145	200
	Southbound Thru		55	75	340
	Southbound Right		15	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Right	TWSC	0	0	175
	Westbound Left		15	40	220
	Northbound Left/Right		45	70	155

Note: **Bold** text indicates queues that exceed available storage

9.3 Roadway Segment Operations

Table 9.3 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) would be operating at LOS D or better during the AM and PM peak hour under Cumulative (No Project) Conditions (worst case volumes shown).

TABLE 9.3 CUMULATIVE YEAR 2042 (NO PROJECT) ROADWAY SEGMENT LOS

		HCM 2010 Planning Level Volumes				
Code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	**Two-Lane Arterial**	---	---	850	1,540	1,650
	State Route 49 north of State Route 193				1,010	
	State Route 49 south of State Route 193			515		
	State Route 193 east of State Route 49			786		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h
Volumes are for both directions unless noted

9.4 Signal Warrants

Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) peak hour signal warrant criteria (Warrant #3) for the SR 49/SR 193 was evaluated for Cumulative (No Project) Conditions. The SR 49/SR 193 intersection would continue to qualify for signalization under the peak hour warrant (the warrant graphs are provided in **Attachment B**). The remaining three study intersections would not qualify for signalization with existing volumes due to minor street volumes being too low (less than 75 minor street vehicles).

10. Existing Year 2022 Plus Project Traffic Operations Project Description

The term “project,” as used in this report, refers to the development as follows:

- Development of the existing vacant lot on the northeast quadrant of the State Route 49 (SR 49) and State Route 193 (SR 193) intersection. The proposed developments are as follows:
    - **Main building(s) comprising of 9,787 square feet**
        - Convenience Store - 4,620 square feet
        - QSR Drive-Through Restaurant - 2,585 square feet
        - Future Retail Pad – 2,582 square feet
    - **Fueling facility with island and canopy and car wash of 4,916 square feet**
        - Above ground fueling tanks (2-20,000-gallon tanks)
        - 8-pump (12 vehicle fueling positions) fuel facility/canopy – 3,024 square feet
        - Automated Car Wash – 1,892 square feet

10.1 Project Trip Generation

Project site trip generation has been estimated for the proposed Convenience Store with Gas Station, Fast-Food (Quick Service) Restaurant with Drive-Through, and Retail Plaza (Strip) uses based on the combination of vehicle fueling positions (VFP)/square feet and overall square footage of the restaurant and strip retail plaza uses. It is noted that the proposed Car Wash uses are included in the overall trip generation for Convenience Store-Gas Station uses and is often ancillary to these uses based on ITE research. Daily and peak hour project trip generation was calculated by utilizing the Institute of Transportation Engineers (ITE) Publication *Trip Generation Manual (11th Edition)* trip rates for Convenience Store with Gasoline Station (land use code #945), Fast-Food Restaurant with Drive-Through (land use code #934), and Strip Retail Plaza (<40k) (land use code #822). The number of trips were estimated for daily and AM and PM peak hours of adjacent street traffic.

Since this type of project would serve traffic already using local roadways (SR 49 & SR 193), a pass-by reduction of trips can be considered. The pass by reduction is calculated based on ITE Publication *Trip Generation Handbook (3rd Edition, September 2017).* A brief description of pass-by trips from the *ITE Trip Generation Handbook* are as follows.

> *A pass-by trip is made as an intermediate trip on the way from an origin to a primary trip destination without route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offer direct access to the generator. Pass-by trips are not diverted from another roadway not adjacent to the site.*

According to average pass-by trip percentages from ITE Trip Generation Handbook (3rd Edition), convenience market with gasoline service station uses would see a reduction of 62% during the AM peak hour and 56% during the PM peak hour. This coincides with the typical need or ability to get gasoline or items from the convenience on the way to/from your destination (pass-by trips rather than new trips). Similarly, the fast-food drive-through and retail development would see a reduction of 49% during the AM peak hour and 50% during the PM peak hour.

In addition to pass-by trips, the proposed project would also provide complimentary uses such that trips between proposed project facilities can be made on-site. Referred to as “internal” trips, internal trips do not use the street system. As an example, a motorist might be getting gas for their vehicle and decide to pick up a sandwich at the fast-casual restaurant or vice-versa. It is noted that trip generation rates for gasoline service station with convenience market likely reflect internal inter-action amongst the uses. However, the proposed restaurants would attract a small portion of internal trips between uses. Based on the *Transportation Research Board (TRB) National Cooperative Highway Research Program (NCHRP) 684, Enhancing Internal Trip Capture Estimation for Mixed-Use Development (2011);* it is estimated that a portion of the project trip generation would reflect an internal capture. During the AM peak hour there would be a 12% reduction from internal trips. During the PM peak hour, there would be a 21% reduction due to complimentary uses.

Table 10.1 presents the project trip generation for both the daily and the AM/PM peak hours. As shown in Table 8.1, the proposed project is expected to generate 4,442 new daily trips. The net external project trip generation is 334 trips for the AM peak hour (170 in, 164 out) and 298 trips for the PM peak hour (151 in, 147 out) after accounting for internal trip reduction. Applying pass-by trip ratios, the proposed project would be expected to generate 112 AM peak hour trips (57 in, 55 out) and 105 PM peak hour trips (53 in, 52 out). Please note, pass-by trips are not discounted at proposed project driveways on SR 49 and SR 193.

TABLE 10.1 PROJECT TRIP GENERATION

Land Use Category (ITE Code)	Unit[1]	Daily Trip Rate/Unit[2]	AM Peak Hour Trip Rate/Unit			PM Peak Hour Trip Rate/Unit		
			Total	In %	Out %	Total	In %	Out %
Fast-Food Restaurant with Drive-Through Window (934)	KSF	467.48	44.61	51%	49%	33.03	52%	48%
Convenience Store with Gasoline Station (945)[4]	KSF	700.43	56.52	50%	50%	54.52	50%	50%
Future Lot (822)	KSF	54.45	2.36	60%	40%	6.59	50%	50%
Description	**Quantity (Units)**	**Daily Trips**	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
			Total	**In**	**Out**	**Total**	**In**	**Out**
Project Trips								
Drive-Thru Quick Service Restaurant	2.58	1,206	115	59	56	85	44	41
Convenience Store with Gasoline Station[5]	4.62	3,236	261	131	130	252	126	126
Strip Retail Plaza (<40k)	2.58	140	6	4	2	17	9	8
Total Project Trips		**4,442**	**382**	**194**	**188**	**354**	**179**	**175**
Internal Capture Reduction								
AM Peak Hour	13%		48	24	24	-	-	-
PM Peak Hour	16%		-	-	-	56	28	28
Total Internal Capture Reduction			**48**	**24**	**24**	**56**	**28**	**28**
Net External Project Trips		**4,442**	**334**	**170**	**164**	**298**	**151**	**147**
Pass-By Trip Reduction								
Drive-Thru Quick Service Restaurant			56	29	27	43	22	21
Convenience Store with Gasoline Station			162	81	81	141	71	71
Strip Retail Plaza (<40k)			4	2	1	10	5	4
Total Pass-By Trip Reduction			**222**	**113**	**109**	**193**	**98**	**96**
Net New Project Trips		**4,442**	**112**	**57**	**55**	**105**	**53**	**52**

Notes:

1. KSF = 1,000 square feet, VFP = vehicle fueling positions

2. Trip rates based on ITE Trip Generation Manual 11th edition average rates

3. Internal Capture and Pass-By Trip Reductions based on ITE Trip Generation Handbook, 3rd Edition (2017)

4. Using Land Use Subcategory 'VFP (9-15)'

5. Car wash is inlcuded with the gas station and conveinience store trips

10.2 Project Trip Distribution and Assignment

Project trip distribution patterns were estimated based on the current El Dorado County Travel Demand Model, geographical location of the development site, existing traffic flow adjacent to the site, and previous development studies. The proposed trip distribution is presented in **Figure 10.1** with the trip assignment presented in **Figure 10.2**. Trip distribution percentages reflect the primary flow of traffic past the project site on SR 49 and SR 193, existing adjacent commercial-use traffic patterns, and engineering judgement.

During the AM and PM peak hours, 39% of the project trips would be to/from the north on SR 49 and 25% to/from the south on the same highway (south of SR 193). 30% of the project trips would be to/from the east via SR 193. The remaining 6% of the proposed project trips would be from the adjacent commercial centers located both south and west of the proposed project site.

Existing Plus Project Conditions were simulated by superimposing traffic generated by the proposed project onto existing intersection traffic volumes. Existing Plus Project scenario refers to the analysis scenario in which traffic impacts associated with the proposed project are investigated in comparison to the Existing Conditions scenario. Within this scenario, the project generated peak hour traffic volumes have been added to the Existing Conditions volumes to obtain the Existing Plus Project volumes. **Figure 10.3** presents the traffic volumes for the Existing Plus Project Conditions.

3. Detailed Emission Calculations

Table 1
Summary of TAC Emissions Operational Phase

	On-Site Truck Idle	Off-Site Truck Travel	On-Site Gasoline Dispensing and Storage	Drive-Thru Food Prep	TOTAL (lbs/yr)
	Table 4	Table 5	Table 3	Table 6	
Benzene			5.79		5.79
DPM	0.001	0.016			0.017
Ethyl Benzene			15.18		15.18
PAHs				0.00079	7.86E-04
Toluene			75.92		75.92
Xylene			22.78		22.78
Naphthtalene				0.15236	0.15236

Table 2
Calculation of VOC Emissions

Gasoline Dispensing Operations VOC Calculator

Applicability	Use this spreadsheet to calculate VOC emissions from gasoline dispensing operations. Entries required in yellow areas, output in grey areas.		
Author or updater	Ray Kapahi	*Last Update*	August 18, 2023
Facility: **ID#:** **Project #:**	MEH Cool Project Cool CA		

Inputs	gal/day	gal/yr	**Formula**
	5.00E+03	1.00E+06	
Gasoline Throughput	2.08E-01	1.00E+03	Enter the **change** in gas station throughput in units of gallons/day and gallons/yr. Select the Phase I and Phase II type using the drop down provided. VOC emissions are calculated by the multiplication of Throughput Rates and Emission Factors.
Application Type	Type #		
EVR Phase I and EVR Phase II Installed Underground Tank	9		

Substances	**lb VOC/ 1,000 gal**	**LB/HR**	**LB/YR**
Vapor Tank Filling Loss VOC	0.08	1.75E-02	8.40E+01
Vehicle Refueling VOC	0.42	8.75E-02	4.20E+02
Breathing Loss VOC	0.03	5.21E-03	2.50E+01
Spillage VOC	0.42	8.75E-02	4.20E+02
Total VOC	0.95	1.98E-01	9.49E+02

References:

* The emission factors are derived from Appendix A in the 1997 CAPCOA Air Toxics "Hot Spots" Program document, *Gasoline Service Station Industrywide Risk Asessment Guidelines* .

Table 2
Calculation of VOC Emissions

	1	2	3	4	5	6	**7**	**8**	**9**
	Phase 1 and Phase II Exempt Aboveground tank	Non-EVR Phase I and Phase II Exempt Aboveground tank	EVR Phase I and Phase II Exempt Aboveground tank	Non-EVR Phase I and Non-EVR Phase II Installed Aboveground tank	EVR Phase I and Non-EVR Phase II Installed (or Phase II Exempt Due to ORVR) Aboveground tank	EVR Phase I and EVR Phase II (VR-501 only) Installed Aboveground tank	**Phase I and Phase II Exempt Underground Tank**	**EVR Phase I and Phase II Exempt Underground Tank**	**EVR Phase I and EVR Phase II Installed Underground Tank**
Process	lb VOC/1,000 gal								
Tank Filling Loss	8.4	0.42	0.17	0.42	0.17	0.17	8.4	0.084	0.084
Vehicle Refueling	8.4	8.4	8.4	0.42	0.42	0.38	8.4	8.4	0.42
Breathing Loss	2.1	0.053	0.053	0.053	0.053	0.053	0.84	0.025	0.025
Vapor VOC EF	18.90	8.87	8.62	0.89	0.64	0.60	17.64	8.51	0.53
Spillage	0.61	0.42	0.42	0.42	0.42	0.42	0.61	0.61	0.42
Total VOC	19.51	9.29	9.04	1.31	1.06	1.02	18.25	9.12	0.95

Table 3
Calculation of TACs from Gasoline Storage Tank Filling

	lbs/hr	lbs/yr	
Total Vapor VOCs (Re-Fuel) Less Spillage	1.10E-01	5.29E+02	*(From Table 2)*
Total Liquid VOCs (Spillage)	8.75E-02	4.20E+02	*(From Table 2)*
TOTAL VOCs	0.198	949	

	Benzene	**Ethyl Benzene**	**Toluene**	**Xylenes**
EF Vapor (lbs/lb VOC)	3.00E-03	1.60E-02	8.00E-02	2.40E-02
Emissions (lbs/hr)	3.31E-04	1.76E-03	8.82E-03	2.65E-03
Emissions (lbs/yr)	1.59E+00	8.46E+00	4.23E+01	1.27E+01
EF Liquid (lb/lb VOC)	1.00E-02	1.60E-02	8.00E-02	2.40E-02
Emissions (lbs/hr)	8.75E-04	1.40E-03	7.00E-03	2.10E-03
Emissions (lbs/yr)	4.20E+00	6.72E+00	3.36E+01	1.01E+01
Total (lbs/hr)	1.21E-03	3.16E-03	1.58E-02	4.75E-03
Total (lbs/yr)	5.79E+00	1.52E+01	7.59E+01	2.28E+01

EFs from SJVAPCD Speciation Guidance March 27, 2017.

Table 4
Calculation of DPM Emissions from Idling of Diesel Fuelled Trucks

IDLING TRUCK EMISSIONS FUEL DELIVERY	Units	
Deliveries per year		118
Idle Time per Truck (min)	*min*	15
Total Annual Idle Time (all trucks)	*min*	1,765
	`	29.4
Emission Factor for Truck Idling (Note 1)	*(grams/hr)*	0.008652
Idling Emissions All Trucks	*(grams/yr)*	0.2545
	(lbs/yr)	0.0006
Idling Emissions Fuel Delivery Trucks	*(lbs/yr)*	0.0006
Total Idling Emissions	*(lbs/yr)*	0.0006

Note 1. From EMFAC 2023 Idle EFs for HD Trucks (Statewide)

1	Source: EMFAC2021 (v1.0.2) Emission Rates														
2	Region Type: Statewide														
3	Region: California														
4	Calendar Year: 2023														
5	Season: Annual														
6	Vehicle Classification: EMFAC202x Categories														
7	Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.														
8															
9	Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	NOx_RUN	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_ST	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDLEX
10	Statewide	2023	T6 Instate	Aggregate	Aggregate	Diesel	1.074264	12.65075	1.720171	0.021849	0.066224	0	0.003	0.015416	0.022837	0.06921816
11																
12	HD Truck Idle Emissions			0.069218	grams/veh-day		1 day = 8 hrs									
13																
14				0.008652	grams/vehicle hr											

Note 2. TRU Emission Factors (EFs) applicable to Ultra Low Emission Standard effective 2020.
Information available at: https://ww3.arb.ca.gov/regact/trude03/uid.pdf. Page 3

Table 5
Calculation of DPM Emissions from Truck Travel
within 0.25 Miles of Project

Annual Vehicle Count	*(trucks/year)*	118
Emission Factor EMFAC 2021 (Note 1)	*(grams/mile)*	0.0087
Distance Travelled	*(mile/truck)* *(total miles)*	0.25 29
Emissions of DPM	*(grams/yr)* *(lbs/yr)*	7.35 0.0162

Note 1:
Emissions based on Statewide EMFAC 2023 2023

Table 6
Calculation of Hourly and Annual Emissions from Drive-Thru

Pollutant	Emission Factors (lbs/ton of Meat)			Emissions (lbs/week)				Emissions (tons/year) Based on 52 Weeks per year				Emissions (lbs/hr) Based on 112 Hrs per week			
	(Hamburger)	Poultry (no skin)	Pork	(Hamburger)	Poultry (no skin)	Pork	Total	(Hamburger)	Poultry (no skin)	Pork	Total	(Hamburger)	Poultry (no skin)	Pork	Total
PM-10	10.00	0	0	1.8	0.55	0	2.35	0.0468	0.0143	0	0.0611	1.61E-02	4.91E-03	0.00E+00	2.10E-02
PM-2.5	7.60	0	0	1.368	0.418	0	1.786	0.035568	0.010868	0	0.046436	1.22E-02	3.73E-03	0.00E+00	1.59E-02
VOC	0.14	0.8	0.8	2.52E-02	7.70E-03	4.40E-02	0.0769	6.55E-04	2.00E-04	1.14E-03	2.00E-03	2.25E-04	6.88E-05	3.93E-04	6.87E-04
PAHs	5.40E-05	4.40E-05	4.40E-05	9.72E-06	2.97E-06	2.42E-06	1.51E-05	2.53E-07	7.72E-08	6.29E-08	3.93E-07	8.68E-08	2.65E-08	2.16E-08	1.35E-07
Naphthalene	1.20E-02	4.40E-05	2.00E-03	2.16E-03	6.60E-04	1.10E-04	0.00293	5.62E-05	1.72E-05	2.86E-06	7.62E-05	1.93E-05	5.89E-06	9.82E-07	2.62E-05

Default Meat Consumption Rates in lbs/week	
Beef/Hamburger	360
Poultry No Skin	110
Pork	110

4. SCREEN Modeling Results

Cool Station Modeling Emissions Input for SCREENVIEW

PM10	4.7	lbs/day
	0.19583333	lbs/hr
	88.9083333	grams/hr
	0.02469676	grams/sec
	1.60E-06	grams/sec-m2
CO	1.55	lbs/day
	0.06458333	lbs/hr
	29.3208333	grams/hr
	0.00814468	grams/sec
	5.27E-07	grams/sec-m2
NOx	1.34	lbs/day
	0.05583333	lbs/hr
	25.3483333	grams/hr
	0.0070412	grams/sec
	4.56E-07	grams/sec-m2

Project Area	3.8	acres
	165,528.0	sq ft
	15,454.1	m2
	124.3	

NO2

08/23/23

04:21:15
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 13043 ***

 C:\Users\Dell\Documents\2023 Projects\Mel H Cool Project\Cool Stn Co.scr

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   AREA
    EMISSION RATE (G/(S-M**2)) =   0.456000E-06
    SOURCE HEIGHT (M)   =   2.0000
    LENGTH OF LARGER SIDE (M) =   124.3000
    LENGTH OF SMALLER SIDE (M) =   124.3000
    RECEPTOR HEIGHT (M)   =   0.0000
    URBAN/RURAL OPTION   =   RURAL
 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

 BUOY. FLUX =   0.000 M**4/S**3; MOM. FLUX =   0.000 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN AUTOMATED DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
50.	10.43	5	1.0	1.0	10000.0	2.00	45.
100.	14.56	6	1.0	1.0	10000.0	2.00	45.
200.	13.26	6	1.0	1.0	10000.0	2.00	45.
300.	9.757	6	1.0	1.0	10000.0	2.00	45.
400.	7.645	6	1.0	1.0	10000.0	2.00	45.
500.	6.246	6	1.0	1.0	10000.0	2.00	45.
600.	5.248	6	1.0	1.0	10000.0	2.00	45.
700.	4.506	6	1.0	1.0	10000.0	2.00	45.
800.	3.957	6	1.0	1.0	10000.0	2.00	45.
900.	3.518	6	1.0	1.0	10000.0	2.00	45.
1000.	3.155	6	1.0	1.0	10000.0	2.00	45.

 MAXIMUM 1-HR CONCENTRATION AT OR BEYOND   50. M:

129.	[redacted]	6	1.0	1.0	10000.0	2.00	45.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

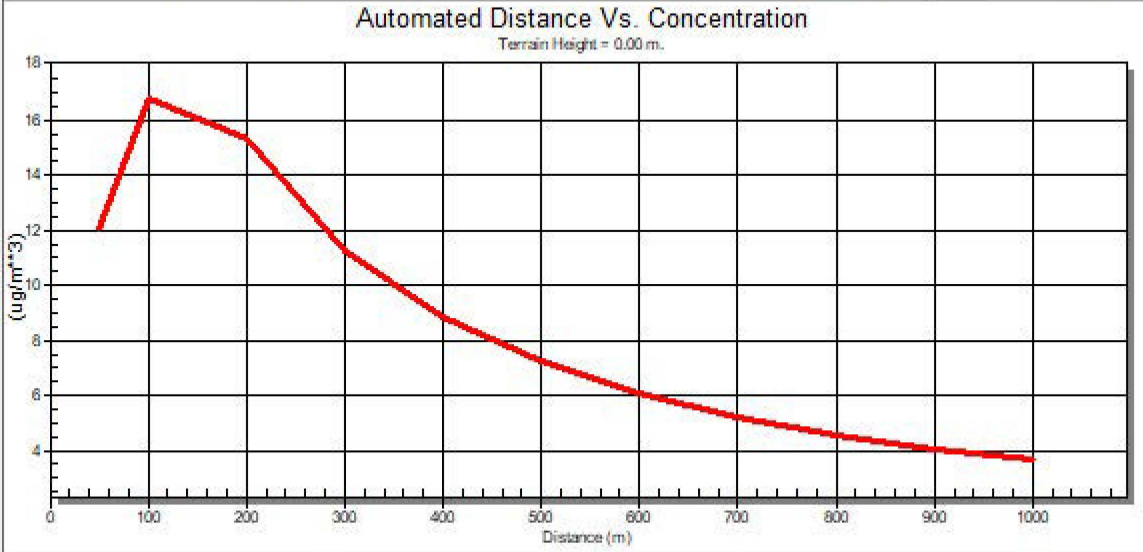
CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	16.01	129.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

Graph

File Export

Plots: Automated Distance Vs. Concentration - Terrain Height = 0.00 m. Options...



X-Axis Log Scale Y-Axis Log Scale

Help Close

CO

08/23/23

04:17:44
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 13043 ***

 C:\Users\Dell\Documents\2023 Projects\Mel H Cool Project\Cool Stn Co.scr

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   AREA
    EMISSION RATE (G/(S-M**2)) =   0.527000E-06
    SOURCE HEIGHT (M)   =   2.0000
    LENGTH OF LARGER SIDE (M) =   124.3000
    LENGTH OF SMALLER SIDE (M) =   124.3000
    RECEPTOR HEIGHT (M)   =   0.0000
    URBAN/RURAL OPTION   =   RURAL
 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

 BUOY. FLUX =   0.000 M**4/S**3; MOM. FLUX =   0.000 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN AUTOMATED DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
50.	12.05	5	1.0	1.0	10000.0	2.00	45.
100.	16.82	6	1.0	1.0	10000.0	2.00	45.
200.	15.33	6	1.0	1.0	10000.0	2.00	45.
300.	11.28	6	1.0	1.0	10000.0	2.00	45.
400.	8.836	6	1.0	1.0	10000.0	2.00	45.
500.	7.219	6	1.0	1.0	10000.0	2.00	45.
600.	6.065	6	1.0	1.0	10000.0	2.00	45.
700.	5.208	6	1.0	1.0	10000.0	2.00	45.
800.	4.573	6	1.0	1.0	10000.0	2.00	45.
900.	4.066	6	1.0	1.0	10000.0	2.00	45.
1000.	3.646	6	1.0	1.0	10000.0	2.00	45.

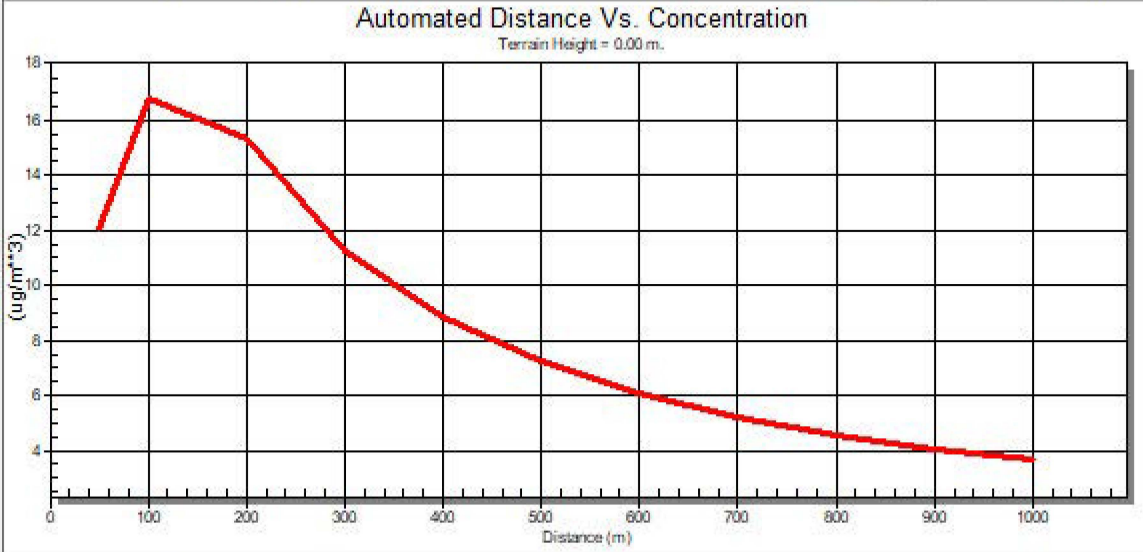
 MAXIMUM 1-HR CONCENTRATION AT OR BEYOND   50. M:

129.	[redacted]	6	1.0	1.0	10000.0	2.00	45.

Graph

File Export

Plots: Automated Distance Vs. Concentration - Terrain Height = 0.00 m. Options...



X-Axis Log Scale Y-Axis Log Scale

Help Close

PM10

08/22/23

15:53:06
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 13043 ***

 C:\Users\Dell\Documents\2023 Projects\Mel H Cool Project\Cool Stn Co.scr

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   AREA
    EMISSION RATE (G/(S-M**2)) =   0.160000E-05
    SOURCE HEIGHT (M)   =   2.0000
    LENGTH OF LARGER SIDE (M) =   124.3000
    LENGTH OF SMALLER SIDE (M) =   124.3000
    RECEPTOR HEIGHT (M)   =   0.0000
    URBAN/RURAL OPTION   =   RURAL
 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

 BUOY. FLUX =   0.000 M**4/S**3; MOM. FLUX =   0.000 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN AUTOMATED DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***

   DIST   CONC   U10M   USTK   MIX HT   PLUME   MAX DIR
    (M)   (UG/M**3)   STAB   (M/S)   (M/S)   (M)   HT (M)   (DEG)
 -------   ----------   ----   -----   -----   ------   ------   -------
     50.   36.59   5   1.0   1.0 10000.0   2.00   45.
    100.   51.08   6   1.0   1.0 10000.0   2.00   45.
    200.   46.54   6   1.0   1.0 10000.0   2.00   45.
    300.   34.23   6   1.0   1.0 10000.0   2.00   45.
    400.   26.83   6   1.0   1.0 10000.0   2.00   45.
    500.   21.92   6   1.0   1.0 10000.0   2.00   45.
    600.   18.41   6   1.0   1.0 10000.0   2.00   45.
    700.   15.81   6   1.0   1.0 10000.0   2.00   45.
    800.   13.88   6   1.0   1.0 10000.0   2.00   45.
    900.   12.35   6   1.0   1.0 10000.0   2.00   45.
   1000.   11.07   6   1.0   1.0 10000.0   2.00   45.

 MAXIMUM [redacted] CONCENTRATION AT OR BEYOND   50. M:
    129.   [redacted]   6   1.0   1.0 10000.0   2.00   45.

24 hr Impact = 0.4 x 1-hour impact = 22.5 ug/m3

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	56.18	129.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	18.50	129.	0.

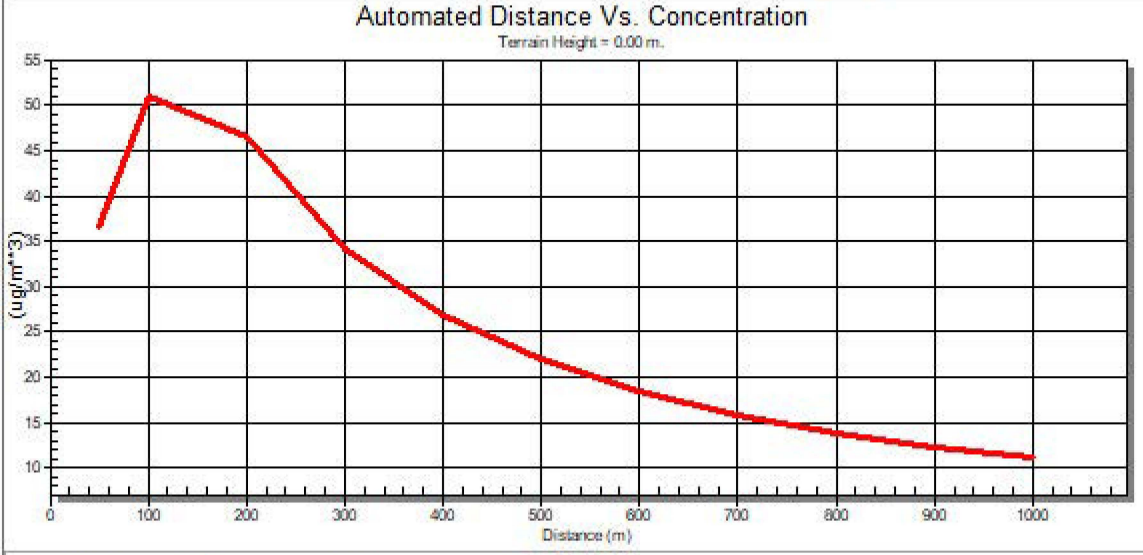
****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

Graph

File Export

Plots: Automated Distance Vs. Concentration - Terrain Height = 0.00 m.

Options...



X-Axis Log Scale

Y-Axis Log Scale

Help

Close

Attachment B - Biological Assessment - DR22-0007

MOORE BIOLOGICAL CONSULTANTS

September 18, 2023

HBD Capital LLC
c/o Mel Higginbotham
10940 Trinity Parkway, C-274
Stockton, CA 95219

Subject: "HIGHWAY 49 & GEORGETOWN ROAD", EL DORADO COUNTY, CALIFORNIA: BIOLOGICAL ASSESSMENT

Dear Mel:

Thank you for asking Moore Biological Consultants to assist with this commercial project in the community of Cool, in El Dorado County, California (Figures 1 and 2 and Site Plan in Attachment A). The purposes of the biological assessment (BA) are to describe existing biological resources in the project site, identify potentially significant impacts to biological resources from the project, and provide recommendations for how to reduce those impacts to a less-than-significant level. The work involved reviewing maps, databases, aerial photographs, and available information, and conducting a field survey to document vegetation communities and habitats in the site, and search for potentially jurisdictional Waters of the U.S. and/or wetlands, and potentially suitable habitat for or presence of special-status species. This report details the methodology and results of our investigation.

Methods

Prior to the field survey, we conducted a search of California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2023). The CNDDB search included the USGS 7.5-minute Auburn, Greenwood, Pilot Hill, and Coloma topographic quadrangles, which encompass approximately



Source: USGS 7.5' Quadrangles
AUBURN, CA
Section: 18
Township: 12N
Range: 09E

Figure 1

Moore Biological Consultants

0 1,000 2,000

N W E S

Map Date: 09/06/2023

USGS

Highway 49 & Georgetown Road

Town of Cool, El Dorado County, CA



Figure 2

Moore Biological Consultants

0 100 200

N W E S

Map Date: 09/06/2023
Aerial Source: Google Earth (03/11/2022)

AERIAL

Highway 49 & Georgetown Road

Town of Cool, El Dorado County, CA

240 square miles surrounding the site. The United States Fish and Wildlife Service (USFWS) IPaC Trust Report of Federally Threatened and Endangered species that may occur in or be affected by projects in the project vicinity was also reviewed (Attachment B). This information was used to identify wildlife and plant species that have been previously documented in the project vicinity or have the potential to occur based on suitable habitat and geographical distribution. Additionally, the CNDDB depicts locations of sensitive habitats. The USFWS on-line maps of designated critical habitat were also downloaded.

I conducted a field survey on September 8, 2023. The survey consisted of walking throughout the site making observations of habitat conditions and noting surrounding land uses, vegetation types, and plant and wildlife species.

The survey included a search for special-status species and potentially suitable habitat for special-status species (e.g., areas with unusual soils, caves, aquatic habitats). Additionally, trees in and near the site were assessed for the potential use by nesting raptors.

Results

GENERAL SETTING: The 3.8+/- acre "Highway 49 & Georgetown Road" site is located in the community of Cool, in El Dorado County, California. The site is in Section 18, in Township 12 North, Range 9 East of the USGS 7.5-minute Auburn topographic quadrangle (Figure 1). The project site slopes gently to the southwest, ranging in elevations from approximately 1,520 to 1,560 feet above mean sea level.

The site primarily consists of highly disturbed grassland vegetation, bare soil, patches of gravel, and some paved areas (Figure 2 and photographs in Attachment C). According to a utilities worker encountered during the field survey, the site has been utilized for a variety of construction-related staging and

storage of materials over the years, as well as dumping of landscape materials; the western and central parts of the site are best described as highly disturbed by past activities. The eastern part of the site, which is located outside of the development footprint and will not be disturbed as part of the project, is relatively more natural. There is a small patch of oak woodland with some rocky features in the east part of the site and an open grassland field.

Surrounding land use in this part of El Dorado County is primarily open space comprised of annual grassland and oak woodlands interspersed with residential properties. As the project is within the town of Cool, there are a few commercial areas and heavily trafficked roads surrounding the site. Highway 49 borders the west edge of the site and Highway 193 borders the south edge of the site; there are commercial properties across both roads. There are also commercial properties to the north and east of the site, intermixed with patches of grassland and woodlands. A store constructed in the past two years is situated north of the site along Highway 49, and there is a transmission tower resembling a fake tree north of the central-east part of the site.

VEGETATION AND HABITAT TYPES: The site is primarily comprised of grassland and a small patch of oak woodland and an associated rocky outcrop (Figure 2 and photographs in Attachment C). The vegetation communities in the project site generally correspond to the California Annual Grassland series and the Mixed Oak series (Sawyer and Keeler-Wolf, 1995). *Annual Grassland:*

Historically, the California Annual Grassland series was the most widespread upland vegetation type occurring in the greater project vicinity and was comprised of native grass and weed species. In contrast, the grasslands in the site have been subject to extensive disturbance.

Oats (*Avena fatua*), medusa-head grass (*Taeniatherum caput-medusae*), foxtail barley (*Hordeum murinum*), and ripgut brome (*Bromus diandrus*) are the

dominant grasses in the site. Other grassland species such as rose clover (*Trifolium hirtum*), Fitch's spikeweed (*Centromadia fitchii*), yellow star thistle (*Centaurea solstitialis*), and prickly lettuce (*Lactuca serriola*) are intermixed with the grasses. Table 1 is a list of plant species observed in the site.

Mixed Oak Woodlands: The Mixed Oak series (Sawyer and Keeler-Wolf, 1995) best describes the oak woodland habitat in the site, which is located in the east part of the site, outside the development area. The Mixed Oak series is found at relatively low elevations in the Sierra Nevada, and coastal range, as well as some other locations in the state. Blue oak (*Quercus douglasii*) and interior live oak (*Quercus wislizeni*) are the dominant tree species in the woodlands. There are few greenleaf manzanita (*Arctostaphylos patula*) and buck brush (*Ceanothus cuneatus*) shrubs in the woodland, associated with a rocky outcrop. There are also some foothill pines (*Pinus sabiniana*) intermixed in the oak woodland are. The woodland understory herbaceous layer is composed of a subset of the annual grasses and weeds occurring in nearby grasslands as well as poison oak (*Toxicodendron diversilobum*).

Other trees in the site include a few blue oaks in the grasslands along the south edge of the site as well as a relatively large foothill pine along the north edge of the site, near the transmission tower.

WILDLIFE: A few bird species were observed in the site. Representative species include turkey vulture (*Cathartes aura*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*) and Brewer's blackbird (*Euphagus cyanocephalus*). Table 2 is a list of birds and other wildlife observed in the site.

Although the site has a few trees large enough to support nesting raptors, the site is situated in a developed part of town and the grasslands in the site are highly disturbed, providing low-quality foraging habitat for raptors. In contrast, more developed woodlands further from the site and open more natural

TABLE 1

REPRESENTATIVE PLANT SPECIES IN THE SITE

Acmispon americanus	Spanish clover
Arctostaphylos patula	greenleaf manzanita
Avena sp.	oat
Bromus diandrus	ripgut brome
Carduus pycnocephalus	Italian thistle
Ceanothus cuneatus	buck brush
Centaurea solstitialis	yellow star thistle
Centromadia fitchii	Fitch's spikeweed
Cynosurus echinatus	dogtail
Deschampsia danthonioides	annual hairgrass
Epilobium brachycarpum	annual fireweed
Grindelia camporum	gumplant
Hordeum murinum	foxtail barley
Lactuca serriola	prickly lettuce
Leontodon saxatilis	long-beaked hawkbit
Leymus triticoides	creeping wild-rye
Lolium perenne	perennial ryegrass
Pinus sabiniana	foothill pine
Quercus douglasii	blue oak
Quercus wislizeni	interior live oak
Taeniatherum caput-medusae	medusa-head grass
Toxicodendron diversilobum	poison oak
Trifolium hirtum	rose clover
Triteleia laxa	Ithuriel's spear
Vulpia myuros	rat-tail six-weeks grass

TABLE 2
WILDLIFE SPECIES DOCUMENTED IN THE SITE

Birds	
Turkey vulture	*Cathartes aura*
Mourning dove	*Zenaida macroura*
California scrub jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
Brewer's blackbird	*Euphagus cyanocephalus*
Mammals	
California ground squirrel	*Otospermophilus beecheyi*
Botta's pocket gopher	*Thomomys bottae*
Reptiles and Amphibians	
Western fence lizard	*Sceloporus occidentalis*

grassland areas provide higher quality habitat to support nesting raptors. A variety of smaller birds such as songbirds, likely nest in some of the trees, shrubs, grasslands, and vegetation in the site.

A few common mammals have potential to occur in the site, but none were observed during the field survey. Burrows from both California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) was the only sign of mammals seen. Other common species such as black-tailed deer (*Odocoileus hemionus columbianus*), coyote (*Canis latrans*), black-tailed hare (*Lepus californicus*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*) may occur in the project site on occasion. A number of species of small rodents including mice (*Mus musculus, Reithrodontomys megalotis,* and *Peromyscus maniculatus*), and voles (*Microtus californicus*) also likely occur in the site.

Based on habitats present and lack of water, the site provides suitable habitat for only a few reptiles; amphibians have very little potential to occur. Western fence lizard (*Sceloporus occidentalis*) was the only reptile observed during the field survey; no amphibians were observed. Common foothill species, particularly snakes, may occur in the site. Species such as western terrestrial garter snake (*Thamnophis elegans*), common king snake (*Lampropeltis getulus*), and western rattlesnake (*Crotalis viridis*) are expected to occur on the site.

WATERS OF THE U.S. AND WETLANDS: Waters of the U.S., including wetlands, are defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, their tributaries, and adjacent wetlands. State and federal agencies regulate these habitats and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into any Waters of the U.S. The California Regional Water Quality Control Board (RWQCB) implements Section 401 of the Clean Water Act by issuing 401 Certification in support of 404 permits. Many jurisdictional Waters of the U.S. in California also fall under the jurisdiction of CDFW.

"Waters of the U.S.", as defined in 33 CFR 328.4, encompasses Territorial Seas, Tidal Waters, and Non-Tidal Waters; Non-Tidal Waters includes interstate and intrastate rivers and streams, their tributaries, and their adjacent wetlands. The limit of federal jurisdiction of Non-Tidal Waters of the U.S. extends to the "ordinary high water mark" (OHWM). The OHWM is established by physical characteristics such as a natural water line impressed on the bank, presence of shelves, destruction of terrestrial vegetation, or the presence of litter and debris.

Wetlands are vegetated areas that meet specific vegetation, soil, and hydrologic criteria defined by the ACOE *Wetlands Delineation Manual* and Regional Supplement (ACOE, 1987; 2008). Wetlands that are adjacent to and hydrologically very closely associated with jurisdictional lakes, rivers, streams, and tributaries can also fall under ACOE jurisdiction as "adjacent wetlands".

Pursuant to a May 2023 Supreme Court decision, adjacent wetlands must have a continuous surface connection with a jurisdictional Water of the U.S. such that the wetland is indistinguishable from the adjacent water. Geographically and hydrologically isolated wetlands are outside federal jurisdiction, but may be regulated by RWQCB as a "Water of the State".

Jurisdictional Waters of the U.S. and wetlands include, but are not limited to, most perennial and intermittent creeks and lakes, as well as adjacent wetlands such as riparian wetlands along the edges of rivers. Waters of the U.S., wetlands, and other aquatic habitats provide critical habitat components, such as nest sites and a reliable source of water, for a wide variety of wildlife species.

There are no streams, lakes, or potentially jurisdictional Water of the U.S. of any type in the site. There are also no areas in the site that meet the technical criteria of wetlands (i.e., presence of hydrophytic vegetation, hydric soils, and wetland hydrology). The site is upland grasses with soils that appear to be well draining.

SPECIAL-STATUS SPECIES: Special-status species are plants and animals that are legally protected under the state and/or federal endangered species acts or other regulations. The Federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

Special-status species also include other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitats. The presence of species with legal protection under CESA and/or FESA often represents a major constraint to development, particularly when the species are

wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a take of these species.

Special-status plants are those which are designated rare, threatened, or endangered and candidate species for listing by the USFWS. Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2023). Finally, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on CNPS List 3.

The likelihood of occurrence of listed, candidate, and other special-status species in the site is extremely low. Table 3 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species in the site. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

SPECIAL-STATUS PLANTS: Several special-status plants were identified in the CNDDB (2023) search area: Jepson's onion (*Allium jepsonii*), big-scale balsamroot (*Balsamorhiza macrolepis*), Stebbins' morning-glory (*Calystegia stebbinsii*), chaparral sedge (*Carex xerophila*), Pine Hill ceanothus (*Ceanothus roderickii*), Red Hills soaproot (*Chlorogalum grandiflorum*), Brandegee's clarkia (*Clarkia biloba ssp. brandegeeae*), Bisbee Peak rush-rose (*Crocanthemum suffrutescens*), Butte County fritillary (*Fritillaria eastwoodiae*), El Dorado bedstraw (*Galium californicum ssp. sierrae*), dubious pea (*Lathyrus sulphureus var. argillaceus*), Layne's ragwort (*Packera layneae*), oval-leaved viburnum

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
PLANTS						
Jepson's onion	*Allium jepsonii*	None	None	1B	Chaparral, cismontane woodland, and lower montane coniferous forest; often on serpentine or volcanic soils.	Unlikely: habitats in the proposed development footprint are not suitable for Jepson's onion. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 6.5 miles northwest of the site.
Big-scale balsamroot	*Balsamorhiza macrolepis*	None	None	1B	Chaparral, valley and foothill grassland, and cismontane woodland; often on serpentine soils.	Unlikely: habitats in the proposed development footprint are not suitable for big-scale balsamroot. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 6 miles southwest of the site.
Stebbins' morning-glory	*Calystegia stebbinsii*	E	E	1B	Chaparral, cismontane woodland; often on gabbroic soils or associated with seeps.	Unlikely: habitats in the proposed development footprint are not suitable for Stebbins' morning-glory. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 7.5 miles south of the site.
Chaparral sedge	*Carex xerophila*	None	None	1B	Chaparral, cismontane woodland, and lower montane coniferous forest; often on serpentine or gabbroic soils.	Unlikely: habitats in the proposed development footprint are not suitable for chaparral sedge. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 8.5 miles southwest of the site.
Pine Hill ceanothus	*Ceanothus roderickii*	E	R	1B	Chaparral, cismontane woodland; often on serpentine or gabbroic soils.	Unlikely: habitats in the proposed development footprint are not suitable for Pine Hill ceanothus. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 8 miles south of the site.
Red Hills soaproot	*Chlorogalum grandiflorum*	None	None	1B	Chaparral, cismontane woodland, and lower montane coniferous forest; often on serpentine or gabbroic soils.	Unlikely: habitats in the proposed development footprint are not suitable for Red Hills soaproot. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 8 miles south of the site.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Brandegee's clarkia	*Clarkia biloba ssp. brandegeeae*	None	None	4	Chaparral, cismontane woodland, and lower montane coniferous forest; often on road cuts.	Unlikely: habitats in the proposed development footprint are not suitable for Brandegee's clarkia. The nearest occurrence of this species in the CNDDB (2023) search area is within 0.5 miles northwest of the site.
Bisbee Peak rush-rose	*Crocanthemum suffrutescens*	None	None	3	Chaparral; often on gabbroic soils, in disturbed areas, and in burned areas.	Unlikely: habitats in the proposed development footprint are not suitable for Bisbee Peak rush-rose. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 7 miles south of the site.
Butte County fritillary	*Fritillaria eastwoodiae*	None	None	3	Chaparral, cismontane woodland, and lower montane coniferous forest; often on serpentine soils.	Unlikely: habitats in the proposed development footprint are not suitable for Butte County fritillary. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 2 miles northwest of the site.
El Dorado bedstraw	*Galium californicum ssp. sierrae*	E	R	1B	Cismontane woodland, chaparral, lower montane coniferous forest; in gabbroic soils.	Unlikely: habitats in the proposed development footprint are not suitable for El Dorado bedstraw. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 8.5 miles southwest of the site.
Dubious pea	*Lathyrus sulphureus var. argillaceus*	None	None	3	Cismontane woodland, upper and lower montane coniferous forest.	Unlikely: habitats in the proposed development footprint are not suitable for dubious pea. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 3 miles northwest of the site.
Layne's ragwort	*Packera layneae*	T	R	1B	Chaparral, cismontane woodland; often on serpentine, gabbroic, or rocky soils.	Unlikely: habitats in the proposed development footprint are not suitable for Layne's ragwort. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 8.5 miles south of the site.
Oval-leaved viburnum	*Viburnum ellipticum*	None	None	2	Chaparral, cismontane woodland, and lower montane coniferous forest.	Unlikely: habitats in the proposed development footprint are not suitable for oval-leaved viburnum. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 3 miles northwest of the site.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
El Dorado County mule ears	*Wyethia reticulata*	None	None	1B	Chaparral, cismontane woodland, and lower montane coniferous forest; often on gabbroic or clay soils.	Unlikely: there is no suitable habitat in the site to support El Dorado County mule ears. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 7.5 miles south of the site.
WILDLIFE						
BIRDS						
Bald eagle	*Haliaeetus leucocephalus*	None	E	N/A	Nests in large trees along rivers, ocean shores, and lake margins.	Unlikely: the site is unlikely to be used by nesting bald eagles due to distance from water. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 8 miles southwest of the site.
Tricolored blackbird	*Agelaius tricolor*	None	T	N/A	Nests in dense brambles and emergent wetland vegetation associated with open water habitat.	Unlikely: there is no aquatic habitat in or adjacent to the site to support nesting tricolored blackbird; this species may fly over the site. The nearest occurrence of tricolored blackbird in the CNDDB (2023) search area is approximately 6.5 miles south of the site.
Bank swallow	*Riparia riparia*	None	T	N/A	Nests colonially in riparian habitats; requires vertical banks and cliffs with fine-textured soils.	Unlikely: there is no suitable nesting habitat for bank swallow in or near the site. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 16 miles southeast of the site.
MAMMALS						
Pallid bat	*Antrozous pallidus*	None	SC	N/A	Open and dry habitats with rocky areas for roosting.	Unlikely: habitats within the proposed development footprint are not suitable for pallid bat. The only occurrence of pallid bat in the CNDDB (2023) search area is approximately 8 miles southeast of the site.
Townsend's big-eared bat	*Corynorhinus townsendii*	None	None	N/A	Desert scrub, mixed conifer forest, and pinyon-juniper or pine forest; primarily roosts in caves, mines and buildings.	Unlikely: this species may roost in more developed forest habitats nearby, but would be unlikely to nest in trees in the site. The nearest occurrence of Townsend's big-eared bat in the CNDDB (2023) search area is approximately 1.5 miles northwest of the site.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Fisher	*Pekania pennanti*	None	SC	N/A	Coniferous riparian habitats in the coastal and Sierra Nevada mountains.	Unlikely: the site does not provide suitable habitat for fisher. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 16 miles southeast of the site.
REPTILES & AMPHIBIANS						
California red-legged frog	*Rana aurora draytonii*	T	SC	N/A	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Unlikely: the site does not provide suitable habitat for California red-legged frog. There are no occurrences of California red-legged frog recorded in the CNDDB (2023) search area. The site is not within designated critical habitat for California red-legged frog (USFWS, 2006).
Foothill yellow-legged frog – north Sierra DPS	*Rana boylii pop. 3*	None	T	N/A	Perennial water bodies (i.e., streams and ponds) with abundant riparian vegetation.	Unlikely: the site does not provide aquatic habitat to support foothill yellow-legged frog. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 2 miles northwest of the site.
Foothill yellow-legged frog – south Sierra DPS	*Rana boylii pop. 5*	PE	E	N/A	Perennial water bodies (i.e., streams and ponds) with abundant riparian vegetation.	Unlikely: the site does not provide aquatic habitat to support foothill yellow-legged frog. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 2 miles northwest of the site.
Western pond turtle	*Emys marmorata*	None	SC	N/A	Permanent or semi-permanent water bodies; require basking sites such as logs.	Unlikely: there is no aquatic habitat in or near the site to support western pond turtle. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 4.5 miles east of the site.
FISH						
Central Valley steelhead	*Oncorhynchus mykiss*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	None: there is no aquatic habitat in the site. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 6 miles southwest of the site. The site is not in designated critical habitat for Central Valley steelhead (NOAA, 2005).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
INVERTEBRATES						
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs in the Central Valley and surrounding foothills.	None: there are no blue elderberry shrubs in the site, which is located well above the elevation range of this species. The nearest occurrence of valley elderberry longhorn beetle in the CNDDB (2023) search area is approximately 7.5 miles north of the site.
Western bumble bee	*Bombus occidentalis*	None	CE	N/A	Meadows and grasslands with abundant floral resources, usually high elevation.	Unlikely: the grasslands in the site are highly disturbed and do not provide high quality habitat to support nesting western bumble bee. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 3.5 miles south of the site.
Monarch butterfly	*Danaus plexippus*	C	None	N/A	Variety of habitats in California; larvae dependent on milkweed. Primarily associated with coastal environments.	Unlikely: monarch butterfly may fly over the site during its migration, but is not expected to occur in the site due to a lack of suitable habitat; no milkweed plants were observed in the site. There are no occurrences of this species in the CNDDB (2023) search area.

Notes:

1 T = Threatened; E = Endangered; C = Candidate for Listing; CE = Candidate Endangered; PE = Proposed Endangered; R = Rare; SC = State of California Species of Special Concern.

2 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes plants that are rare, threatened or endangered in California but are more common elsewhere; List 3 includes plants about which more information is needed; List 4 is a watch list.

(*Viburnum ellipticum*), and El Dorado County mule ears (*Wyethia reticulata*) (Table 3 and Attachment B). No special-status plant species are included in the USFWS IPaC Trust Report (Attachment B).

Special-status plants generally occur in relatively undisturbed areas in vegetation communities such as chaparral, coniferous forests, areas with serpentine or gabbroic soils, and seeps and other aquatic habitats. The grasslands within the proposed development footprint are so highly disturbed that they do not provide suitable habitat for any species of special-status plants. While the grassland and woodland areas in the east part of the site are more natural, most special-status plant species in this part of El Dorado County occur in chaparral vegetation; there is no chapparal habitat in the site.

There are very few records of special-status plants in the CNDDB within a few miles of the site, with the most proximal records being Brandegee's clarkia, which is only on the CNPS watch list, warranting little, if any, consideration under CEQA. The site is also approximately 10 miles north of a well-known part of El Dorado County, where chapparal and woodland habitats with serpentine soils support a suite of special-status plants (see CNDDB map in Attachment B).

A search of El Dorado County's *On-line Parcel Data* provides confirmation the project site is not within a Rare Plant Mitigation Area (El Dorado County Planning Services, 2023) (see Attachment D). Not surprisingly, the CNDDB records align closely with Rare Plant Mitigation Areas mapped by the County.

SPECIAL-STATUS WILDLIFE: The potential for intensive use of the site by special-status wildlife species is very low. Twelve special-status wildlife species are recorded in project area in the CNDDB (2023) query: tricolored blackbird (*Agelaius tricolor*), bald eagle (*Haliaeetus leucocephalus*), bank swallow (*Riparia riparia*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), fisher (*Pekania pennanti*), foothill yellow-legged frog (*Rana boylii*,

pop. 3 and 5), Central Valley steelhead (*Oncorhynchus mykiss irrideus*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and western bumble bee (*Bombus occidentalis*). California red-legged frog (*Rana aurora draytonii*) and monarch butterfly (*Danaus plexippus*) are not recorded in the CNDDB within the search area, but are on the USFWS IPaC Trust Report (Attachment B).

While the project site may have provided habitat for special-status wildlife species at some time in the past, human disturbance and nearby development have substantially modified natural habitats in the greater project vicinity, including those within the site. Only a few of the species in Table 3 have potential to occur in the project site on more than a transitory or very occasional basis.

Special-status birds including tricolored blackbird and bald eagle may fly over the site on occasion, but are not be expected to nest in the site due to a lack of suitable aquatic habitat. For example, bald eagles usually nest in close proximity to large bodies of water and tricolored blackbirds require dense emergent wetland vegetation near open water environments for nesting habitat. Bank swallow is also a species that is closely associated with riparian environments and is not likely to occur in the site due to a lack of riparian areas.

Townsend's big-eared bat and pallid bat may fly over the site on occasion and could potentially roost in the largest trees in the site, but both of these species are more known to roost in caves, mines, and old buildings. More developed woodland habitats in less developed area in the project vicinity provide higher quality trees for these species to nest. Fisher, a small mammal, primarily occurs higher elevation forest and riparian habitats and would not be likely to occur in the site due to its relatively low elevation, lack of coniferous forest vegetation, and proximity to development.

There is no aquatic habitat in or adjacent to the site to support special-status reptiles and amphibians, including foothill yellow-legged frog, California red-legged frog, or western pond turtle. These species require specific aquatic environments not found in or in close proximity to the site. There is no aquatic habitat in the site to Central valley steelhead, or other species of fish.

No blue elderberry shrubs were located in the site, precluding the presence of valley elderberry longhorn beetle. The site is also well above the known elevation range to support valley elderberry longhorn beetle. Lastly, monarch butterfly and western bumble bee may fly over the site, but are unlikely to utilize the site in a meaningful capacity due to a lack of floristic resources.

CRITICAL HABITAT: The site is not in designated critical habitat of California red-legged frog (USFWS, 2006), federally listed vernal pool shrimp or plants (USFWS, 2005), Central Valley steelhead (NOAA, 2005), or any other federally listed species (Attachment E).

OAK WOODLANDS: The proposed project will not result in significant impacts to oak woodlands. The proposed development footprint is almost entirely bare dirt, gravel areas and highly disturbed grasslands. All of the notable oaks in the site, including four blue oaks in the west part of the site near Georgetown Road, will be retained. The entrance road from Georgetown Road will bend around and avoid a pair of blue oaks. Further, the patch of oak woodland vegetation in the east part of the site is outside the development footprint and will not be impacted by the proposed project.

WILDLIFE MOVEMENT CORRIDORS: Well-developed riparian corridors are often utilized for movement by wildlife species such as deer, coyote, red fox (*Vulpes vulpes*), and bobcat (*Felis rufus*), as well as a variety of amphibians, reptiles, and fish. The proposed project will not impede wildlife movement; there are no wildlife movement corridors in the site.

HABITAT CONSERVATION PLANS: The proposed project will 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.

Conclusions and Recommendations

- The site is comprised of highly disturbed grassland and a small patch of oak woodland. The proposed development footprint, which consists almost entirely bare dirt, gravel areas and highly disturbed grasslands, is biologically unremarkable.

- The oak woodland habitat in the site is situated outside the limits of grading and will not be impacted or disturbed by project related activities.

- There are no potentially jurisdictional Waters of the U.S. in the site. There are also no areas in the site that meet the technical criteria of wetlands (i.e., presence of hydrophytic vegetation, hydric soils, and wetland hydrology).

- Due to a lack of suitable habitat, no special-status plants are expected to occur in the site.

- No special-status wildlife species are expected to occur in the project site on more than a transitory or very occasional basis.

- The site is not within designated critical habitat for any federally listed species.

- The proposed project will not result in adverse impact to wildlife movement corridors.

- The proposed project will not result in significant impacts to oak woodlands.

- The project will 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.

- Trees, shrubs, and grasslands in the site could be used by other birds protected by the MBTA and FGCC. If tree removal is scheduled during the nesting season of raptors (January 1 through July 31), a pre-construction survey for nesting raptors is recommended. If other vegetation removal or construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for all species of nesting birds is recommended. If active nests are found, work in the vicinity of the nests should be delayed until the young fledge.

We hope this information is useful. Please call me at (209) 745-1159 with any questions.

Sincerely,



Diane S. Moore, M.S.
Principal Biologist

References and Literature Consulted

ACOE (U.S. Army Corps of Engineers). 1987. Technical Report Y87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MI.

ACOE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. U.S. Army Engineer Research and Development Center, Vicksburg, MS. September.

CNDDB (California Natural Diversity Database). 2023. California Department of Fish and Wildlife's Natural Heritage Program, Sacramento, California.

California Native Plant Society, Rare Plant Program. 2023. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website http://www.rareplants.cnps.org.

El Dorado County Planning Services. 2023. On-line Parcel Data. Assessor Parcel No. 071-080-007. https://edcapps.edcgov.us/building/DesignCriteria_ParcelData_trakit.asp?parcelnumber=071080007.

National Oceanic and Atmospheric Administration (NOAA). 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Federal Register 70 (170): 52488-52585. September 2, 2005.

Sawyer & Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society, Sacramento. California.

USFWS. 2005. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation and Economic Exclusions

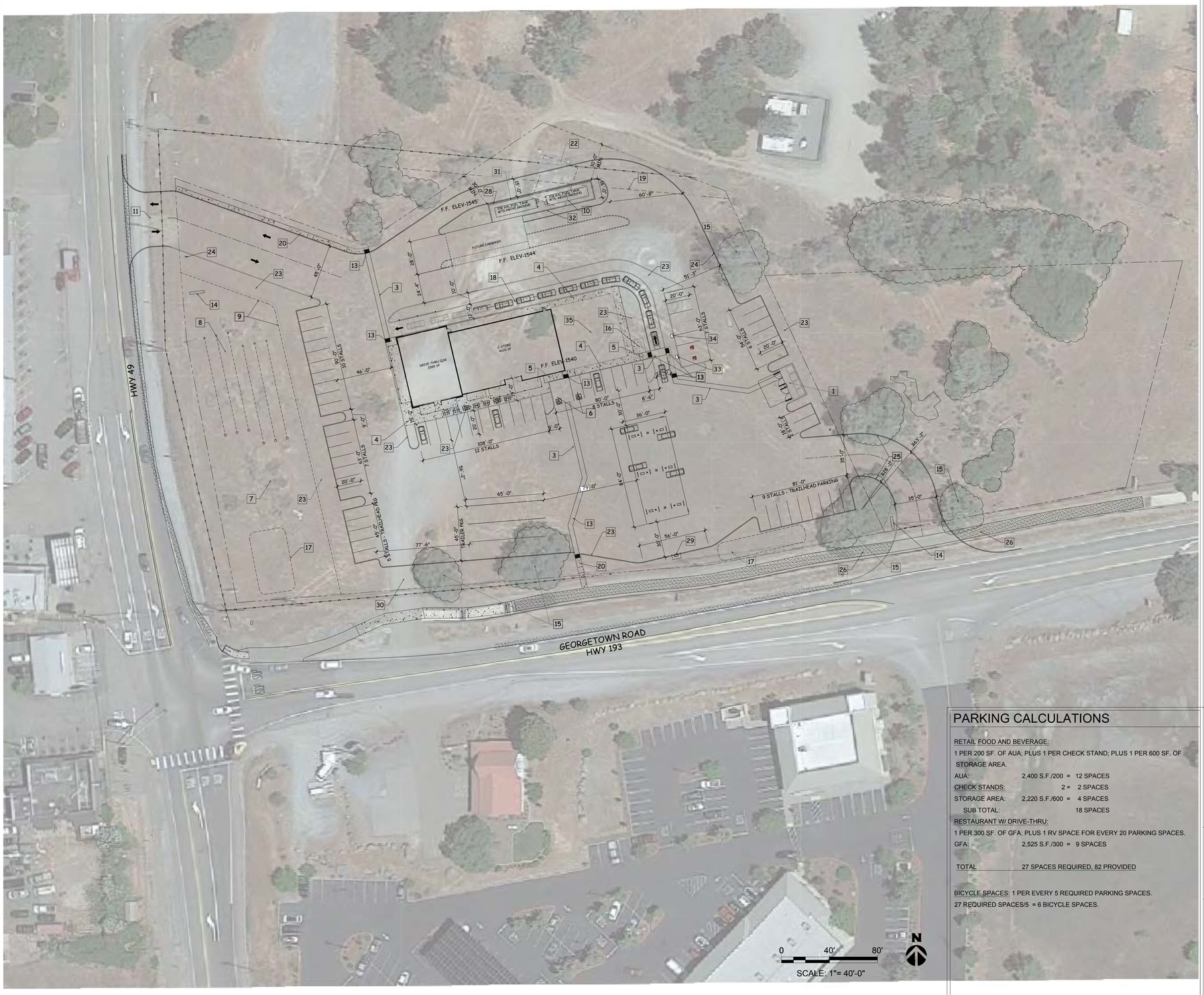
from August 2003 Final Designation, Final Rule. Federal Register Vol. 70, No. 154, August 11.

USFWS. 2006. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for California Red-Legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities, Final Rule. Federal Register Vol. 71, No. 71, April 13.

USFWS. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28pp.

Attachment A

Site Plan



1 SITE PLAN

1"=40'-0" NOTE:

SITE PLAN KEYNOTES

1. TRASH ENCLOSURE W/ 20'-4"X20'X6" THICK REINFORCED CONCRETE APRON. PROVIDE 10' CLEAR AT GATES WHEN OPEN. REFER TO TRASH ENCLOSURE PLAN AND CIVIL ENGINEERING PLANS FOR ADDITIONAL INFORMATION
2. FUEL CANOPY OVER 8-PUMP (16 DISPENSER) FUEL ISLAND. PROVIDE CONCRETE SLAB UNDER THE FULL EXTENT OF THE FUEL CANOPY WITH AN IMPERMEABLE SURFACE EXTENDING 8' MIN. BEYOND THE FACE OF THE ADJACENT FUEL PUMP DISPENSER. THIS CONCRETE SLAB MUST GRADED AND CONSTRUCTED TO PREVENT DRAINAGE ACROSS, OR FROM, THE DISPENSING AREA. THIS FUEL ISLAND AREA SHALL BE EQUIPPED WITH DRAIN INLETS THAT DIRECT DRAINAGE THROUGH SAND AND OIL SEPARATORS TO THE SANITARY SEWER SYSTEM; REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION;
3. 48" WIDE ACCESSIBLE ROUTE, VERIFY CROSS SLOPE DOES NOT EXCEED 2% AND RUNNING SLOPE DOES NOT EXCEED 5%.
4. ACCESSIBLE CONCRETE SIDEWALK,VERIFY CROSS SLOPE DOES NOT EXCEED 2% AND RUNNING SLOPE DOES NOT EXCEED 5%.
5. PROVIDE ACCESSIBLE CURB RAMP, VERIFY CROSS SLOPE DOES NOT EXCEED 2% AND RUNNING SLOPE DOES NOT EXCEED 8%.
6. ACCESSIBLE PARKING AND SIGNAGE. VERIFY SURFACE SLOPE DOES NOT EXCEED 2% IN ANY DIRECTION ON ACCESSIBLE PARKING SPACES AND ACCESS AISLES.
7. EXISTING ROCK FORMATIONS TO BE PRESERVED OR RELOCATED ONSITE WHERE POSSIBLE AS PRACTICAL AND FEASIBLE. REFER TO LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
8. PROVIDE SEPTIC TANK AND LEACH FIELD WITH BUILT-IN REDUNDANCY. REFER TO SEPTIC DESIGN FOR MORE INFORMATION.
9. PROVIDE SUBSURFACE DRAIN PER PERCOLATION TEST REPORT TO DIVERT UNDERGROUND STORMWATER AWAY FROM LEACH FIELD. REFER TO CIVIL ENGINEERING FOR MORE INFORMATION.
10. ABOVE GROUND FUEL TANKS INSTALLED PER MFG SPECIFICATIONS.
11. NEW FULL ACCESS DRIVEWAY PER COUNTY REQUIREMENTS. REFER TO CIVIL ENGINEERING FOR SPECIFIC DESIGN.
12. NEW RIGHT-IN, RIGHT-OUT DRIVEWAY PER COUNTY REQUIREMENTS. REFER TO CIVIL ENGINEERING FOR SPECIFIC DESIGN.
13. DETECTABLE WARNING, TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHALL HAVE A BASE DIAMETER OF 0.9 INCH (22.9 MM) MINIMUM AND 0.92 INCH (23.4 MM) MAXIMUM, A TOP DIAMETER OF 0.45 INCH (11.4 MM) MINIMUM AND 0.47 INCH (11.9 MM) MAXIMUM, AND A HEIGHT OF 0.2 INCH (5.1 MM) WITH A SPACING OF 2.3 INCHES (58 MM) MINIMUM AND 2.4 INCHES (61 MM) MAXIMUM, AND A BASE-TO-BASE SPACING OF 0.65 INCH (16.5 MM) MINIMUM, MEASURED BETWEEN THE MOST ADJACENT DOMES ON A SQUARE GRID
14. MONUMENT SIGN; EXACT LOCATION AND DESIGN SHALL BE DETERMINED BASED ON COUNTY REQUIREMENTS AND DESIGN BY SIGN COMPANY
15. PRESERVE EXISTING TREES WHEREVER POSSIBLE AS PRACTICAL AND FEASIBLE
16. (6) BICYCLE PARKING SPACES. BICYCLE RACKS SHALL BE DESIGNED TO ENABLE A BICYCLE TO BE LOCKED TO THE RACK AND SHALL BE INSTALLED IN A MANNER THAT ALLOWS ADEQUATE ACCESS TO THE BICYCLE.
17. PROVIDE STORMWATER DETENTION BASIN. REFER TO CIVIL ENGINEERING FOR SPECIFIC LOCATION, SIZE AND DESIGN.
18. DRIVE-THRU LANE WITH APPROXIMATELY 275' OF STACKING.
19. 15' UTILITY EASEMENT TO OVERHEAD POWER LINES.
20. PROVIDE AN ACCESSIBLE RAMP WITH HANDRAIL WITH MAX. 2% CROSS SLOPE AND MAX. 8% SLOPE IN THE DIRECTION OF TRAVEL. PROVIDE ACCESSIBLE LANDING AT MAX. 30' APART PER CBC-11B.
21. MODIFY EXISTING ACCESSIBLE PATH AS REQUIRED TO FACILITATE RECONSTRUCTED DRIVEWAY. REFER TO CIVIL ENGINEERING FOR SPECIFIC DESIGN.
22. DEMOLISH AND REMOVE EXISTING CONCRETE PAD.
23. LANDSCAPE AREA, TYP. REFER TO LANDSCAPE PLANS FOR SPECIFIC DESIGN.
24. FIRE HYDRANT - APPROXIMATE LOCATION AND QUANTITY SHOWN FOR REFERENCE. WE ANTICIPATE THAT A MINIMUM OF TWO WILL BE REQUIRED WITH A POSSIBILITY OF A THIRD. THE EXACT QUANTITY AND LOCATION SHALL BE DETERMINED BY EL DORADO FIRE DURING BUILDING PERMIT REVIEW.
25. SPLIT-FACED CMU RETAINING WALL; VARIES IN HEIGHT FROM APPROX. 2' TO 4', DEPENDING ON EXACT DEPT OF DRIVEWAY CUT. REFER TO CIVIL ENGINEERING FOR ADDITIONAL INFORMATION
26. RECONSTRUCT ADJACENT TYPE II BICYCLE PATH AS REQUIRED TO ALLOW FOR NEW DRIVEWAY CUT.
27. COMMON AREA WITH OUTDOOR SEATING.
28. 6' HIGH CMU SCREEN FENCE AS SHOWN AT FUEL TANKS.
29. FUEL DISPENSER FOR RED DIESEL.
30. REMOVE EXISTING DRIVEWAY.
31. 6' HIGH CHAIN LINK FENCE WITH PRIVACY SLATS.
32. 6' HIGH CHAIN LINK GATE WITH PRIVACY SLATS.
33. LEVEL 2 EVC STATION WITH CHARGING PORTS FOR TWO STALLS
34. INSTALL INFRASTRUCTURE FOR FUTURE LEVEL 2 EVC STATION WITH CHARGING FOR TWO ADDITIONAL STALLS.
35. PAD FOR FUTURE BUILDING

PARKING CALCULATIONS

RETAIL FOOD AND BEVERAGE:
1 PER 200 SF. OF AUA; PLUS 1 PER CHECK STAND; PLUS 1 PER 600 SF. OF STORAGE AREA.

AUA:	2,400 S.F./200 =	12 SPACES
CHECK STANDS:	2 =	2 SPACES
STORAGE AREA:	2,220 S.F./600 =	4 SPACES
SUB TOTAL:		18 SPACES

RESTAURANT W/ DRIVE-THRU:
1 PER 300 SF. OF GFA; PLUS 1 RV SPACE FOR EVERY 20 PARKING SPACES.

GFA:	2,525 S.F./300 =	9 SPACES
TOTAL		27 SPACES REQUIRED, 82 PROVIDED

BICYCLE SPACES: 1 PER EVERY 5 REQUIRED PARKING SPACES.
27 REQUIRED SPACES/5 = 6 BICYCLE SPACES.

BUILDING SQ. FT. CALCULATION

MAIN BUILDING	9,854 S.F.
C-STORE	4,685 S.F.
DRIVE-THRU QSR	2,525 S.F.
NON-DRIVE-THRU-TENANT	1,493 S.F.
VISITORS CENTER	1,150 S.F.
FUTURE CARWASH	1,892 S.F.
FUEL CANOPY	4,284 S.F.

PROPERTY DATA

APN: 071-080-007
PARCEL AREA: 3.83 ACRES
ZONING: CG-DC

SITE GENERAL NOTES

1. POST CONSTRUCTION TREATMENT OF STORMWATER RUNOFF TO MEETCURRENT EL DORADO COUNTY STANDARDS.
2. OIL AND WATER SEPARATOR TO MEET CURRENT EL DORADO COUNTY GUIDELINES AND BE PROVIDED AS NECESSARY.
3. DRIVEWAYS AND SIDEWALKS TO MEET CURRENT EL DORADO COUNTY DEPARTMENT OF TRANSPORTATION STANDARDS.

M. HIGGINBOTHAM ARCHITECT
LICENSE NO. C-36401

MHA
DESIGN SERVICES
11584 FRANCIS DRIVE
GRASS VALLEY, CA 95949
(530) 263-5899
MelH.Architect@gmail.com

A PROJECT FOR:
HBD CAPITAL LLC
10940 TRINITY PKWY, C-274
STOCKTON, CA 95219

CONTACT: MEL HIGGINBOTHAM
PHONE: (530) 263-5899
EMAIL:
MelH.Architect@gmail.com

LICENSED ARCHITECT
MELVIN R. HIGGINBOTHAM
C-36401
REN. 3/31/25
STATE OF CALIFORNIA

DATE	SCALE	DRAWN	CKD	APPD
5/30/23				

SET REVISIONS

NO	DESCRIPTION	DATE
0	DESIGN REVIEW	5/12/23

NE CNR OF HWY-49 & GEORGETOWN RD
COOL, CA. - APN: 071-080-007

ARCHITECTURAL SITE PLAN WITH SATELLITE IMAGE

A-1.1

NOTE: DRAWINGS ARE NOT TO SCALE IF SHEET IS PLOTTED ON 11" x 17"

Attachment B

CNDDB Summary Report

& USFWS IPaC Trust Resource Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Auburn (3812181) OR Greenwood (3812088) OR Pilot Hill (3812171) OR Coloma (3812078))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Allium jepsonii Jepson's onion	PMLIL022V0	None	None	G2	S2	1B.2
Ammonitella yatesii tight coin (=Yates' snail)	IMGASB0010	None	None	G1	S1	
Andrena subapasta An andrenid bee	IIHYM35210	None	None	G1G2	S1S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Banksula californica Alabaster Cave harvestman	ILARA14020	None	None	GH	SH	
Banksula galilei Galile's cave harvestman	ILARA14040	None	None	G1	S1	
Bombus morrisoni Morrison bumble bee	IIHYM24460	None	None	G3	S1S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Calystegia stebbinsii Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1
Carex xerophila chaparral sedge	PMCYP03M60	None	None	G2	S2	1B.2
Ceanothus roderickii Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G1	S1	1B.1
Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020	None	None	G3	S3	1B.2
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Cosumnoperla hypocrena Cosumnes stripetail	IIPLE23020	None	None	G2	S2	
Crocanthemum suffrutescens Bisbee Peak rush-rose	PDCIS020F0	None	None	G2?Q	S2?	3.2

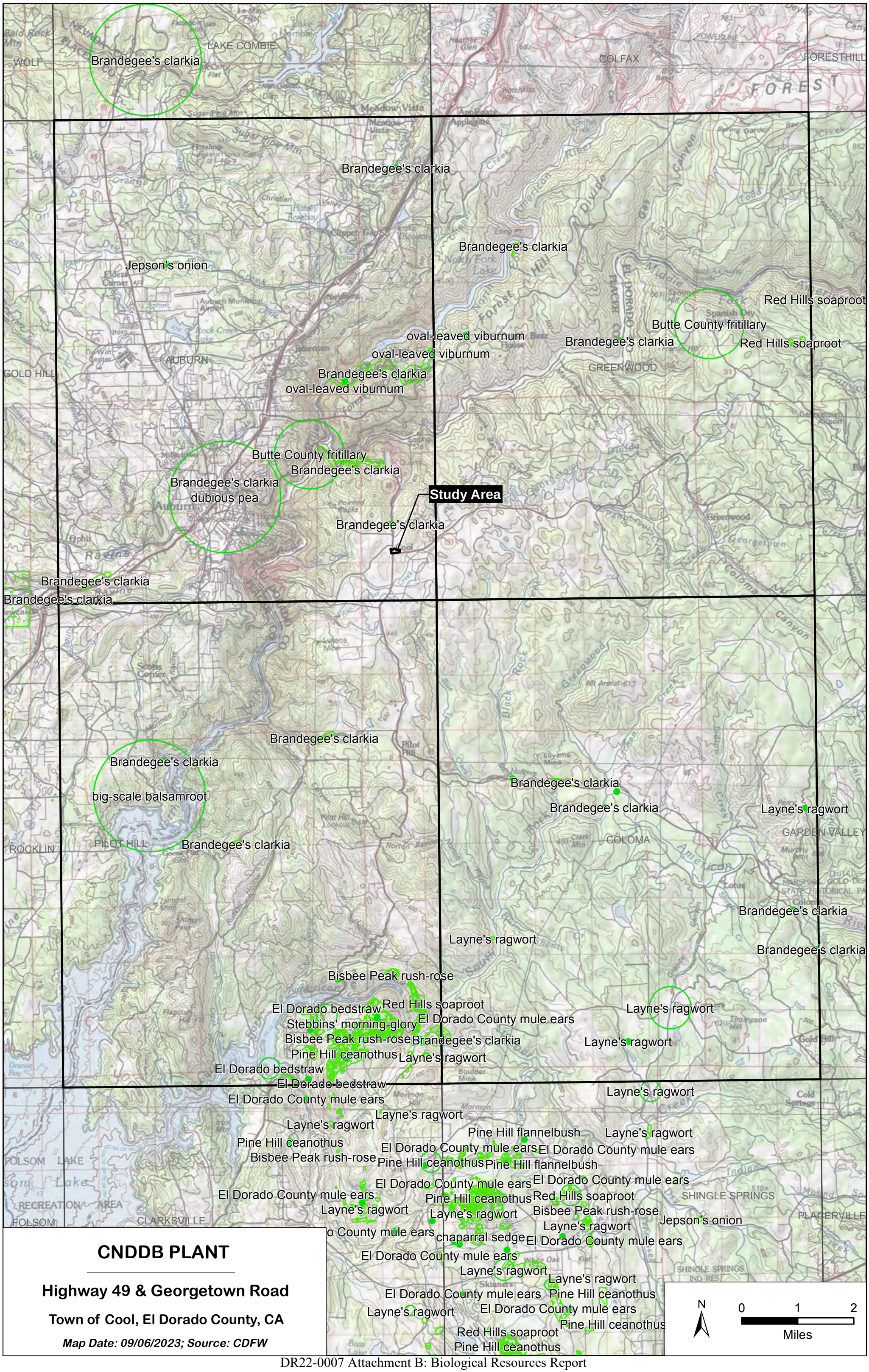
Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
Fritillaria eastwoodiae Butte County fritillary	PMLIL0V060	None	None	G3Q	S3	3.2
Galium californicum ssp. sierrae El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1	1B.2
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Lathyrus sulphureus var. argillaceus dubious pea	PDFAB25101	None	None	G5T1T2Q	S1S2	3
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Packera layneae Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2	1B.2
Pekania pennanti Fisher	AMAJF01020	None	None	G5	S2S3	SSC
Rana boylii pop. 3 foothill yellow-legged frog - north Sierra DPS	AAABH01053	None	Threatened	G3T2	S2	
Rana boylii pop. 5 foothill yellow-legged frog - south Sierra DPS	AAABH01055	Proposed Endangered	Endangered	G3T2	S2	
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S3	
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3
Wyethia reticulata El Dorado County mule ears	PDAST9X0D0	None	None	G2	S2	1B.2

Record Count: 35



CNDDB PLANT

Highway 49 & Georgetown Road

Town of Cool, El Dorado County, CA

Map Date: 09/06/2023; Source: CDFW

valley elderberry longhorn beetle
valley elderberry longhorn beetle
valley elderberry longhorn beetle
foothill yellow-legged frog - north Sierra DPS
foothill yellow-legged frog - north Sierra DPS
foothill yellow-legged frog - north Sierra DPS
foothill yellow-legged frog - north Sierra DPS
Galile's cave harvestman
western pond turtle
American peregrine falcon
California red-legged frog
foothill yellow-legged frog - north Sierra DPS
foothill yellow-legged frog - north Sierra DPS
Cosumnes stripetail
Townsend's big-eared bat
Morrison bumble bee
An andrenid bee
American bumble bee
Townsend's big-eared bat
tight coin (=Yates' snail)
North American porcupine
western pond turtle
Study Area
An andrenid bee
Cosumnes stripetail
Cosumnes stripetail
steelhead - Central Valley DPS
American bumble bee
Cosumnes stripetail
western bumble bee
Cosumnes stripetail
foothill yellow-legged frog - south Sierra DPS
foothill yellow-legged frog - south Sierra DPS
American bumble bee
pallid bat
foothill yellow-legged frog - south Sierra DPS
Alabaster Cave harvestman
valley elderberry longhorn beetle
western pond turtle
bald eagle
tricolored blackbird
western pond turtle
valley elderberry longhorn beetle
valley elderberry longhorn beetle
valley elderberry longhorn beetle
tricolored blackbird
bald eagle
California red-legged frog
Fisher
bank swallow
coast horned lizard
foothill yellow-legged frog - south Sierra DPS
great egret
rma vernal pool andrenid bee
bald eagle

CNDDB WILDLIFE

Highway 49 & Georgetown Road

Town of Cool, El Dorado County, CA

Map Date: 09/06/2023; Source: CDFW

N

0 1 2

Miles

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

El Dorado County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can**only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

2. 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.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species.Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list,click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence(■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

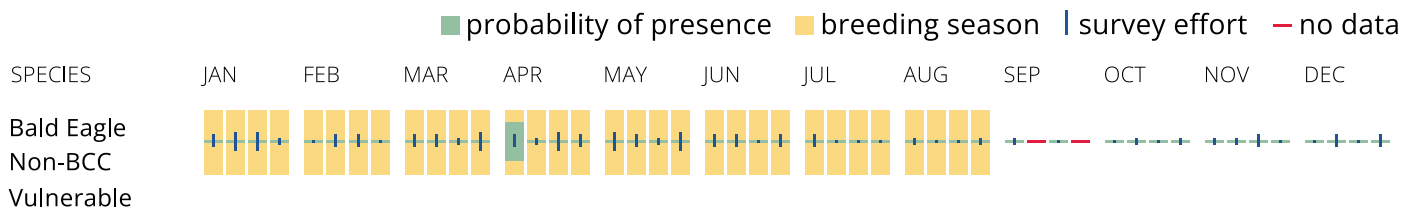
Breeding Season (▮)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

NOT FOR CONSULTATION

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-

migratory-birds

- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQbelow. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit theE-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be foundbelow.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NOT FOR CONSULTATION

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence(■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for

that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

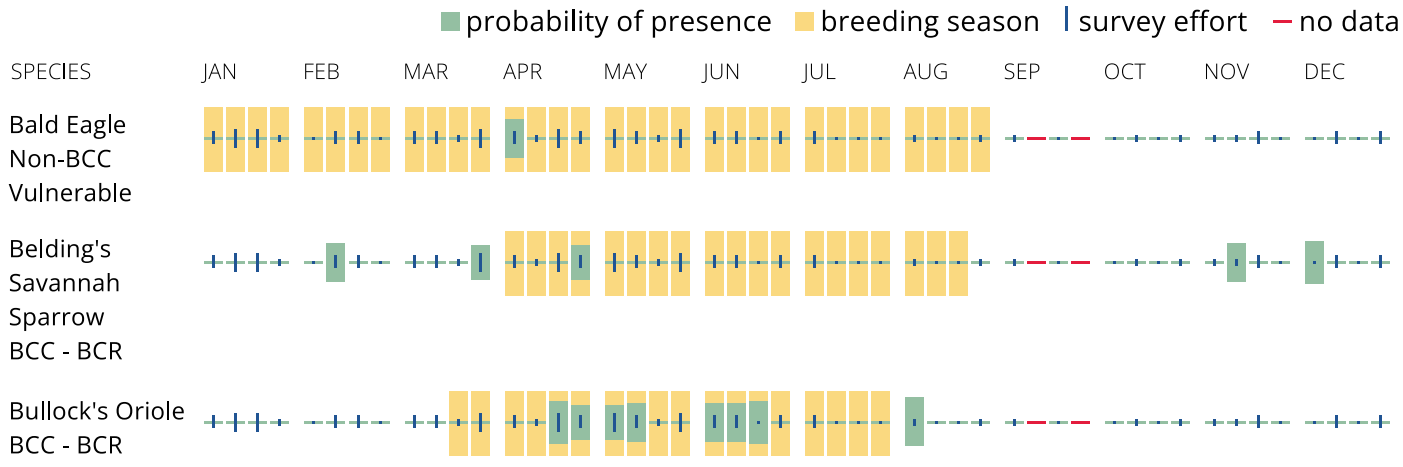
Breeding Season (▮)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

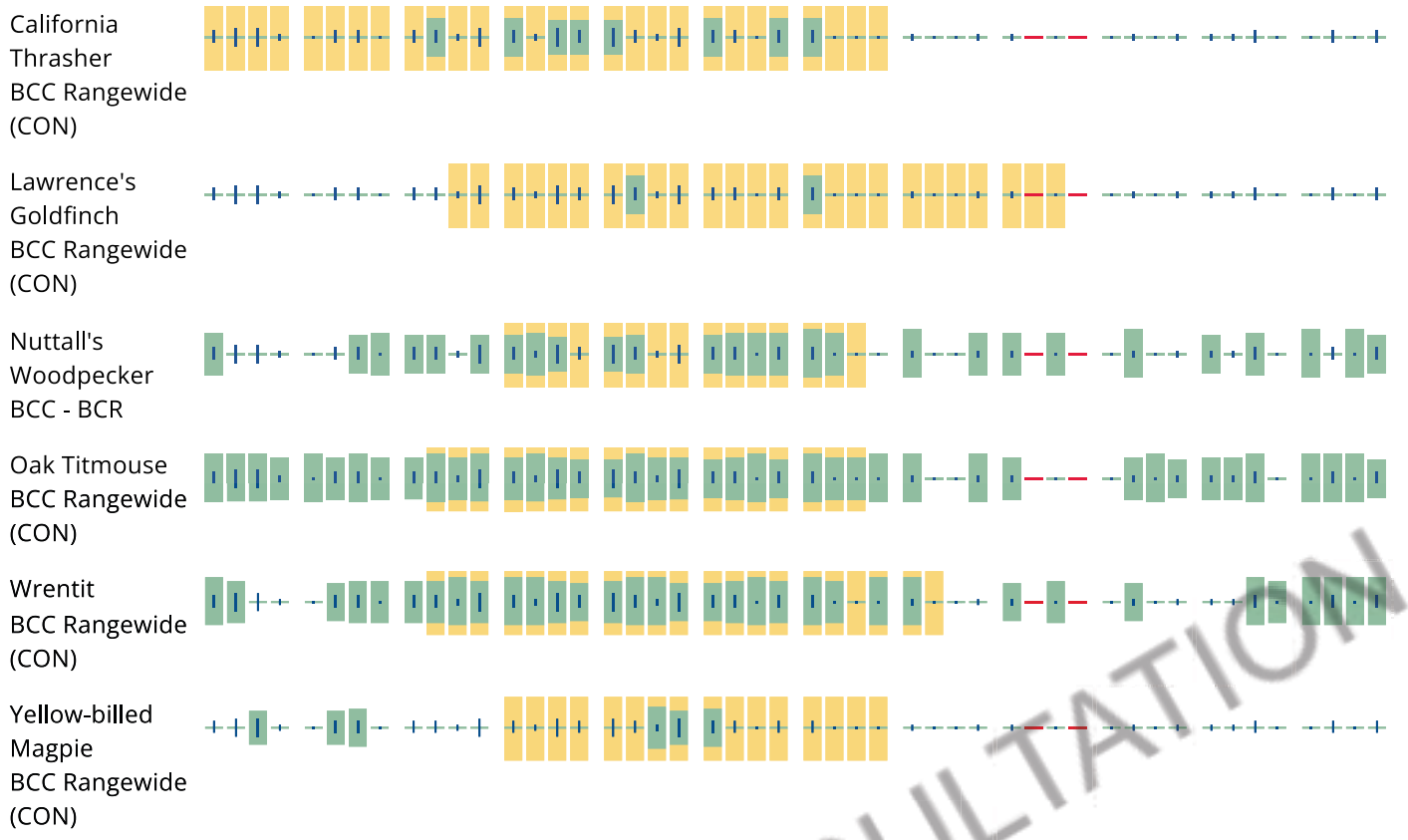
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact

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Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND
- PEM1A

FRESHWATER FORESTED/SHRUB WETLAND
- PFOA

FRESHWATER POND
- PUBHh

RIVERINE
- R3UBH
- R2UBH
- R5UBFx
- R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

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The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Attachment C

Photographs



Body of the site, looking southwest from near the communication tower that is adjacent to the site; 09/08/23.



Highly disturbed grassland, bare dirt, and gravel in the central part of the site, looking northwest; 09/08/23.



Highly disturbed area in the northwest part of the site, looking southeast; 09/08/23. The site has been used construction staging, equipment storage, and other uses for many years.



Cluster of four blue oaks along the south edge of the site, looking southwest; 09/08/23. These oaks will be retained.



North edge of the site, looking northwest from near the off-site communication tower; 09/08/23. A store was constructed just north of the site within the past two years.



Grassland and a notable pine in the east part of the site, looking northwest; 09/08/23. This pine, which is along the edge of the site, will be retained.



Pedestrian and bike path along the south edge of the site, looking west from the southeast corner of the site; 09/08/23.



Grassland and trees along the future access road (noted) in to the site from Georgetown Road; 09/08/23.



Existing access in to the site from Georgetown Road, looking north; 09/08/23.



West edge of the site, looking north from near the intersection of Highway 49 and Georgetown Road; 09/08/23.



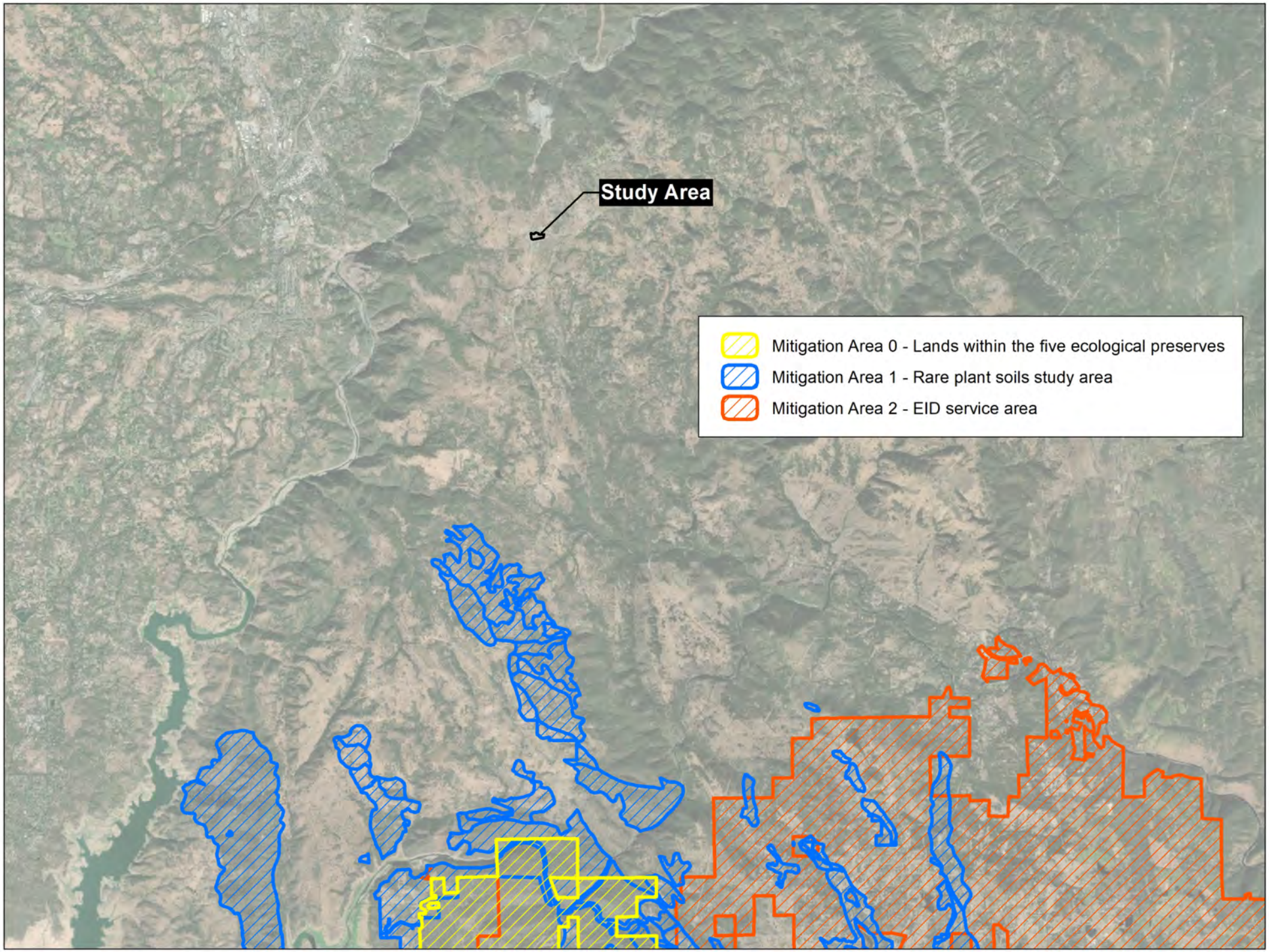
Rock outcrop in the east part of the site, looking northwest; 09/08/23. This area is outside the development area and will not be impacted by the proposed project.



Grassland in the far east part of the site, looking northwest from the southeast corner of the site; 09/08/23. This area will also not be disturbed.

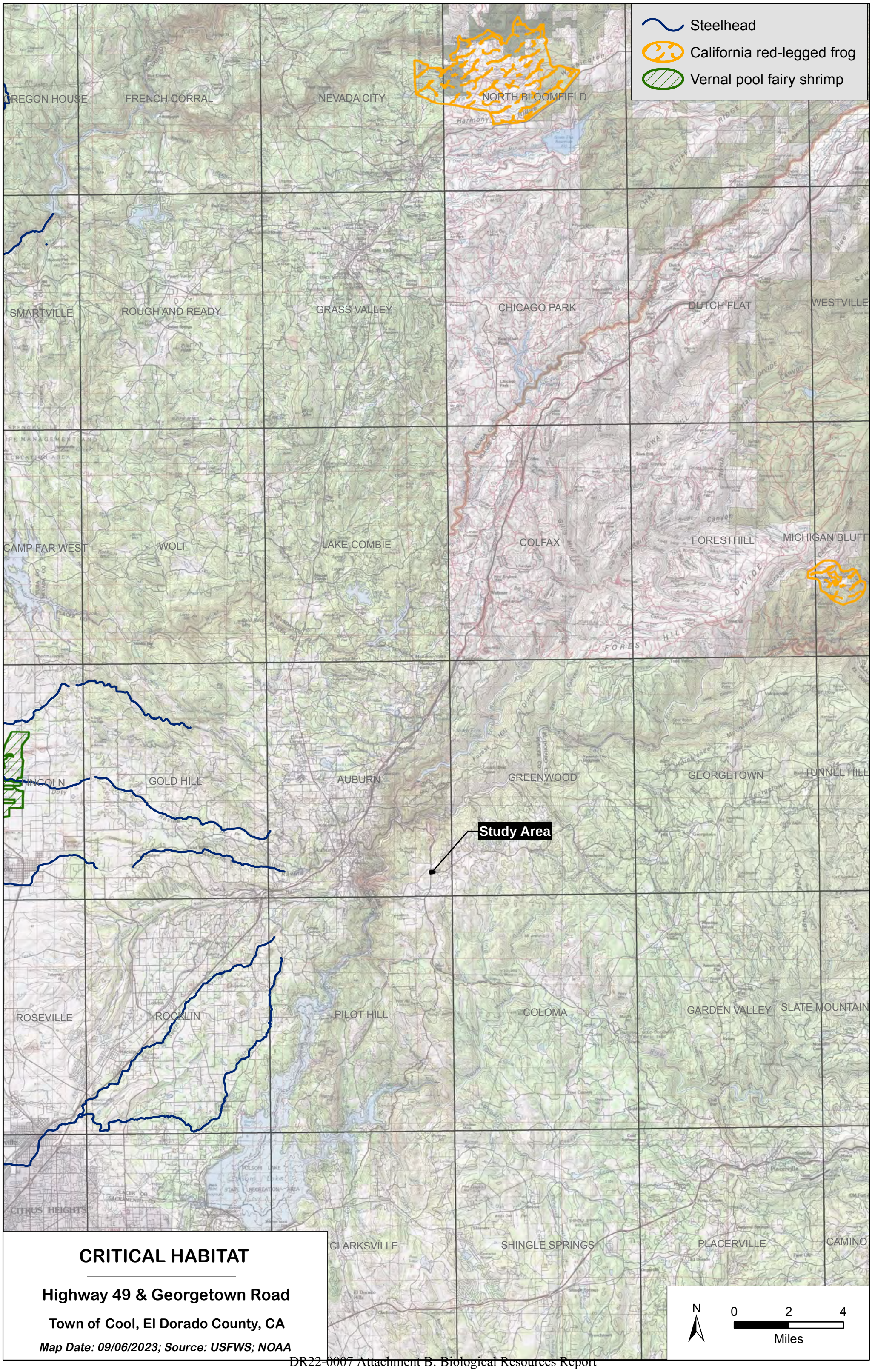
Attachment D

Rare Plant Areas Map


Study Area
Mitigation Area 0 - Lands within the five ecological preserves
Mitigation Area 1 - Rare plant soils study area
Mitigation Area 2 - EID service area

Attachment E

Designated Critical Habitat



CRITICAL HABITAT

Highway 49 & Georgetown Road

Town of Cool, El Dorado County, CA

Map Date: 09/06/2023; Source: USFWS; NOAA

Attachment C - Traffic Impact Analysis Memorandum - DR22-0007

Technical Memorandum

November 27, 2024

To	El Dorado County – Zack Oates, Senior Civil Engineer Caltrans District 3 – Satwinder Dhatt, Local Development Review, Equity, and System Planning,		
From	Frank Penry, PE, TE, PTOE Peter Galloway, Senior Transportation Planner Emily Darke, Staff Engineer, EIT		
CC	Sandeep Dhanda, Owner Melvin Higginbotham, Architect, MHA Design Services	Email	Sandeepdhanda@yahoo.com
Subject	PA21-0021 Cool Automotive & Commercial Project – Traffic Impact Analysis Memorandum (Revised)	Project no.	12579129

1. Introduction

The following technical memorandum prepared by GHD presents the results of a revised traffic impact analyses for the proposed Cool Automotive and Commercial Center project (convenience market, fuel facility, drive-through restaurant, future retail pad, and car wash). Previous draft technical memorandums assessing the traffic impacts of the proposed project were published (*GHD, September 2022, September 2023, February 2024, & June 2024*) and reviewed by both the County of El Dorado and Caltrans.[1] [2] [3]As a result of comments received from both agencies, the project site plan has been revised/improved and proposed project land uses have been consolidated. Agency comments related to proposed project trip generation and assignment have been addressed. Circulation related to truck access, vehicle queuing, and pedestrian/bicycle safety associated with the adjacent Class I multi-use path has been further evaluated. A quantitative vehicle miles traveled (VMT) analysis has been provided based on Big Data using the GIS-based platform (Replica). Finally, the most recent comments associated with specific recommended improvements identified as part of the recent State Route 49 American River Confluence Study and project driveway design have been incorporated into the analysis.[4]

The proposed project site would be located on the northeast quadrant of the State Route 49 and State Route 193 intersection in Cool, California. The proposed project would develop an existing vacant parcels (APN# 071-080-007 & APN# 071-500-036). This updated Traffic Impact Analysis Memorandum (TIAM) satisfies the

[1] DKS Associates, Peer Review of the Transportation Impact Analysis for the Cool Automotive & Commercial Project, Project #21197-015, Memorandum from Josh Pilachowski (DKS) to Zach Oates (El Dorado County), May 11, 2023.
[2] Satwinder Dhatt, Local Development Coordinator, Caltrans, District 3, PA21-0021, Higginbotham (Cool Automotive & Commercial Project), June 19, 2023.
[3] Caltrans, Higginbotham / Cool Automotive and Commercial Project (PA21-0021 & DR22-0007), Comment memorandum(s) to Valerie Brady, El Dorado County, June 23, 2023 & July 9, 2024.
[4] DKS Associates, Peer Review of the Transportation Impact Analysis for the Cool Automotive & Commercial Project, Project #21197-015, Memorandum from Jim Damkowitch (DKS) to Zach Oates (El Dorado County), April 5, 2024.

requirements per the County of Eldorado and Caltrans Guidelines. **Figure 1.1** presents the study area map and project location.

The term "project," as used in this report, refers to the updated development uses as follows:

- Development of the existing vacant lot on the northeast quadrant of the State Route 49 (SR 49) and State Route 193 (SR 193) intersection. The proposed developments are as follows:
    - **Main building(s) comprising of 9,787 square feet**
        - Convenience Store - 4,620 square feet
        - Drive-Through QSR Restaurant - 2,585 square feet
        - Future Retail Pad – 2,582 square feet
    - **Fueling facility with island and canopy and car wash of 6,176 square feet**
        - Above ground fueling tanks (2-20,000-gallon tanks)
        - 6-pump (12 vehicle fueling positions) fuel facility/canopy – 3,024 square feet
        - Automated Car Wash – 1,892 square feet

The proposed project is located in the Town of Cool in Eldorado County. Currently, the adjacent parcel located directly north of the project site contains a United States Post Office. The parcel(s) directly west of the proposed project site (across SR 49) contain a mix of restaurant, fueling, and retail uses. Finally, the parcels located on the southeast quadrant of the SR 49/SR 193 intersection contain a florist and larger retail center with a Holiday Market, medical facilities, brewpub, and other smaller retail stores.

Included in this memorandum are analyses and discussion of the following items:

- Technical analysis parameters and methodologies.
- Existing study locations, data collection, and existing conditions assumptions.
- Project description including quantification of trip generation and trip distribution associated with the proposed project.
- Existing Plus Project Conditions (Year 2022)
- Near-Term plus Project (Year 2032).
- Vehicle Miles Traveled (VMT) analysis related to the SB 743 and the trip characteristics of the proposed project associated with location, size, and screening criteria.
- Cumulative Analysis, including No Project and Plus Project Conditions (Year 2042).
- Impact Determination and Mitigation Measures.

Consistent with the City's guidelines, the following traffic scenarios were analyzed for this project:

- Existing Conditions (Year 2022)
- Existing (Year 2022) Plus Project Conditions
- Near-Term (Year 2032) No Project Conditions
- Near-Term (Year 2032) Plus Project Conditions
- Cumulative (2042) No Project Conditions
- Cumulative (2042) Plus Project Conditions

The above traffic scenarios are described in further detail and evaluated in subsequent sections.



Paper Size ANSI A

0 0.01 0.02 0.03 0.04

Miles

Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

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GHD

MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

STUDY AREA MAP

Project No. **12579129**
Revision No. **-**
Date **07/10/2022**

FIGURE 1.1

\\Mcc-svr-001\ghd\US\San Luis Obispo\Projects\561\12579129\GIS\Maps\Working\12579129 Vicinity Map.mxd
Print date: 10 Aug 2022 - 10:47

Data source: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community. Created by: edarke

2. Project Background

The prosed project includes development of a gas station with 12 vehicle fueling positions, a 4,620 square- foot convenience market, a 2,585 square-foot quick service restaurant (QSR) with drive-through lane, a 2,582 square-foot future retail pad, and an 1,892 square- foot car wash on APN#'s 071-080-007 & 071-500-036. The proposed project is located at the corner of SR 49 (Coloma Road) and SR 193 (Georgetown Road) on the northeast quadrant of the intersection.

The proposed development has two (2) primary access driveways to distribute the stie traffic on the adjacent State Highways. From SR 49, a full-access driveway would serve the project site and be located approximately 400-feet north of SR 193 (Georgetown Road). A second full-access driveway would be located on SR 193 directly opposite Ellinghouse Drive approximately 600-feet east of SR 49. This project driveway would form a standard four-way intersection (southbound leg) with the SR 93/Ellinghouse Drive intersection. The project site plan is shown in **Figure 2.1**.

2.1 Purpose and Need

The purpose of this development is to provide improved fueling, convenience market, and restaurant services to vehicles traveling to their destinations. The proposed project is consistent with the County of El Dorado's General Plan land use and regional travel demand model zoned for General Commercial (GC-DC). The proposed site is located along two State Highways (SR 49 and SR 193) with access north to Auburn and south to Coloma and Sutter's Mill. Regional connection to the project site would be via SR 49 to/from the north to Interstate 80 at Auburn.

2.2 Study Intersections and Roadway Segments

Four primary intersections adjacent to and providing access to the project site were selected for evaluation in coordination with the County of El Dorado and Caltrans Highway Operations staff for the weekday AM and PM peak hour conditions. The study intersections for the project are listed below:

1. Northside Drive at Highway 49 (Coloma Road)
2. Project Driveway at Highway 49 (Coloma Road)
3. Highway 49 (Coloma Road) at Highway 193 (Georgetown Road)
4. Project Driveway at Ellinghouse Road and Highway 193 (Georgetown Road)

In addition to key intersection analyses, the following roadway segments were evaluated for volume capacities adjacent to the proposed project site:

- Highway 49 (Coloma Road) north of Highway 193 (Georgetown Road)
- Highway 49 (Coloma Road south of Highway 193 (Georgetown Road)
- Highway 193 (Georgetown Road) east of Highway 49 (Coloma Road)

The roadway network that provides primary vehicle circulation for the project study area includes Highway 49, Highway 193, Northside Drive, and Ellinghouse Road. Regional access is provided by Interstate 80 north of the project site. A brief description of each roadway follows:

Highway 49 (SR 49) is a regional highway that extends north-south through California's foothills and Gold Country. Starting in the north state, Highway 49 extends south from SR 70 extending through Sierra City, Downieville, Nevada City, Grass Valley, Auburn, Coloma, Placerville, and Mariposa to Oakhurst. In the project study area, SR 49 is a two-lane facility with a two-way-left-turn lane. The roadway also has wide (4-5') painted shoulders both north and south of Highway 193 but lacks frontage improvements.



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GHD

MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

PROJECT SITE PLAN

Project No. **12579129**
Date **7/18/2023**

FIGURE 2.1

Filename: \\Mcc-svr-001\ghd\US\San Luis Obispo\Projects\56\12579129\Digital_Design\ACAD 2020\Figures\12579129TG001.dwg
Plot Date: 18 July 2023 9:14 AM

The posted speed limit on Coloma Road is 45 mph. Based on the most recent Caltrans volume data, SR 49 carries 8,800 annual average daily traffic (AADT) with 5.6% truck traffic. It is noted that a Class I pedestrian-bike shared use path extends along the west side of SR 49 starting immediately south of its intersection with SR 193 to Cave Valley Road (a distance of approximately 1 mile).

Highway 193 (SR 193) extends east from SR 49 is a two-lane facility with no frontage improvements. SR 193 provides access east to Greenwood and Georgetown before extending south to Spanish Flat, Kelsey, and Placerville. SR 193 has left-turn/right-turn pockets at major street intersections in the study area with a posted speed limit of 55 mph. Based on the most recent Caltrans volumes, SR 193 carries 7,800 AADT with 7.3% truck traffic. It is noted that a Class I pedestrian-bike shared use path extends along the north side of SR 193 between SR 49 and American River Trail (a distance of approximately 0.9 miles).

Northside Road is located immediately north of the proposed project site and extends east from Highway 49 approximately 600-feet north of SR 193. A narrow roadway (18-feet), Northside Road provides access to existing United States Post Office facilities and self-storage areas. A new development that occurred on the south side of the roadway (Dollar General Store) improved Northside Road (i.e., widened) along its frontage to Highway 49.

Ellinghouse Road is located south of the proposed project site extending a relatively short distance (1,200 - feet) between Highway 193 and Highway 49. Ellinghouse Road provides access to the newer Holiday Market commercial-retail center located on the southeast quadrant of the Highway 49/Highway 193 intersection and has two travel lanes.

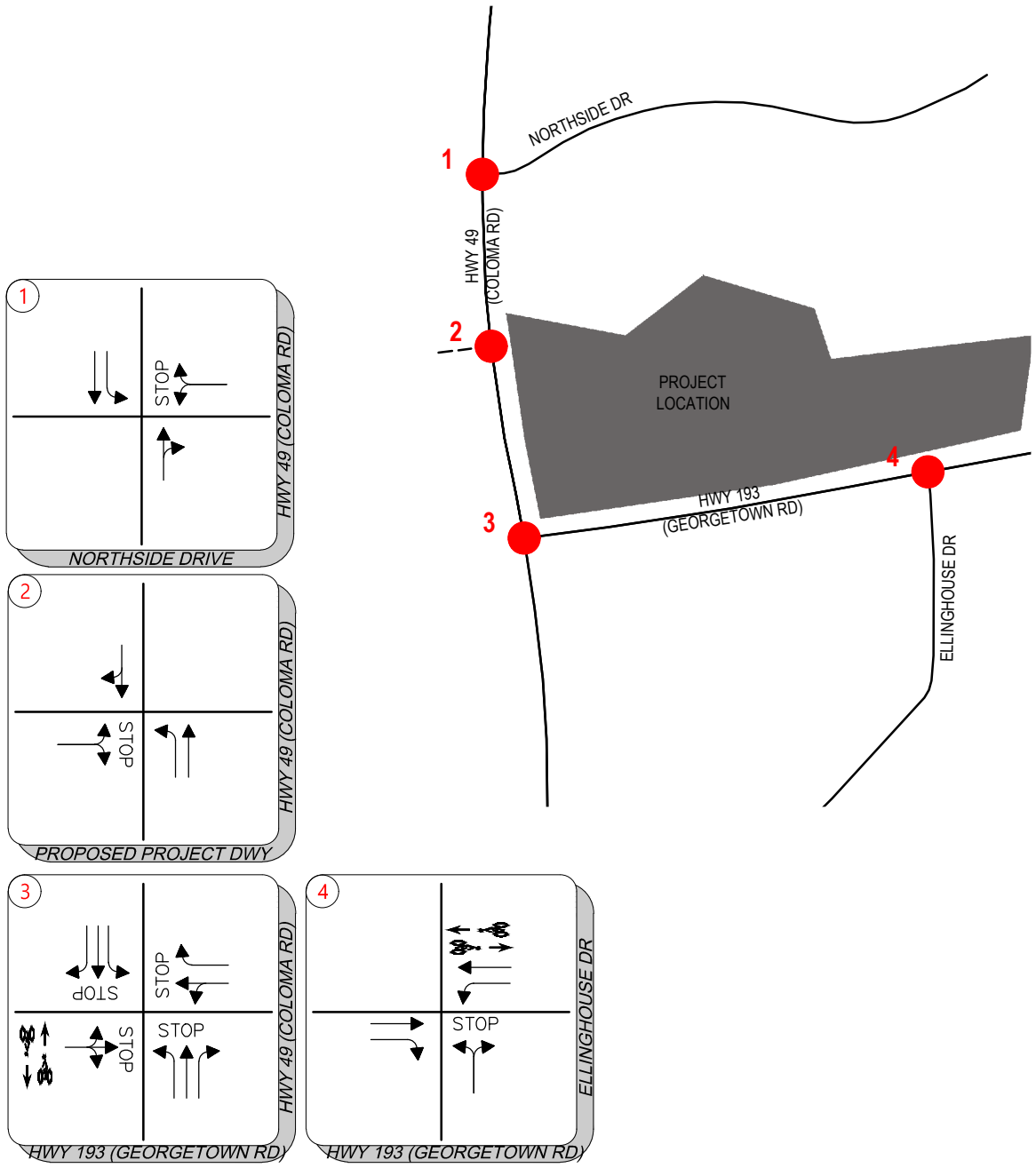
Regional access to the project study area is provided by **Interstate 80** which extends in an east-west direction approximately 9 miles north of the project site via Highway 49 at Auburn. Interstate 80 provides access west to Sacramento, Davis, and the Bay Area. To the east, Interstate 80 provides access to Truckee and Reno before continuing to through the adjacent states of Nevada, Utah, and Wyoming all the way to the east coast. I-80 is a multi-lane facility at Auburn.

2.3 Data Collection and Analysis

Recent transportation analyses were conducted for the Cool General Retail Project DEIR (El Dorado County, *SCH# 2020049050*, January 2021). Currently under construction, the project (Dollar General Store) is located immediately north of the proposed project site and gains vehicle access from Northside Drive. Vehicle count data for associated traffic analyses was collected for both the weekday AM peak period (7:00-9:00 a.m.) and PM peak period (4:00-6:00 p.m.) at the SR 49 intersections located at Northside Drive and SR 193. Vehicle count data collected as part of the Dollar General Store (KDA, 2020) traffic analysis was used for comparison purposes and consistency to ensure a conservative estimate of overall vehicle operations in the study area.

For the purposes of proposed project analysis, new intersection turning movement counts for the ***four*** existing intersections were collected on Thursday, July 28, 2022 during the AM peak and PM peak periods based on Caltrans direction. The traffic data collection was conducted to capture peak summer tourist traffic during weekday conditions. The AM peak hour is defined as the one continuous hour of peak traffic flow counted between 7:00 AM and 9:00 AM, and the PM peak hour is defined as the one continuous hour of peak traffic flow counted between 4:00 PM and 6:00 PM under typical weekday conditions. **Figure 2.2** presents the study intersections with existing lane configuration and traffic control. Intersection peak hour counts are included in **Attachment A** of this memorandum and shown in **Figure 2.3**.

Northside Drive is stop-sign controlled at SR 49 (T- intersection) for the westbound direction. A two-way-left-turn lane (TWLTL) is present on SR 49. The SR 49/SR 193 intersection is all-way-stop-controlled with a flashing beacon. Finally, the existing Ellinghouse Drive/SR 193 intersection is stop-sign controlled for the northbound (T- intersection) approach at SR 193. There is a separate westbound left-turn lane and separate eastbound right-turn lane from SR 193 providing access onto Ellinghouse Drive.



LEGEND:

BICYCLE LANE

VEHICLE LANE

STOP STOP CONTROL

N

GHD

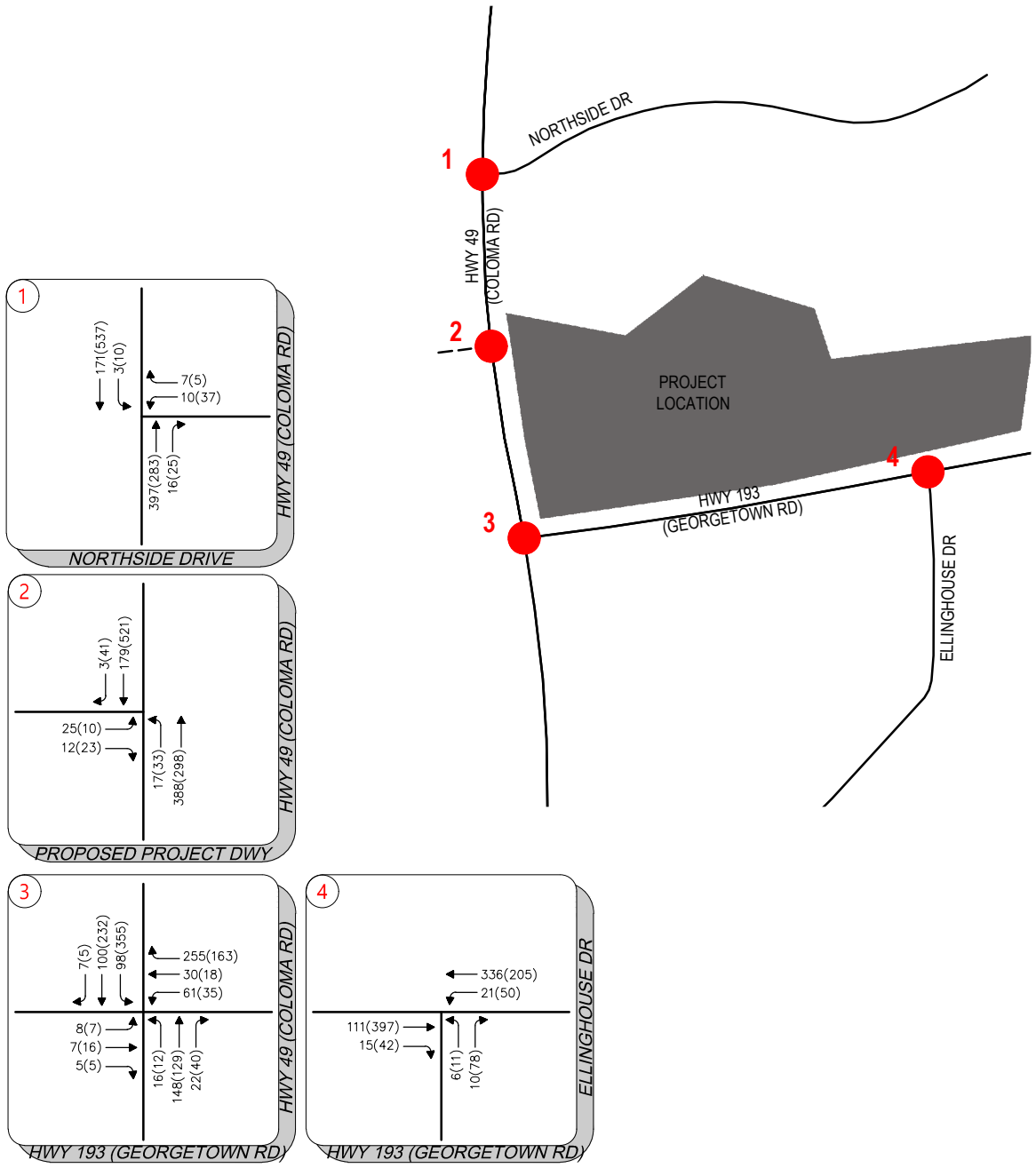
MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Project No. **12579129**
Date **8/29/2023**

FIGURE 2.2

Filename: \\Mcc-svr-001\ghd\US\San Luis Obispo\Projects\561\12579129\Digital_Design\ACAD 2020\Figures\12579129TG001.dwg
Plot Date: 29 August 2023 12:24 PM



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

N

GHD

MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

EXISTING PEAK HOUR VOLUMES

Project No. **12579129**
Date **8/29/2023**

FIGURE 2.3

Filename: \\Mcc-svr-001\ghd\US\San Luis Obispo\Projects\561\12579129\Digital_Design\ACAD 2020\Figures\12579129TG001.dwg
Plot Date: 29 August 2023 12:24 PM

3. Technical Analysis & Methodologies

3.1 Transportation and VMT Methodologies

Technical analysis parameters and methodologies for the traffic study have been based on the County of El Dorado traffic impact analysis guidelines, *Transportation Impact Study Guidelines, November 2014,* and consistent with policies adopted in *2004 El Dorado County General Plan Transportation and Circulation Element (Amended December 10, 2019).*

Senate Bill (SB) 743 was signed into law in 2013, with the intent to better align CEQA practices with statewide sustainability goals related to efficient land use, greater multimodal choices, and greenhouse gas reductions. The provisions of SB 743 became effective Statewide on July 1, 2020. Under SB 743, automobile delay, traditionally measured as level of service (LOS), are no longer considered an environmental impact under CEQA. Instead, impacts are determined by changes to VMT. However, traffic impact analyses have been conducted in tandem with additional VMT analyses consistent with County guidelines and direction.

The following section outlines the analysis parameters and methodologies that will be used in the transportation impact study to quantify the measures of effectiveness for the analysis scenarios.

3.2 Level of Service Methodologies

Levels of Service (LOS) will be calculated for all study intersection control types using the methods documented in the Transportation Research Board Publication, *Highway Capacity Manual, Sixth Edition, A Guide for Multimodal Mobility Analysis, 2016* (HCM 6). HCM 6 methodology is consistent with both the County of El Dorado and Caltrans guidelines. In addition, per the County of El Dorado's, *Transportation Impact Study Guidelines*, this analysis will also include project access, circulation, and analysis of multimodal infrastructure.

In an effort to maintain consistency with the County of El Dorado's *General Plan* policies for transportation facilities, level of service methodologies for intersections will be used to determine if the project causes an increase in traffic that is substantial and adverse in relation to the traffic load and capacity of the existing street system. 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 conditions. LOS "A" represents free-flow operating conditions and LOS "F" represents over-capacity conditions.

3.2.1 Intersection Operations

The Synchro 10 (Cubic) software program will be used to implement the HCM 6 analysis methodologies for the study intersections. Intersection Level of Service (LOS) will be calculated for all control types using the methods documented in HCM 6. For unsignalized intersections, the intersection LOS represents the worst minor-street movement controlled by a stop sign.

Vehicles queue lengths at project driveways and intersection turn pockets will be evaluated using microsimulation. *Simtraffic* traffic simulation software was used in capturing real world queuing conditions. The average of five (5) microsimulation runs were used in capturing 95th percentile queue. The vehicular-based LOS criteria for different types of intersection controls are presented in **Table 3.2.**

To determine whether "significance" should be associated with unsignalized intersection operations, a supplemental traffic signal "warrant" analysis will also be completed. The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an otherwise unsignalized intersection. This study will employ the signal warrant criteria presented in the latest edition of California's Manual on Uniform Traffic Control Devices (CA MUTCD) for all study intersection(s). The signal warrant criteria are based upon several factors including volume of vehicular and pedestrian traffic, frequency of accidents, location of school areas etc. The CA

TABLE 3.2 – LEVEL OF SERVICE (LOS) CRITERIA FOR INTERSECTIONS

LOS	Type of Flow	Delay	Maneuverability	Stopped Delay / Vehicle (sec)	
				Signalized	Unsignalized / AWSC, TWSC, and Roundabouts
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	≤10.0	≤10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and ≤20.0	>10 and ≤15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20 and ≤35.0	>15 and ≤25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable	Maneuverability is severely limited during short periods due to temporary back-ups.	>35 and ≤55.0	>25 and ≤35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55 and ≤80.0	>35 and ≤50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0

MUTCD indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. The ultimate decision to signalize an intersection should be determined after careful analysis of all intersections and area characteristics.

This traffic operations analysis will specifically utilize the Peak-Hour-Volume based Warrant 3 as one representative type of traffic signal warrant analysis. Warrant 3 criteria are identical for both Warrant 3 provides the option to use the lower threshold criteria (*CA MUTCD Figure 4C-4*) if the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000.

3.2.2 Highway (Two-Lane) Roadway Segment Levels of Service

Two-lane roadway segments will be analyzed using methodologies based on the Highway Capacity Manual 2010 (HCM) consistent with El Dorado County TIS guidelines and other recent transportation studies conducted for development projects in the study area. HCM classifies two-lane highways into three types including Classes I, II, and III based on travel speeds, trip lengths, and demographic/developed areas. Based on measures of effectiveness or (MOE) the LOS calculations incorporate average travel speeds (ATS), Percent Time Spent Following (PTSF), and Percent of Free-Flow Speed (PFFS). The LOS criteria for two-lane highways per El Dorado County peak hour segment volumes are shown in **Table 3.3**.

TABLE 3.3 EL DORADO COUNTY PEAK HOUR ROADWAY SEGMENT LOS CRITERION

		HCM 2010 Planning Level Volumes				
Code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	Two-Lane Arterial	---	---	850	1,540	1,650

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h

Volumes are for both directions unless noted

3.3 Agency LOS Guidelines, Policies, and Transportation Studies

The four study intersections are within the County of El Dorado's and Caltrans jurisdictions on State Route 49 and State Route 193. Key policies and thresholds are listed below.

3.3.1 County of El Dorado Policies and LOS Guidelines

In conformance with the County of El Dorado General Plan Transportation and Circulation Element (July 2004, Amended August 2019), the following policies would apply to proposed project development:

GOAL TC-X: To coordinate planning and implementation of roadway improvements with new development to maintain adequate levels of service on County Roads.

> **Policy TC-Xc** Developer paid traffic impact fees combined with any other available funds shall fully pay for building all necessary road capacity improvements to fully offset and mitigate all direct and cumulative traffic impacts from new development during peak hours upon any highways, arterial roads, and their intersections during weekday, peak-hour periods in unincorporated areas of the county. (Resolution 201-2018, September 25, 2018)

Policy TC-Xd 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 (shown below). The volume to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table. Level of Service will be as defined in the latest edition of the Highway Capacity Manual (Transportation Research Board, National Research Council) and calculated using the methodologies contained in that manual. Analysis periods shall be based on the professional judgment of the Department of Transportation which shall consider periods including, but not limited to, Weekday Average Daily Traffic (ADT), AM Peak Hour, and PM Peak Hour traffic volumes.

TABLE TC-2
EL DORADO COUNTY ROADS ALLOWED TO OPERATE AT LEVEL OF SERVICE F[1]
(Through December 31, 2018)

Road Segment(s)		Max. V/C[2]
Cambridge Road	Country Club Drive to Oxford Road	1.07
Cameron Park Drive	Robin Lane to Coach Lane	1.11
Missouri Flat Road	U.S. Highway 50 to Mother Lode Drive	1.12
	Mother Lode Drive to China Garden Road	1.20
Pleasant Valley Road	El Dorado Road to State Route 49	1.28
U.S. Highway 50	Canal Street to junction of State Route 49 (Spring Street)	1.25
	Junction of State Route 49 (Spring Street) to Coloma Street	1.59
	Coloma Street to Bedford Avenue	1.61
	Bedford Avenue to beginning of freeway	1.73
	Beginning of freeway to Washington overhead	1.16
	Ice House Road to Echo Lake	1.16
State Route 49	Pacific/Sacramento Street to new four-lane section	1.31
	U.S. Highway 50 to State Route 193	1.32
	State Route 193 to county line	1.51

Notes:
[1] Roads improved to their maximum width given right-of-way and physical limitations.
[2] Volume to Capacity ratio.

Source: El Dorado County, Attachment 5, File # DR00-001, Measure Y Revisions to 2004 El Dorado County General Plan, July 19, 2004.

As noted above in the County's Table TC-2, specific segments of Highway 49 are allowed to operate at LOS F in the project study area. In the project study area, this includes the approximate 0.8 segment of

Highway 49 between Highway 50 to State Route 193 to the project's southern intersection. The SR 193 to Placer County Highway 49 segment then extends along the project frontage to the Placer County line.

Policy TC-Xe For the purposes of this Transportation and Circulation Element, "worsen" is defined as any of the following number of project trips using a road facility at the time of issuance of a use and occupancy permit for the development project:

A. A 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.

Policy TC-Xf For all other discretionary projects that worsen (defined as a project that triggers Policy TC-Xe [A] or [B] or [C]) traffic on the County road system, the County shall do one of the following: (1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards detailed in this Transportation and Circulation Element; or (2) ensure the construction of the necessary road improvements are included in the County's 20-year CIP.

Policy TC-Xg Each development project shall dedicate right-of-way, design and construct or fund any improvements necessary to mitigate the effects of traffic from the project. The County shall require an analysis of impacts of traffic from the development project, including impacts from truck traffic, and require dedication of needed right-of-way and construction of road facilities as a condition of the development. This policy shall remain in effect indefinitely unless amended by voters.

Policy TC-3c The County shall encourage new development within the Community Regions and Rural Centers to provide appropriate on-site facilities that encourage employees to use alternative transportation modes. The type of facilities that may include bicycle parking, shower and locker facilities, and convenient access to transit, depending on the development size and location.

Policy TC-4i. Within Community Centers and Rural Centers, all development shall include pedestrian/bike paths connecting to adjacent development and to schools, parks, commercial areas, and other facilities where feasible. In Rural Regions, pedestrian/bike paths shall be considered as appropriate.

As noted in Section 3.1 (VMT Analysis), while LOS policies may apply to the findings of consistency for the proposed project, LOS may not be used to determine a significant transportation impact under CEQA. However, the County's transportation policies do include related LOS thresholds for County maintained roads and state highways within unincorporated areas. For operational purposes, the County's policies are generally consistent with Caltrans policies that strive to "maintain a target LOS at the transition between LOS C and LOS D on state highway facilities." For the purpose of this analysis (when evaluating the operational characteristics of intersections and roadways), a target LOS of D will be the threshold. However, as noted the standard for SR 49 in the project study area is LOS F based on El Dorado County Road Standards.

This traffic study will specifically utilize the Peak-Hour-Volume based Warrant 3 as one representative type of traffic signal warrant analysis. Since Warrant 3 provides specialized warrant criteria for intersections with rural characteristics (e.g., located in communities with populations less than 10,000 persons or with adjacent major streets operating above 40 mph), the study intersection will be evaluated with this specialized criterion.

This traffic study focuses on the evaluation of the traffic operating conditions and any subsequent traffic impacts and the recommended mitigation. The study incorporates appropriate heavy vehicle adjustment factors, peak hour factors, and lane geometry/storage capacity and reports the resulting intersection delays and LOS as estimated using the HCM 6 based analysis methodologies. The Synchro 11 (Trafficware) software

program was used to implement the HCM 6 analysis methodologies. Synchro 11 has the capability to produce results using HCM 2016 methodologies, and takes into account intersection geometry, delay, and queue lengths.

3.3.2 State Route (SR) 49 American River Confluence Study

Based on discussions with County Engineering staff, other potential circulation improvements have been suggested for the study area along the SR 49 corridor identified as part of State Route 49 American River Confluence Study.[5] The study evaluated the corridor segment of SR 49 between the community of Cool north to the City of Auburn looking at "Existing Issues" associated with "overcrowding, accessibility, and the general safety of the corridor." Two issues identified by County staff include over-sized truck traffic and intersection operations along the corridor. The analysis found that over-sized truck traffic (STAA sized vehicles 48-58' KPRA) are problematic along the SR 49 corridor in general and particularly in the segment between SR 193 north to Auburn given the limited curve radii and narrow travel lanes. Some of the key recommendations for over-sized trucks (not all) along the SR 49 and project study area in Cool are as follows:

- Identify locations in Placerville and Auburn and place signage to deter oversized trucks from entering the corridor.
- Install signage at multiple locations in Auburn, and the I-80 interchanges with Elm Avenue and SR 49 in Auburn to direct oversized truck traffic away from the SR 49 study corridor.
- Encourage local and regional agencies to coordinate with the CHP to encourage greater enforcement on SR 49 including ticketing STAA-sized vehicles (48-53 feet KPRA).
- Encourage local and regional agencies to partner with Caltrans and the CHP to form a Goods Movement Committee to establish a forum for addressing oversized truck usage in the Confluence.
- Pursuant to the conditions of approval established as part of the entitlement process and approval of the Dollar General Store located in Cool, coordinate with El Dorado County to better enforce Dollar General Store truck restrictions in the Confluence.

In addition to deterring over-sized truck traffic along the SR 49 corridor, the study also identified intersection operation at the SR 49/SR 193 intersection.

- Perform an Intersection Control Evaluation (ICE) study at the intersection of SR 49 and SR 193 to determine suitability of a roundabout or other configuration that would support future traffic volumes should they reach a level unsupported by the current stop control intersection.

It is noted that the suggested operational analyses of the SR 49/SR 193 are supported by Caltrans.

3.4 Technical Analysis Parameters

The traffic study provides a "preliminary operational level" evaluation of traffic operating conditions at the study intersection. The evaluation incorporated appropriate heavy vehicle adjustment factors, peak hour factors, lane geometries, etc. **Table 3.4** summarizes the intersection technical analysis parameters used within the study.

[5] DKS Associates, State Route (SR) 49 American River Confluence Study, Final Report, Prepared for El Dorado County Transportation Commission, February 2023.

TABLE 3.4 – TECHNICAL ANALYSIS PARAMETERS

Technical Parameters	Assumption
1. Intersection Peak Hour Factor (PHF)	Field recorded PHF for Existing & Existing plus Project Scenarios 0.92 PHF in AM and PM peak hours for Cumulative and Cumulative Plus Project Scenarios
2. Intersection Heavy Vehicle	Minimum of 2% and/or Heavy Vehicle Counts per movement recorded in field

4. Transit

Transit service in El Dorado County is provided primarily by the El Dorado County Transit Authority (EDCTA) in community and rural areas adjacent to SR 50. These include the communities of Placerville, Diamond Springs, Cameron Park, and Pollock Pines. There are also commuter routes extending between western El Dorado County and downtown Sacramento. Dial-a-Ride service is provided to outlying areas not served by standard routes. Between fixed route and commuter service routes, there are a total of 9 routes in western El Dorado County. In addition, life-line service is provided to elderly and/or disabled patrons as well as Sacramento commuters. Currently, no EDTCA bus route serves the Community of Cool.

In addition to EDTCA service, there is a Sacramento/South Lake Tahoe connecting bus service (Lake Tahoe Transit). Based on the EDCTA's website, "The Sacramento Commuter provides 11 trips in the morning for 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."

5. Pedestrian-Bicycle

Pedestrian and bicycle facilities in the project study area consist primarily of pedestrian crosswalks, and Class I (off-street) pedestrian-bike shared use paths. In the immediate project study area, pedestrian and bicycle facilities are limited to the immediate SR 49/SR193 intersection. An all-way-stop-controlled facility (with stop-sign warning lights and flashing beacon); the SR 49/SR 193 intersection has a north-south pedestrian crosswalk on SR 193 (east side of intersection) and an east-west pedestrian crosswalk on SR 49 (south side of intersection). As noted, Class I (off-street) pedestrian-bike shared use paths are located along the north side of SR 193and SR 49 along the west side of the highway. The pedestrian crosswalks at the SR 49/SR 193 link the two Class I shared use paths.

6. Collision Analysis

A collision analysis was conducted for the study area to determine any trends or patterns that may indicate a safety issue at adjacent intersections and roadways in the study area. Collision rates are calculated based on records provided by the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. In addition, a collision rate analysis using the Traffic Accident Surveillance and Analysis System (TASAS) records (*Caltrans, 2022*) was incorporated for the SR 49 segment between. The most current five (5) year period from January 1, 2017 through December 31, 2021 was analyzed.

Collision characteristics and rates for the three primary existing study intersections are shown in **Table 6.1.**

There were no fatal or severe injury collisions recorded for the study locations in the past five years. In addition, the calculated collision rates for the study locations were compared to the average collision rates for similar facilities statewide, as indicated in the *2018 Collision Data on California State Highways* (Caltrans).

As presented in **Table 6.1**, all three primary intersections are experiencing collision rates below the State average for similar facilities. The SR 49/SR 193 intersection has experienced four (4) collisions in the last five years which were recorded as "property damage (2)" and "rear-end (2)." The Ellinghouse Drive/SR 193 intersections experienced two (2) collisions including "property damage (1)" and "broadside (1)". Broadside collisions typically occur when vehicles do not yield the right of way or violate the stop signs. There were no pedestrian or bicycle to vehicle collisions.

TABLE 6.1 – STUDY INTERSECTIONS COLLISION ANALYSIS

		By Severity					By Type							By Year										
Intersection ID	**Intersection**	Fatal	Severe Injury	Injury (Other Visible)	Injury (Complaint of Pain)	Property Damage Only	Head-On	Sideswipe	Rear End	Broadside	Hit Object	Vehicle/Pedestrian	Other	2016	2017	2018	2019	2020	Bicycle Involved Collisions	Pedestrian Involved Collisions	**Total Collisions** (2016-2020)	**24-Hr Entering Volume**	**Collision Rate** (Per Million Entering Vehicles)	**CA Average Collision Rate** (Per Million Entering Vehicles)
1	Northside Drive / Highway 49 (Coloma Road)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8800	**0.0000**	0.19
2	Proposed Project Driveway / Highway 49 (Coloma Road)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8800	**0.0000**	0.19
3	Highway 49 (Coloma Road) / Highway 193 (Georgetown Road)	0	0	1	1	2	1	0	2	1	0	0	0	0	0	2	0	2	0	0	4	12890	**0.1700**	0.56
4	Ellinghouse Drive / Highway 193 (Georgetown Road)	0	1	0	0	1	0	0	0	1	1	0	0	1	1	0	0	0	0	0	2	7410	**0.1479**	0.19

In addition to intersection collisions, roadway segments along SR 49 and SR 193 were analyzed for collision characteristics as shown in **Table 6.2** and **Table 6.3**. As presented, the roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49). Again, there were no fatal or severe injury collisions on the segments with just three collisions over the five-year period well below the state average.

TABLE 6.2—STUDY ROADWAY SEGMENT COLLISION ANALYSIS

		By Severity					By Type							By Year										
Segment ID	**Segment**	Fatal	Severe Injury	Injury (Other Visible)	Injury (Complaint of Pain)	Property Damage Only	Head-On	Sideswipe	Rear End	Broadside	Hit Object	Vehicle/Pedestrian	Other	2016	2017	2018	2019	2020	Bicycle Involved Collisions	Pedestrian Involved Collisions	**Total Collisions** (2016-2020)	**24-Hr Entering Volume**	**Collision Rate** (Per Million Entering Vehicles)	**CA Average Collision Rate** (Per Million Entering Vehicles)
A	Highway 49 (Coloma Road) from Highway 193 (Georgetown Road) to 150' North of Northside Drive	0	0	1	0	1	0	0	0	1	1	0	0	1	0	0	1	0	0	0	2	8800	**0.0008**	0.78
B	Highway 193 (Georgetown Road) from Highway 149 (Coloma Road) to 500' West of Ellinghouse Drive	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	7410	**0.0001**	0.78
C	Highway 49 (Coloma Road) from Highway 193 (Georgetown Road) to 500' South of Highway 193 (Georgetown Road)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8805	**0.0000**	0.78

In addition to inventorying the Statewide Integrated Traffic Records System for collisions at the study intersections and roadway segments, Caltrans performed an additional collision analysis for the SR 49 segment starting south of Ellinghouse Road and extending to Northside Drive (mileposts 34.237-34.582 or 0.40 miles). Using the Traffic Accident Surveillance and Analysis System (TASAS), vehicle collisions were recorded for the five-year period between January 1, 2017 and December 31, 2021 and are shown in **Table 6.3**. Comparing the actual collision rates for the roadway segment to the average rates for similar facilities, the segment is currently experiencing a total rate of fatal and injury rate below the state average. However, the segment is experiencing a collision rate (2.05) higher than the state average (1.41) for similar facilities.

TABLE 6.3—TASAS ROADWAY SEGMENT COLLISION RATES

Segment	Total # of Collisions	Fatal Collisions	Injury Collisions	ACTUAL (per million vehicle miles)			AVERAGE (per million vehicle miles)		
				Fatal Collisions	Fatal + Injury Collisions	Total	Fatal Collisions	Fatal + Injury Collisions	Total
ED-49 PM 34.237-34.582	7	0	2	0.000	0.59	2.05	0.037	0.67	1.41

Source: Caltrans, District 3 Office of Traffic Safety, TASAS collision analysis, March 23, 2022.

7. Existing Conditions (Year 2022)

The Existing Conditions have been modelled to analyze current traffic volumes and establish the baseline traffic performance. The existing scenario reflect opening year 2022 conditions.

7.1 Intersection Operations

Table 7.1 summarizes the intersection performance during the AM and PM peak hour at Existing Conditions.

TABLE 7.1 -EXISTING CONDITIONS INTERSECTION LOS

ID	Intersection	Peak Hour	Existing		
			Control	Delay	LOS
1	**Highway 49 (Coloma Road) & Northside Drive**	AM	TWSC	12	B
		PM		14.7	B
2	**Highway 49 (Coloma Road) & Retail Driveway/Project Driveway**	AM	TWSC	11.6	B
		PM		14	B
3	**Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)**	AM	AWSC	10.9	B
		PM		14.6	B
4	**Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)**	AM	TWSC	10.2	B
		PM		13.1	B

BOLD Indicate LOS of D or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).

As presented in **Table 7.1**, all four project study intersections along SR 49 and SR 193 are operating at acceptable conditions (LOS B or better) during the AM and PM peak hour. All *Synchro* results are included in **Attachment C**.

The 95th percentile queue lengths were also analyzed using microsimulation (through *Simtraffic* Software) for the study intersection. All Simtraffic results are included in **Attachment D**.

As shown in **Table 7.2**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation. Field observations did indicate minor (3-5 vehicles) vehicle queuing for the westbound right-turn movement from SR 193 at SR 49 and the northbound through-

movement on SR 49 at SR 193. However, all observed vehicle queuing at the SR 49/SR 193 quickly dissipated and overall vehicle progression was acceptable.

TABLE 7.2 – EXISTING CONDITIONS QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Existing No Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TWSC	40	50	100
	Southbound Left		10	20	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Right	TWSC	50	50	75
	Northbound Left		15	45	100
	Southbound Thru/Right		0	5	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193***				
	Eastbound Left/Thru/Right	AWSC	30	30	140
	Westbound Left/Thru		45	45	540
	Westbound Right		75	60	90
	Northbound Left		30	30	150
	Northbound Thru		80	70	650
	Northbound Right		45	45	110
	Southbound Left		50	115	200
	Southbound Thru		50	70	340
	Southbound Right		15	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Right	TWSC	0	0	175
	Westbound Left		15	35	220
	Northbound Left/Right		45	65	155

Note: **Bold** text indicates queues that exceed available storage
Weekday AM & PM peak hour and Weekend midday peak hour

7.2 Roadway Segment Level of Service

Table 7.3 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) are operating at LOS D or better during the AM and PM peak hour (worst case volumes shown).

TABLE 7.3 ROADWAY SEGMENT LOS; EXISTING CONDITIONS

		HCM 2010 Planning Level Volumes				
Code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	Two-Lane Arterial	---	---	850	1,540	1,650
	State Route 49 north of State Route 193				855	
	State Route 49 south of State Route 193			481		
	State Route 193 east of State Route 49			627		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h
Volumes are for both directions unless noted

7.3 Signal Warrants

Based on the CA MUTCD peak hour signal warrant criteria (Warrant #3) for all four study intersections were evaluated using Warrant 3: Peak Hour Factor. The peak hour warrant is one of several warrants used to determine if installation of a traffic signal is appropriate. Qualifying for signalization using the peak hour

warrants does not necessarily mean a signal should be installed as other hours of the day might experience undue delay. Therefore, the decision to install a traffic signal should be based on further analysis utilizing the additional warrants for signalization as presented in the CA MUTCD. Under Existing Conditions, the SR 49/SR 193 intersection would qualify for signalization under Figure 4C-4 (70% Option) (the warrant graphs are provided in Attachment **B**) without near-term, proposed project, or cumulative traffic volumes. The remaining three study intersections would not qualify for signalization with existing volumes at this time, due to the low minor street volumes. To meet the peak hour warrant, the highest minor street approach must be 75 vehicles or greater with a corresponding major street volume of approximately 1200 vehicles for the 70% condition. For all of the conditions, the remaining three study intersections do not meet these volume thresholds.

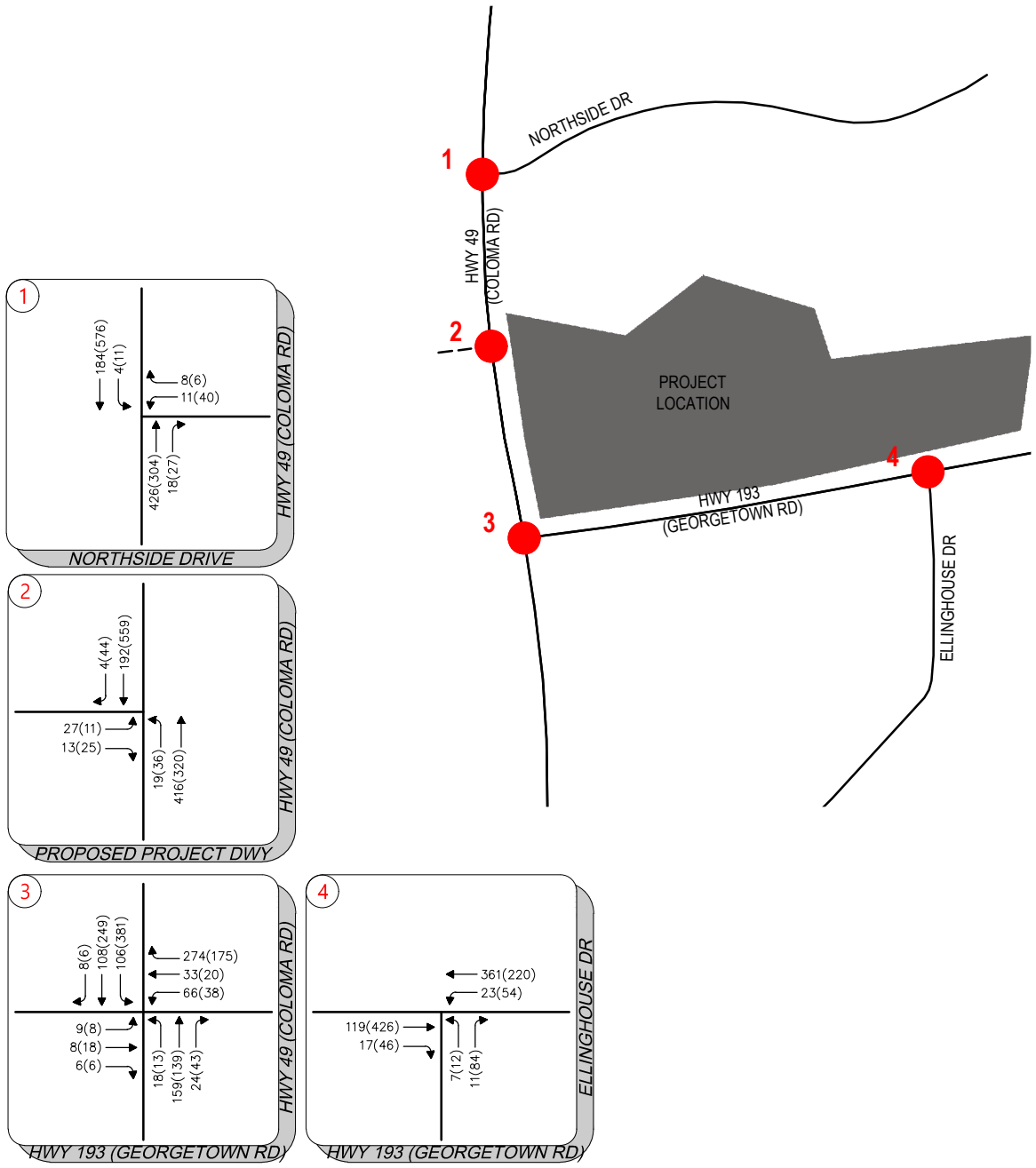
8. Near-Term Year 2032 (No Project) Condtions

8.1 Traffic Model Projections

Near-Term Year 2032 (No Project) Conditions refer to the analysis scenario that would exist following approximately ten years of development in El Dorado County and the surrounding area of Cool but excludes the development of the proposed project. Consistent with the County's TIS guidelines, the El Dorado County Travel Demand Model was obtained to generate base year (2018) and future year (2040) project volumes (EDCTDM plots are attached in **Attachment E**). EDCTDM output was used to develop an annual growth rate. Based on future year traffic volumes projections, the existing traffic volumes were grown up by 0.72% per year or 7.4% for the 10-year period (2022 opening year to 2032 near-term year) to coincide with 2032 traffic conditions.

Additionally, El Dorado County Planning and Engineering staff were contacted for any other local approved/pending developments in the area (*August 2022*). At this time, no other development projects are anticipated in the project study area. Peak hour traffic volumes from the recent Dollar General Store development adjacent to the proposed project site are contained within the recent vehicle counts collected for this analysis.

Near-Term Year 2032 (No Project) AM and PM peak hour intersection volumes are shown in **Figure 8.1.**



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

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TRAFFIC IMPACT ANALYSIS MEMORANDUM

NEAR TERM (NO PROJECT) PEAK HOUR VOLUMES

Project No. **12579129**
Date **8/29/2023**

FIGURE 8.1

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8.2 Planned Circulation Improvements

Based on discussions with County of El Dorado and Caltrans staff, no short-term (or long-term) circulation improvements are planned for the immediate project vicinity area along SR 49 and/or SR 193. The most recent circulation improvements were to Northside Drive located immediately north of the proposed project site. As part of the Dollar General Store development, Northside Drive was improved with new pavement and a pedestrian sidewalk on the south side of the street connecting to SR 49. There is a potential for the Class II on the east side of SR 49 to be extended north past the project frontage to provide access to the Olmstead Loop Trailhead area. However, beyond that provided as part of proposed project frontage improvements nothing is approved at this time.

8.3 Intersection Operations

Table 8.1 summarizes the intersection performance during the AM and PM peak hour and compares Existing (No Project) Conditions and Near-Term Year 2032 (No Project) Conditions.

As presented in **Table 8.1**, all four project study intersections along SR 49 and SR 193 would be operating at acceptable conditions (LOS C or better) during the AM and PM peak hour under Near-Term (No Project) Conditions. All *Synchro* results are included in **Attachment C**.

The 95th percentile queue lengths were also analyzed using microsimulation (through *Simtraffic* Software) for the study intersection. As shown in **Table 8.2**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation under Near-Term (No Project) Conditions.

TABLE 8.1 EXISTING (NO PROJECT) AND NEAR-TERM YEAR 2032 (NO PROJECT) INTERSECTION LOS

ID	Intersection	Peak Hour	Existing			Near Term		
			Control	Delay	LOS	Control	Delay	LOS
1	**Highway 49 (Coloma Road) & Northside Drive**	AM	TWSC	12.0	B	TWSC	12.4	B
		PM		14.7	B		14.9	B
2	**Highway 49 (Coloma Road) & Retail Driveway/Project Driveway**	AM	TWSC	13.6	B	TWSC	14.4	B
		PM		17.1	C		17.5	C
3	**Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)**	AM	AWSC	10.9	B	AWSC	11.8	B
		PM		14.6	B		18.7	C
4	**Ellinghouse Drive/Highway 193 (Georgetown Road)**	AM	TWSC	10.5	B	TWSC	10.9	B
		PM		13.5	B		13.6	B

BOLD Indicates LOS of D or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).

TABLE 8.2 NEAR-TERM YEAR 2032 (NO PROJECT) QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Near Term No Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TW SC	40	50	100
	Northbound Thru/Right		0	0	100
	Southbound Left		15	20	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Right	TWSC	50	55	75
	Northbound Left		15	40	100
	Southbound Thru/Right		0	15	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown***				
	Eastbound Left/Thru/Right	AWSC	30	40	140
	Westbound Left/Thru		45	40	540
	Westbound Right		80	60	90
	Northbound Left		40	30	150
	Northbound Thru		75	70	650
	Northbound Right		40	45	110
	Southbound Left		55	120	200
	Southbound Thru		55	65	340
	Southbound Right		15	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Right	TWSC	0	10	175
	Westbound Left		20	40	220
	Northbound Left/Right		50	70	155

Note: **Bold** text indicates queues that exceed available storage

8.4 Roadway Segment LOS

Table 8.3 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) would be operating at LOS D or better during the AM and PM peak hour under Near-Term (No Project) Conditions (worst case volumes shown).

TABLE 8.3 NEAR-TERM YEAR 2032 (NO PROJECT) ROADWAY SEGMENT LOS

		HCM 2010 Planning Level Volumes				
Code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	**Two-Lane Arterial**	**---**	**---**	**850**	**1,540**	**1,650**
	State Route 49 north of State Route 193				958	
	State Route 49 south of State Route 193			488		
	State Route 193 east of State Route 49			746		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h

Volumes are for both directions unless noted

8.5 Signal Warrants

Based on the CA MUTCD peak hour signal warrant criteria (Warrant #3), the SR 49/SR 193/Shopping Center intersection was evaluated for Near-Term (No Project) Conditions. The SR 49/SR 193/Shopping Center intersection would continue to qualify for signalization under the peak hour warrant (the warrant graphs are provided in **Attachment B**). The remaining three study intersections would not qualify for signalization with existing volumes due to the minor street volumes being too low for analysis (minimum 75 minor street peak hour vehicles).

9. Cumulative Year 2042 (No Project) Conditions

9.1 Future Projections

Cumulative (No Project) Conditions refer to the analysis scenario that would exist following approximately twenty years of development in El Dorado County and the surrounding areas but excludes the development of the proposed project. As with Near-Term (No Project) Conditions, the El Dorado County Travel Demand Model (EDCTDM) was used to develop a growth rate based on the growth within El Dorado County and the immediate project study area. Based on future year traffic volumes projections, the existing traffic volumes were grown up by 0.72% per year for 20 years (2022 opening year to 2042 cumulative year) to coincide with 2042 traffic conditions.

Cumulative (No Project) Year 2042 AM and PM peak hour intersection volumes are presented in **Figure 9.1**.

9.2 Intersection Operations

Table 9.1 presents a summary of the intersection operations for the weekday AM and PM peak hour scenarios for the Cumulative (No Project) Conditions. As presented in **Table 9.1**, all four project study intersections along SR 49 and SR 193 would be operating at acceptable conditions (LOS D or better) during the AM and PM peak hour under Cumulative (No Project) Conditions. All *Synchro* results are included in **Attachment B**.

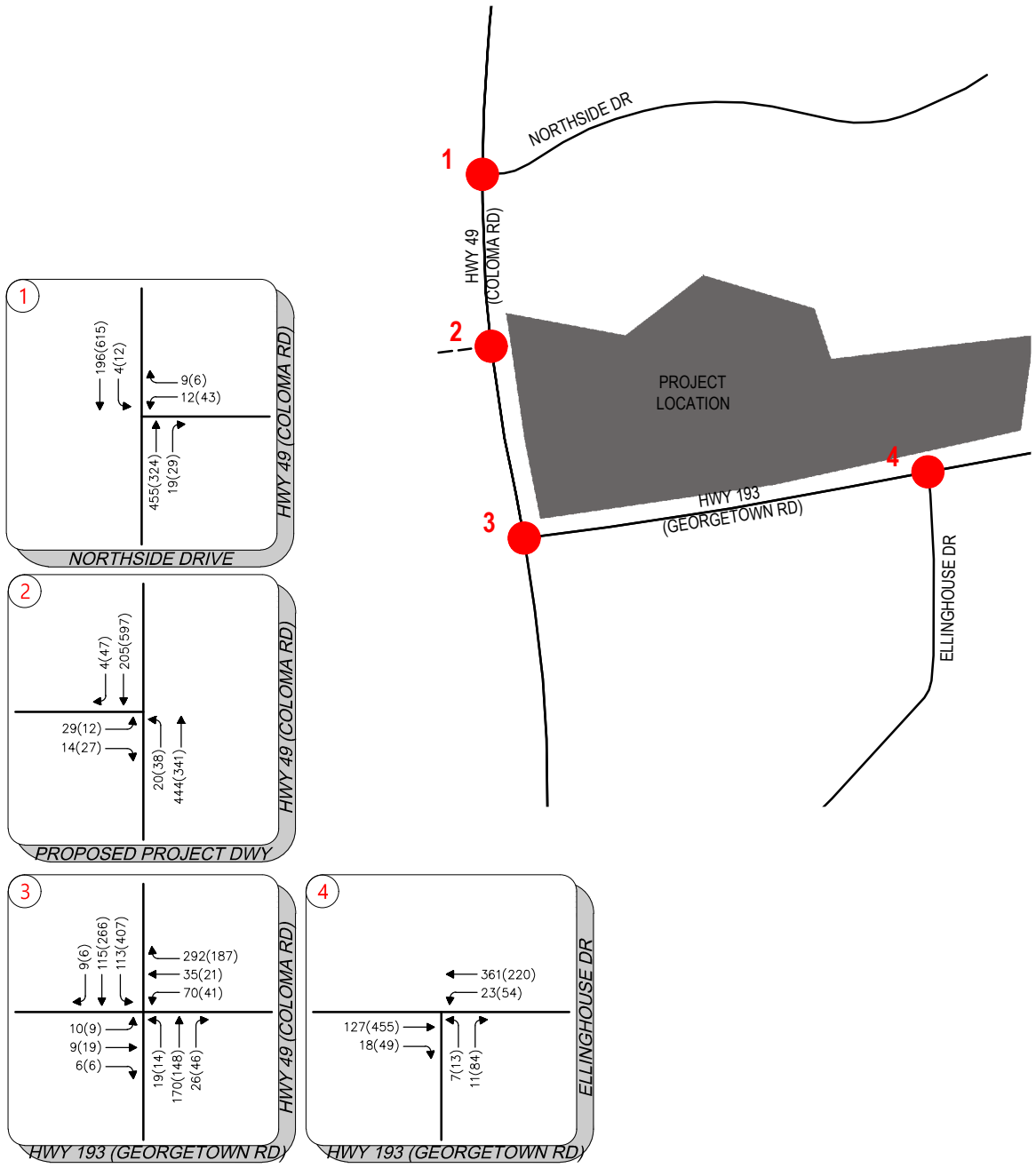
TABLE 9.1 CUMULATIVE YEAR 2042 (NO PROJECT) INTERSECTION LOS

ID	Intersection	Peak Hour	Existing			Near Term			Cumulative		
			Control	Delay	LOS	Control	Delay	LOS	Control	Delay	LOS
1	**Highway 49 (Coloma Road) & Northside Drive**	AM	TWSC	12.0	B	TWSC	12.4	B	TWSC	12.7	B
		PM		14.7	B		14.9	B		16.2	C
2	**Highway 49 (Coloma Road) & Retail Driveway/Project Driveway**	AM	TWSC	13.6	B	TWSC	14.4	B	TWSC	15.0	B
		PM		17.1	C		17.5	C		18.8	C
3	**Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)**	AM	AWSC	10.9	B	AWSC	11.8	B	AWSC	12.3	B
		PM		14.6	B		18.7	C		21.4	C
4	**Ellinghouse Drive/Highway 193 (Georgetown Road)**	AM	TWSC	10.5	B	TWSC	10.9	B	TWSC	11.0	B
		PM		13.5	B		13.6	B		14.2	B

BOLD Indicates LOS of D or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

N

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TRAFFIC IMPACT ANALYSIS MEMORANDUM

CUMULATIVE (NO PROJECT) PEAK HOUR VOLUMES

Project No. **12579129**
Date **8/29/2023**

FIGURE 9.1

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Plot Date: 29 August 2023 12:25 PM

The 95th percentile queue lengths were also analyzed using microsimulation (through *Simtraffic* Software) for the study intersection. As shown in **Table 9.2**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation under Cumulative (No Project) Conditions.

TABLE 9.2 CUMULATIVE YEAR 2042 (NO PROJECT) QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Cumulative No Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TW SC	45	60	100
	Northbound Thru/Right		0	10	100
	Southbound Left		15	25	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Right	TWSC	50	55	75
	Northbound Left		15	35	100
	Southbound Thru/Right		0	0	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown***				
	Eastbound Left/Thru/Right	AWSC	35	35	140
	Westbound Left/Thru		50	45	540
	Westbound Right		75	60	90
	Northbound Left		40	35	150
	Northbound Thru		80	80	650
	Northbound Right		45	50	110
	Southbound Left		60	145	200
	Southbound Thru		55	75	340
	Southbound Right		15	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Right	TWSC	0	0	175
	Westbound Left		15	40	220
	Northbound Left/Right		45	70	155

Note: **Bold** text indicates queues that exceed available storage

9.3 Roadway Segment Operations

Table 9.3 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) would be operating at LOS D or better during the AM and PM peak hour under Cumulative (No Project) Conditions (worst case volumes shown).

TABLE 9.3 CUMULATIVE YEAR 2042 (NO PROJECT) ROADWAY SEGMENT LOS

		HCM 2010 Planning Level Volumes				
Code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	**Two-Lane Arterial**	**---**	**---**	**850**	**1,540**	**1,650**
	State Route 49 north of State Route 193				1,010	
	State Route 49 south of State Route 193			515		
	State Route 193 east of State Route 49			786		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h
Volumes are for both directions unless noted

9.4 Signal Warrants

Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) peak hour signal warrant criteria (Warrant #3) for the SR 49/SR 193 was evaluated for Cumulative (No Project) Conditions. The SR 49/SR 193 intersection would continue to qualify for signalization under the peak hour warrant (the warrant graphs are provided in **Attachment B**). The remaining three study intersections would not qualify for signalization with existing volumes due to minor street volumes being too low (less than 75 minor street vehicles).

10. Existing Year 2022 Plus Project Traffic Operations Project Description

The term “project,” as used in this report, refers to the development as follows:

- Development of the existing vacant lot on the northeast quadrant of the State Route 49 (SR 49) and State Route 193 (SR 193) intersection. The proposed developments are as follows:
  - **Main building(s) comprising of 9,787 square feet**
    - Convenience Store - 4,620 square feet
    - QSR Drive-Through Restaurant - 2,585 square feet
    - Future Retail Pad – 2,582 square feet
  - **Fueling facility with island and canopy and car wash of 4,916 square feet**
    - Above ground fueling tanks (2-20,000-gallon tanks)
    - 6-pump (12 vehicle fueling positions) fuel facility/canopy – 3,024 square feet
    - Automated Car Wash – 1,892 square feet

10.1 Project Trip Generation

Project site trip generation has been estimated for the proposed Convenience Store with Gas Station, Fast-Food (Quick Service) Restaurant with Drive-Through, and Retail Plaza (Strip) uses based on the combination of vehicle fueling positions (VFP)/square feet and overall square footage of the restaurant and strip retail plaza uses. It is noted that the proposed Car Wash uses are included in the overall trip generation for Convenience Store-Gas Station uses and is often ancillary to these uses based on ITE research. Daily and peak hour project trip generation was calculated by utilizing the Institute of Transportation Engineers (ITE) Publication *Trip Generation Manual (11th Edition)* trip rates for Convenience Store with Gasoline Station (land use code #945), Fast-Food Restaurant with Drive-Through (land use code #934), and Strip Retail Plaza (<40k) (land use code #822). The number of trips were estimated for daily and AM and PM peak hours of adjacent street traffic.

Since this type of project would serve traffic already using local roadways (SR 49 & SR 193), a pass-by reduction of trips can be considered. The pass by reduction is calculated based on ITE Publication *Trip Generation Handbook (3rd Edition, September 2017).* A brief description of pass-by trips from the *ITE Trip Generation Handbook* are as follows*.*

> *A pass-by trip is made as an intermediate trip on the way from an origin to a primary trip destination without route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offer direct access to the generator. Pass-by trips are not diverted from another roadway not adjacent to the site.*

According to average pass-by trip percentages from ITE Trip Generation Handbook (3rd Edition), convenience market with gasoline service station uses would see a reduction of 62% during the AM peak hour and 56% during the PM peak hour. This coincides with the typical need or ability to get gasoline or items from the convenience on the way to/from your destination (pass-by trips rather than new trips). Similarly, the fast-food drive-through and retail development would see a reduction of 49% during the AM peak hour and 50% during the PM peak hour.

In addition to pass-by trips, the proposed project would also provide complimentary uses such that trips between proposed project facilities can be made on-site. Referred to as “internal” trips, internal trips do not use the street system. As an example, a motorist might be getting gas for their vehicle and decide to pick up a sandwich at the fast-casual restaurant or vice-versa. It is noted that trip generation rates for gasoline service station with convenience market likely reflect internal inter-action amongst the uses. However, the proposed restaurants would attract a small portion of internal trips between uses. Based on the *Transportation Research Board (TRB) National Cooperative Highway Research Program (NCHRP) 684, Enhancing Internal Trip Capture Estimation for Mixed-Use Development (2011);* it is estimated that a portion of the project trip generation would reflect an internal capture. During the AM peak hour there would be a 12% reduction from internal trips. During the PM peak hour, there would be a 21% reduction due to complimentary uses.

Table 10.1 presents the project trip generation for both the daily and the AM/PM peak hours. As shown in Table 8.1, the proposed project is expected to generate 4,442 new daily trips. The net external project trip generation is 334 trips for the AM peak hour (170 in, 164 out) and 298 trips for the PM peak hour (151 in, 147 out) after accounting for internal trip reduction. Applying pass-by trip ratios, the proposed project would be expected to generate 112 AM peak hour trips (57 in, 55 out) and 105 PM peak hour trips (53 in, 52 out). Please note, pass-by trips are not discounted at proposed project driveways on SR 49 and SR 193.

TABLE 10.1 PROJECT TRIP GENERATION

Land Use Category (ITE Code)	Unit[1]	Daily Trip Rate/Unit[2]	AM Peak Hour Trip Rate/Unit			PM Peak Hour Trip Rate/Unit		
			Total	In %	Out %	Total	In %	Out %
Fast-Food Restaurant with Drive-Through Window (934)	KSF	467.48	44.61	51%	49%	33.03	52%	48%
Convenience Store with Gasoline Station (945)[4]	KSF	700.43	56.52	50%	50%	54.52	50%	50%
Future Lot (822)	KSF	54.45	2.36	60%	40%	6.59	50%	50%
Description	**Quantity (Units)**	**Daily Trips**	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
			Total	In	Out	Total	In	Out
Project Trips								
Drive-Thru Quick Service Restaurant	2.58	1,206	115	59	56	85	44	41
Convenience Store with Gasoline Station[5]	4.62	3,236	261	131	130	252	126	126
Strip Retail Plaza (<40k)	2.58	140	6	4	2	17	9	8
Total Project Trips		**4,442**	**382**	**194**	**188**	**354**	**179**	**175**
Internal Capture Reduction								
AM Peak Hour	13%		48	24	24	-	-	-
PM Peak Hour	16%		-	-	-	56	28	28
Total Internal Capture Reduction			**48**	**24**	**24**	**56**	**28**	**28**
Net External Project Trips		**4,442**	**334**	**170**	**164**	**298**	**151**	**147**
Pass-By Trip Reduction								
Drive-Thru Quick Service Restaurant			56	29	27	43	22	21
Convenience Store with Gasoline Station			162	81	81	141	71	71
Strip Retail Plaza (<40k)			4	2	1	10	5	4
Total Pass-By Trip Reduction			**222**	**113**	**109**	**193**	**98**	**96**
Net New Project Trips		**4,442**	**112**	**57**	**55**	**105**	**53**	**52**

Notes:

1. KSF = 1,000 square feet, VFP = vehicle fueling positions

2. Trip rates based on ITE Trip Generation Manual 11th edition average rates

3. Internal Capture and Pass-By Trip Reductions based on ITE Trip Generation Handbook, 3rd Edition (2017)

4. Using Land Use Subcategory 'VFP (9-15)'

5. Car wash is inlcuded with the gas station and conveinience store trips

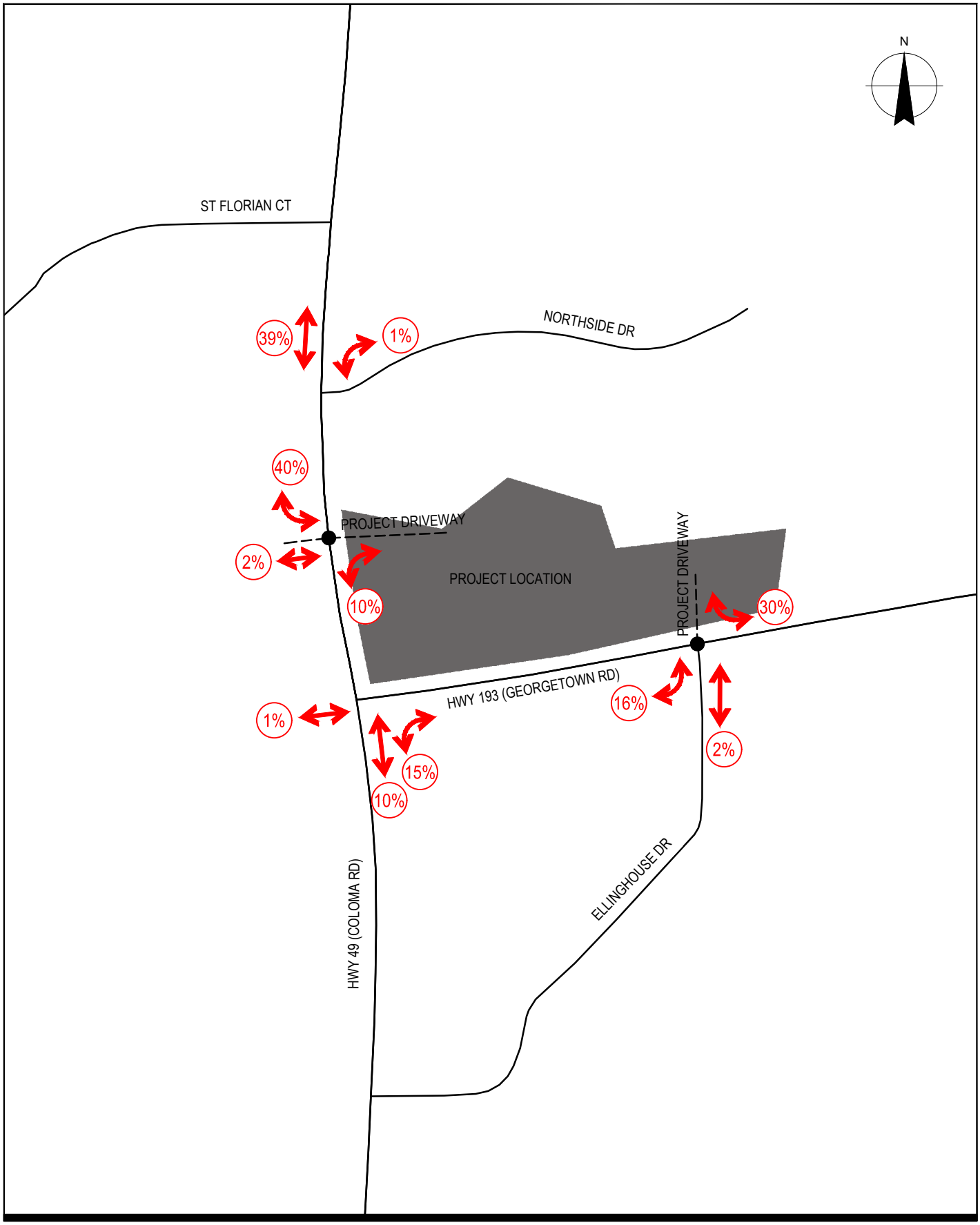
10.2 Project Trip Distribution and Assignment

Project trip distribution patterns were estimated based on the current El Dorado County Travel Demand Model, geographical location of the development site, existing traffic flow adjacent to the site, and previous development studies. The proposed trip distribution is presented in **Figure 10.1** with the AM and PM peak hour trip assignment presented in **Figure 10.2**. Trip distribution percentages reflect the primary flow of traffic past the project site on SR 49 and SR 193, existing adjacent commercial-use traffic patterns, and engineering judgement.

During the AM and PM peak hours, 39% of the project trips would be to/from the north on SR 49 and 25% to/from the south on the same highway (south of SR 193). 30% of the project trips would be to/from the east via SR 193. The remaining 6% of the proposed project trips would be from the adjacent commercial centers located both south and west of the proposed project site.

Existing Plus Project Conditions were simulated by superimposing traffic generated by the proposed project onto existing intersection traffic volumes. Existing Plus Project scenario refers to the analysis scenario in which traffic impacts associated with the proposed project are investigated in comparison to the Existing Conditions scenario. Within this scenario, the project generated peak hour traffic volumes have been added to the Existing Conditions volumes to obtain the Existing Plus Project volumes.

Figure 10.3 presents the traffic volumes for the Existing Plus Project Conditions.



LEGEND:

X% TRIP DISTRIBUTION PERCENTAGE

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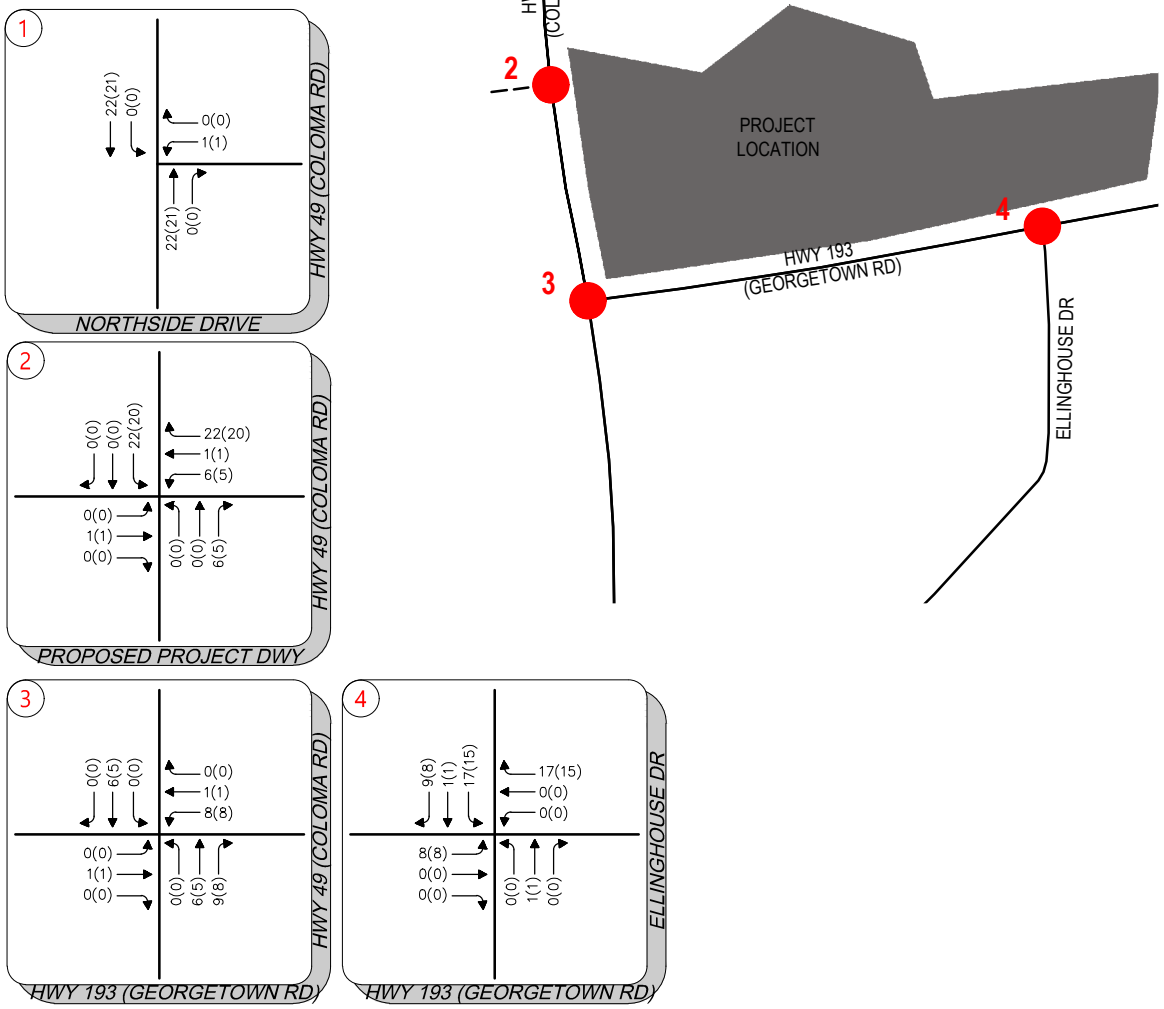
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TRIP DISTRIBUTION

Project No. **12579129**
Date **11/14/2024**

FIGURE 10.1

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LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

N

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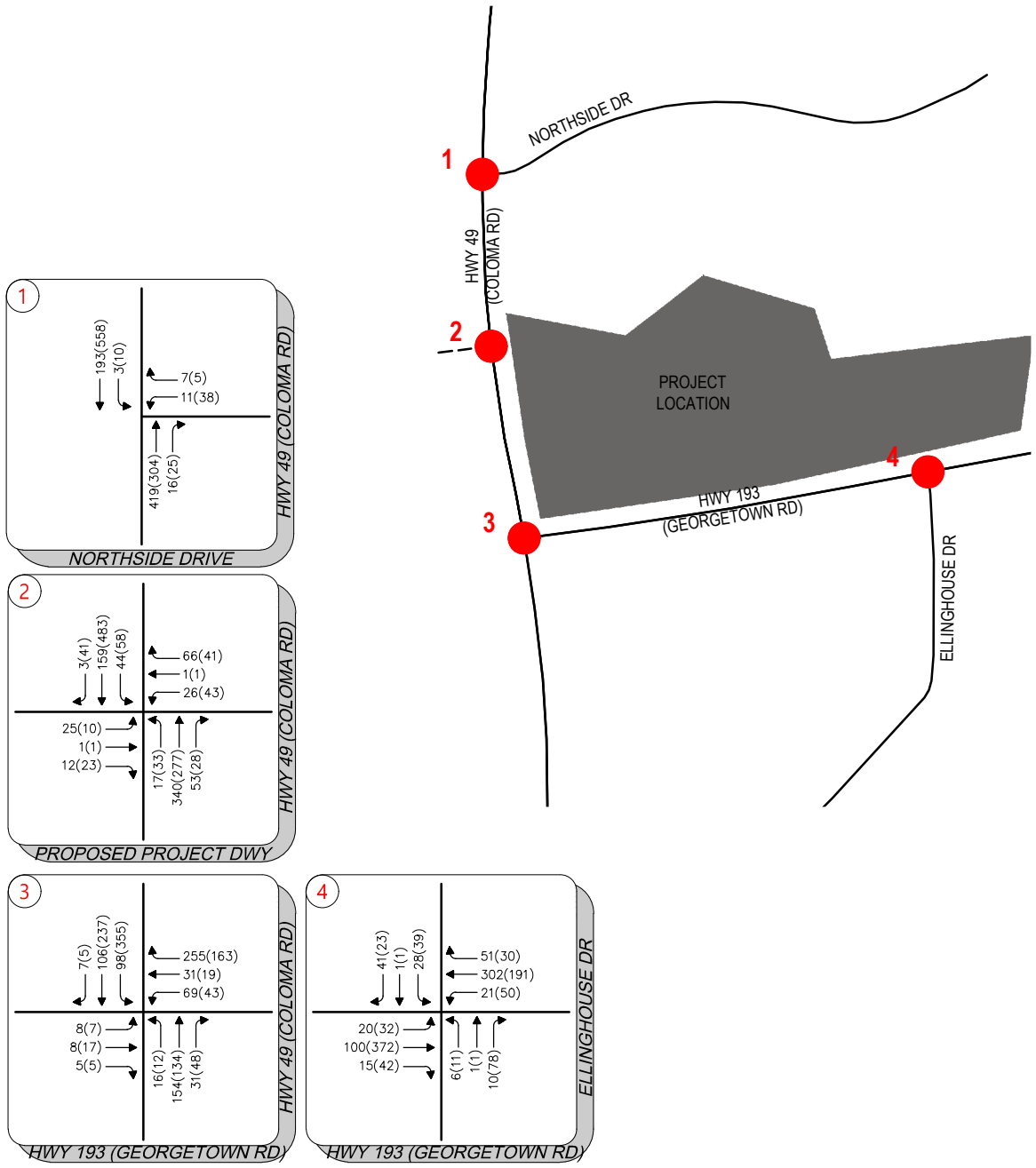
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NET NEW PROJECT TRIPS

Project No. **12579129**
Date **8/29/2023**

FIGURE 10.2

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LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

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TRAFFIC IMPACT ANALYSIS MEMORANDUM

EXISTING PLUS PROJECT PEAK HOUR VOLUMES

Project No. **12579129**
Date **8/29/2023**

FIGURE 10.3

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10.3 Project Access

Primary access to/from the site would be gained from two full-access driveways on SR 49 and SR 193 (see Updated Project Site Plan, **Figure 2.1).** Based on comments received from both the Count of El Dorado and Caltrans, the proposed project site plan was updated to create improved driveway access and internal circulation. As noted, at SR 49 a widened 45-foot full-access driveway would serve the project site and be located approximately 400-feet north of SR 193 (Georgetown Road). A second 35-foot full-access driveway would be located on SR 193 directly opposite Ellinghouse Drive approximately 600-feet east of SR 49. This project driveway would form a standard four-way intersection (southbound leg) with the SR 93/Ellinghouse Drive intersection. By necessity, the proposed project driveway on SR 193 would cross over the existing Class I pedestrian/bicycle shared use path that parallels the highway on its north side. Please refer to Section 13 (Site Access & Design Parameters) for additional information/discussion.

10.4 Intersection Operations/Queuing

Table 10.2 presents a summary of the intersection operations for the weekday AM and PM peak hour scenarios for the Existing Plus Project Conditions.

TABLE 10.2 – EXISTING PLUS PROJECT INTERSECTION LOS

ID	Intersection	Peak Hour	Existing Plus Project			Near Term Plus Project			Cumulative Plus Project			Cumulative Plus Project Plus Mitigation		
			Control	Delay	LOS	Control	Delay	LOS	Control	Delay	LOS	Control	Delay	LOS
1	**Highway 49 (Coloma Road) & Northside Drive**	AM	TWSC	12.3	B	TWSC	12.7	B	TWSC	13.1	B	TWSC	13.1	B
		PM		15.2	C		15.3	C		16.2	C		16.2	C
2	**Highway 49 (Coloma Road) & Retail Driveway/Project Driveway**	AM	TWSC	16.5	C	TWSC	18.1	C	TWSC	19.7	C	TWSC	19.5	C
		PM		24.9	C		26.5	D		31.7	D		22.7	C
3	**Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)**	AM	AWSC	11.0	B	AWSC	12.0	B	AWSC	12.7	B	AWSC	12.7	B
		PM		14.8	B		19.3	C		23.7	C		23.7	C
4	**Ellinghouse Drive/Highway 193 (Georgetown Road)**	AM	TWSC	12.4	B	TWSC	13.4	B	TWSC	14.0	B	TWSC	13.1	B
		PM		22.2	C		22.8	C		26.2	D		24.3	C

BOLD Indicates LOS of E or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).

As presented in **Table 10.2**, all four project study intersections would continue to operate at acceptable levels (LOS D or better) during the AM and PM hour with proposed project traffic added to existing volumes. All *Synchro* results are included in **Attachment C**.

Similar to the existing plus project scenario the 95th percentile queue lengths were also analyzed using microsimulation (through *SimTraffic* Software) for the study intersection (see **Attachment D**).

As shown in **Table 10.3**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation under Existing plus Project Conditions.

10.5 Roadway Segment LOS

Table 10.4 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) would be operating at LOS D or better during the AM and PM peak hour under Existing plus Project Conditions (worst case volumes shown).

TABLE 10.3 EXISTING PLUS PROJECT; VEHICLE QUEUING ANALYSIS

Int. #	Intersection/Approach	Control Type	Existing Plus Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TW SC	50	55	100
	Northbound Thru/Right		0	5	100
	Southbound Left		10	15	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Thru/Right	TWSC	50	50	75
	Westbound Left/Thru		35	40	200
	Westbound Right		35	30	200
	Northbound Left		15	35	100
	Southbound Left		40	40	145
	Southbound Thru/Right		5	5	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown***				
	Eastbound Left/Thru/Right	AWSC	30	35	140
	Westbound Left/Thru		50	45	540
	Westbound Right		70	55	90
	Northbound Left		40	30	150
	Northbound Thru		75	65	650
	Northbound Right		45	50	110
	Southbound Left		65	120	200
	Southbound Thru		55	65	340
	Southbound Right		15	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Left/Thru	TWSC	25	25	175
	Eastbound Right		0	0	175
	Westbound Left		15	35	220
	Westbound Thru/Right		0	0	220
	Northbound Left/Right		40	75	155
	Southbound Left/Thru/Right		65	70	80

Note: **Bold** text indicates queues that exceed available storage

TABLE 10.4 EXISITNG PLUS PROJECT; ROADWAY SEGMENT LOS

		HCM 2010 Planning Level Volumes				
Code	**Functional Class Codes (Updated to HCM 2010)**	**A**	**B**	**C**	**D**	**E**
2A	**Two-Lane Arterial**	**---**	**---**	**850**	**1,540**	**1,650**
	State Route 49 north of State Route 193				901	
	State Route 49 south of State Route 193			479		
	State Route 193 east of State Route 49			717		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h

Volumes are for both directions unless noted

10.6 Signal Warrants

Based on the CA MUTCD peak hour signal warrant criteria (Warrant #3), the SR 49/SR 193 intersection would continue to qualify for signalization under the peak hour warrant during the PM peak hour (the warrant graphs are provided in **Attachment B**). The remaining three study intersections would not qualify for signalization with Existing plus Project volumes at this time.

11. Near-Term Year 2032 plus Project Conditions

Proposed AM and PM peak hour project trips have been added to Near-Term Year 2032 (No Project) volumes and are shown in **Figure 11.1**.

11.1 Intersection Operations/Queuing

Table 10.2 presents a summary of the intersection operations for the weekday AM and PM peak hour scenarios for the Near-Term Year 2032 Plus Project Conditions.

As presented in **Table 10.2**, all four project study intersections would continue to operate at acceptable levels (LOS D or better) during the AM and PM hour with proposed project traffic added to existing volumes. All *Synchro* results are included in **Attachment C**.

Similar to the existing plus project scenario the 95th percentile queue lengths were also analyzed using microsimulation (through *SimTraffic* Software) for the study intersection.

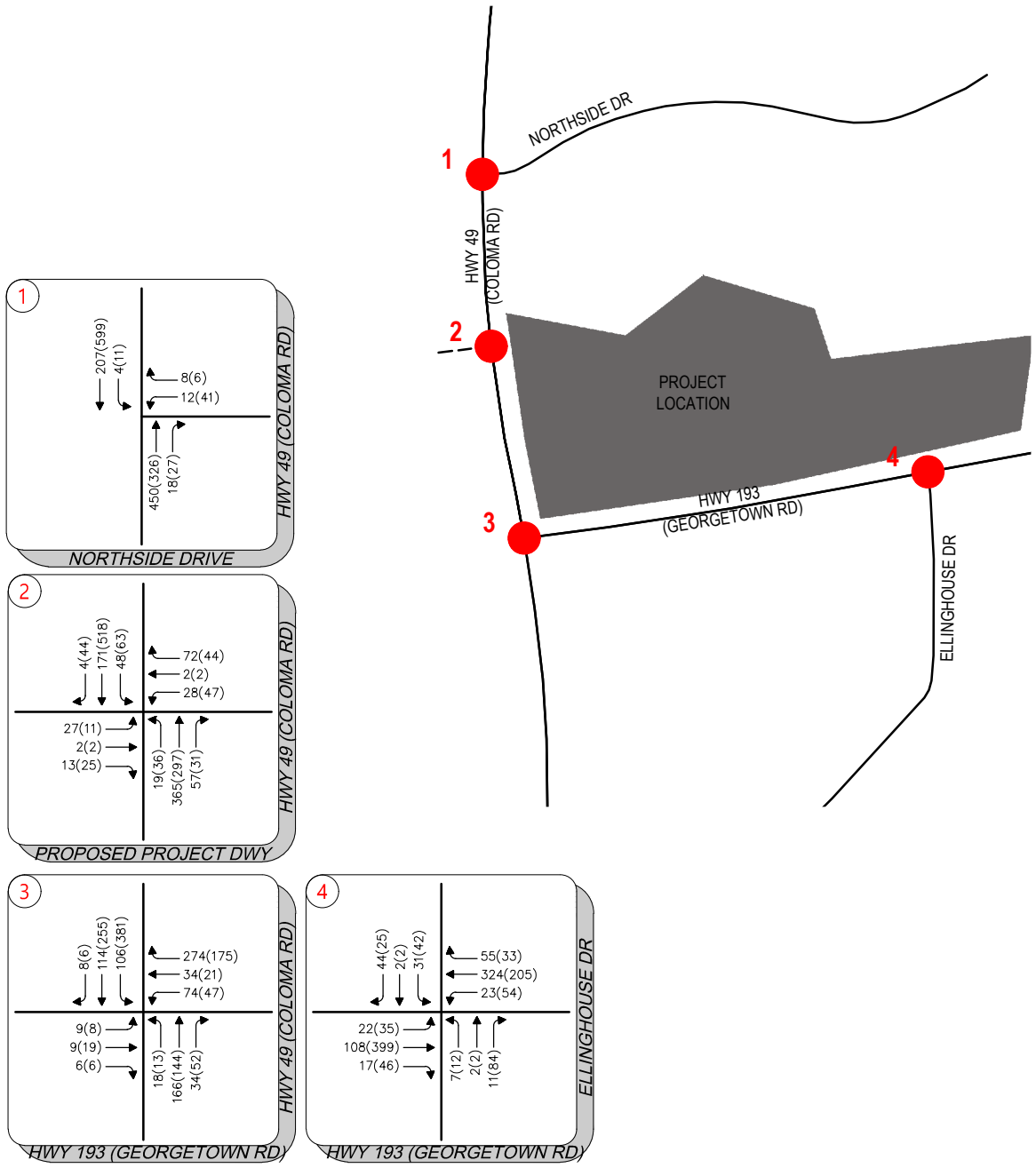
As shown in **Table 11.1**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation under Near-Term plus Project Conditions.

11.2 Roadway Segment LOS

Table 11.2 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) would be operating at LOS D or better during the AM and PM peak hour under Near-Term plus Project Conditions (worst case volumes shown).

11.3 Signal Warrants

Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) peak hour signal warrant criteria (Warrant #3), the SR 49/SR 193 intersection would continue to qualify for signalization under the peak hour warrant during the PM peak hour (the warrant graphs are provided in **Attachment B**). The remaining three study intersections would not qualify for signalization with Near-Term Plus Project volumes at this time.



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

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NEAR TERM PLUS PROJECT PEAK HOUR VOLUMES

Project No. **12579129**
Date **8/29/2023**

FIGURE 11.1

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Plot Date: 29 August 2023 12:27 PM

TABLE 11.1 NEAR-TERM PLUS PROJECT; VEHICLE QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Near Term Plus Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TW SC	40	55	100
	Northbound Thru/Right		5	0	100
	Southbound Left		15	20	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Thru/Right	TWSC	50	55	75
	Westbound Left/Thru		35	45	200
	Westbound Right		35	35	200
	Northbound Left		10	35	100
	Northbound Thru/Right		0	0	100
	Southbound Left		40	40	145
	Southbound Thru/Right		5	5	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown***				
	Eastbound Left/Thru/Right	AWSC	40	35	140
	Westbound Left/Thru		50	45	540
	Westbound Right		80	65	90
	Northbound Left		40	35	150
	Northbound Thru		80	70	650
	Northbound Right		50	50	110
	Southbound Left		60	125	200
	Southbound Thru		65	70	340
	Southbound Right		20	10	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Left/Thru	TWSC	30	35	175
	Eastbound Right		0	0	175
	Westbound Left		15	15	220
	Westbound Thru/Right		5	0	220
	Northbound Left/Thru/Right		45	75	155
	Southbound Left/Thru/Right		60	55	80

Note: **Bold** text indicates queues that exceed available storage

TABLE 11.2 NEAR-TERM PLUS PROJECT; ROADWAY SEGMENT LOS

		HCM 2010 Planning Level Volumes				
Code	**Functional Class Codes (Updated to HCM 2010)**	**A**	**B**	**C**	**D**	**E**
2A	**Two-Lane Arterial**	**---**	**---**	**850**	**1,540**	**1,650**
	State Route 49 north of State Route 193				969	
	State Route 49 south of State Route 193			517		
	State Route 193 east of State Route 49			772		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h
Volumes are for both directions unless noted

12. Cumulative Year 2042 Plus Project Conditions

Proposed AM and PM peak hour project trips have been added to Cumulative Year 2042 (No Project) volumes and are shown in **Figure 12.1**.

12.1 Intersection Operations/Queuing

Table 10.2 presents a summary of the intersection operations for the weekday AM and PM peak hour scenarios for the Cumulative Year 2042 Plus Project Conditions.

As presented in **Table 10.2**, all four project study intersections would continue to operate at acceptable levels (LOS D or better) during the AM and PM hour. However, the Highway 49/Retail Driveway/Project Driveway intersection's westbound left-turn movement would be operating at LOS F (50.7 seconds of delay) during the PM peak hour. Although the entire westbound project driveway approach would be operating at LOS D, the left-turn movement would experience significant delays. A check of vehicle queuing for the westbound left-turn movement indicates acceptable queues at 40-55' during the peak hours. In addition, all other critical turning movements to/from State Route 49 would be operating at LOS C or better during the PM peak hour. Mitigation has been recommended for the Highway 49/Retail Driveway/Project Driveway intersection to improve overall vehicle delays. All *Synchro* results are included in **Attachment C**.

Similar to the existing plus project scenario the 95th percentile queue lengths were also analyzed using microsimulation (through *SimTraffic* Software) for the study intersection.

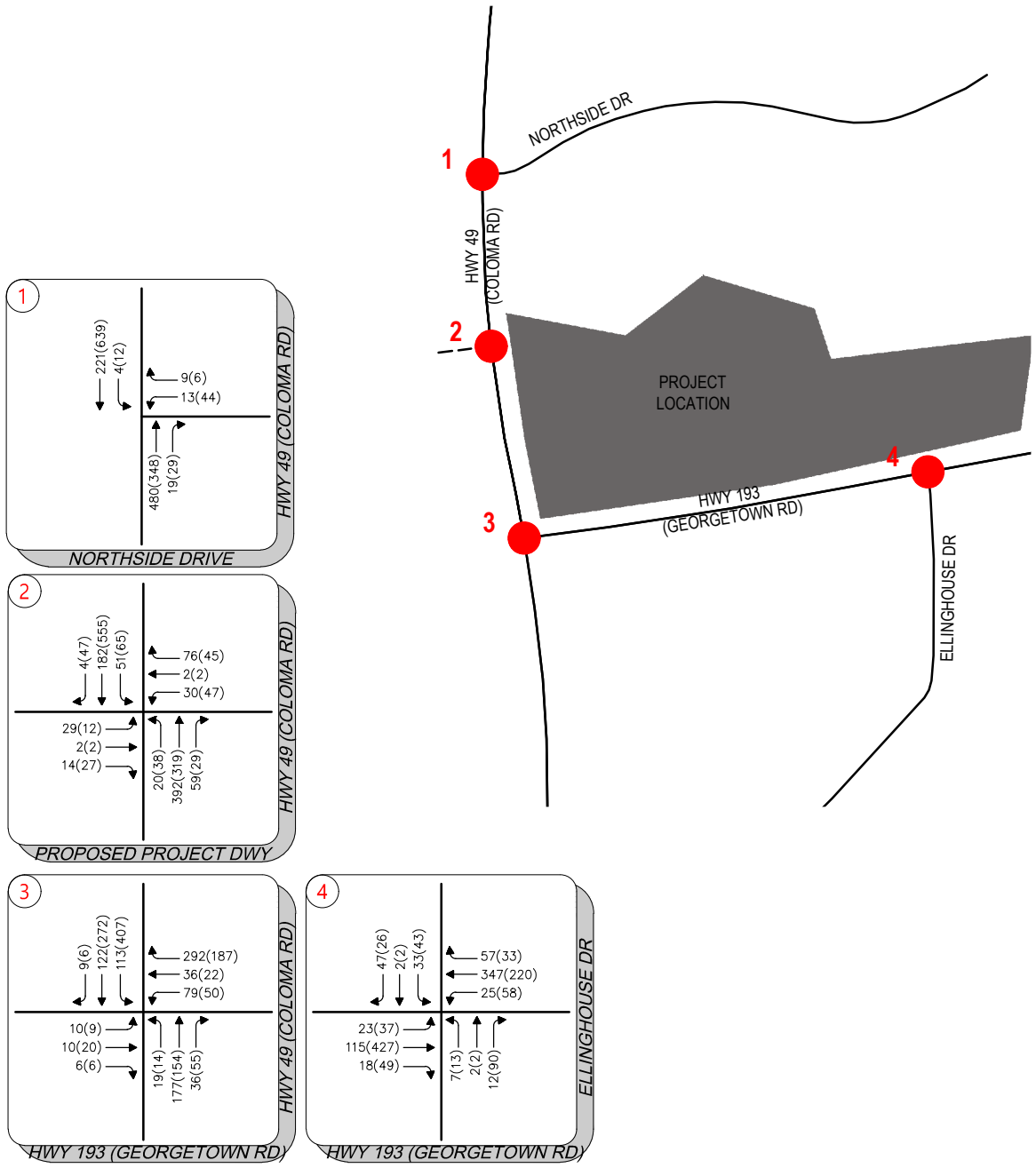
As shown in **Table 12.1**, all storage lengths are adequate to store the 95th percentile vehicle queues at the four study intersections based on SimTraffic microsimulation under Cumulative Year 2042 Plus Project Conditions.

12.2 Roadway Segment LOS

Table 12.2 identifies the existing roadway segment LOS in the project study area along SR 49 and SR 193. As shown, roadway segments on SR 49 (north and south of SR 193) and SR 193 (east of SR 49) would be operating at LOS D or better during the AM and PM peak hour under Cumulative Near-Term plus Project Conditions (worst case volumes shown).

12.3 Signal Warrants

Based on the CA MUTCD peak hour signal warrant criteria (Warrant #3) for all four study intersections were evaluated for Near-Term plus Project Conditions. The SR 49/SR 193 intersection would continue to qualify for signalization under the peak hour warrant during the PM peak hour (the warrant graphs are provided in **Attachment B**). The remaining three study intersections would not qualify for signalization with Cumulative Year 2042 plus Project volumes at this time.



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

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CUMULATIVE PLUS PROJECT PEAK HOUR VOLUMES

Project No. **12579129**
Date **8/29/2023**

FIGURE 12.1

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Plot Date: 29 August 2023 12:27 PM

TABLE 12.1 CUMULATIVE PLUS PROJECT; VEHICLE QUEUING CHARACTERISTICS

Int. #	Intersection/Approach	Control Type	Cumulative Plus Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	***Highway 49 (Coloma Road) & Northside Drive***				
	Westbound Left/Right	TW SC	55	75	100
	Northbound Thru/Right		5	5	100
	Southbound Left		15	20	150
2	***Highway 49 (Coloma Road) & Retail Driveway/Project Driveway***				
	Eastbound Left/Thru/Right	TWSC	50	55	75
	Westbound Left/Thru		40	55	200
	Westbound Right		40	35	200
	Northbound Left		15	40	100
	Northbound Thru/Right		10	15	100
	Southbound Left		45	45	145
	Southbound Thru/Right		5	5	145
3	***Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown***				
	Eastbound Left/Thru/Right	AWSC	40	40	140
	Westbound Left/Thru		50	45	540
	Westbound Right		90	55	90
	Northbound Left		35	35	150
	Northbound Thru		75	75	650
	Northbound Right		50	50	110
	Southbound Left		65	135	200
	Southbound Thru		65	80	340
	Southbound Right		25	15	200
4	***Ellinghouse Drive & Highway 193 (Georgetown Road)***				
	Eastbound Left/Thru	TWSC	25	25	175
	Eastbound Right		0	10	175
	Westbound Left		15	40	220
	Northbound Left/Thru/Right		45	75	155
	Southbound Left/Thru/Right		60	60	80

Note: **Bold** text indicates queues that exceed available storage

TABLE 12.2 CUMULATIVE PLUS PROJECT; ROADWAY SEGMENT LOS

		HCM 2010 Planning Level Volumes				
Code	**Functional Class Codes (Updated to HCM 2010)**	**A**	**B**	**C**	**D**	**E**
2A	**Two-Lane Arterial**	**---**	**---**	**850**	**1,540**	**1,650**
	State Route 49 north of State Route 193				1,035	
	State Route 49 south of State Route 193			551		
	State Route 193 east of State Route 49			824		

Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor on 0.09, and D-factor of 0.60

2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6

Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h

Volumes are for both directions unless noted

13. Site Access & Design Parameters

13.1 Truck Turning Templates

At the request of Caltrans Engineering staff, both proposed project driveways were evaluated for adequate turning radii to/from the State Highway 49 and 193 based on a design WB-62 (large trucks) as defined in by the American Association of State Highway and Transportation Officials (AASHTO). Using accepted software (*AutoTURN 11.0*), outbound left-turn movements for the large trucks have been evaluated and are shown in **Figure 13.1—Truck Turning Templates**. (In addition, truck templates for other inbound/outbound turning movements are also shown in **Attachment F**). As shown, large trucks would have adequate turning radii from the proposed project driveway located on SR 49 exiting the site. However, large truck movements from the proposed project driveway onto SR 193 would be slightly restricted due to the internal curve radius (on-site) located approximately 80-100 feet from north of SR 193. Due the internal curve radius, large trucks would have to encroach into the opposing driveway lane to enter/exit the site. In response, the following measures have been implemented to correct truck access at the project driveway:

- SR 193/Ellinghouse Drive/Project Driveway: The internal curve radius on the project driveway at SR 193 (located approximately 80-100 feet from SR 193) has been enlarged and straightened to allow acceptable truck access. As shown in the conceptual driveway plan in **Figure 13.2,** the driveway has been re-aligned to enter the site at a more northerly direction allowing large trucks to ingress/egress acceptably without affecting opposing traffic flows.

Large trucks would be able to access the SR 49/Retail Driveway/Project Driveway acceptably based on a lesser grade, wider driveway width, and less curvature. It is noted that the revised project site plan also reflects flared, large radius driveways at both SR 49 and SR 193 for safer turning movements to/from the project site. At SR 49, the project driveway widens from 45-feet to 80-feet at the edge of highway. Similarly, the SR 193 project driveway widens from 35-feet to 120-feet at the edge of highway. These wider-radius project driveways allow safer access to/from the highways and particularly for large truck access.

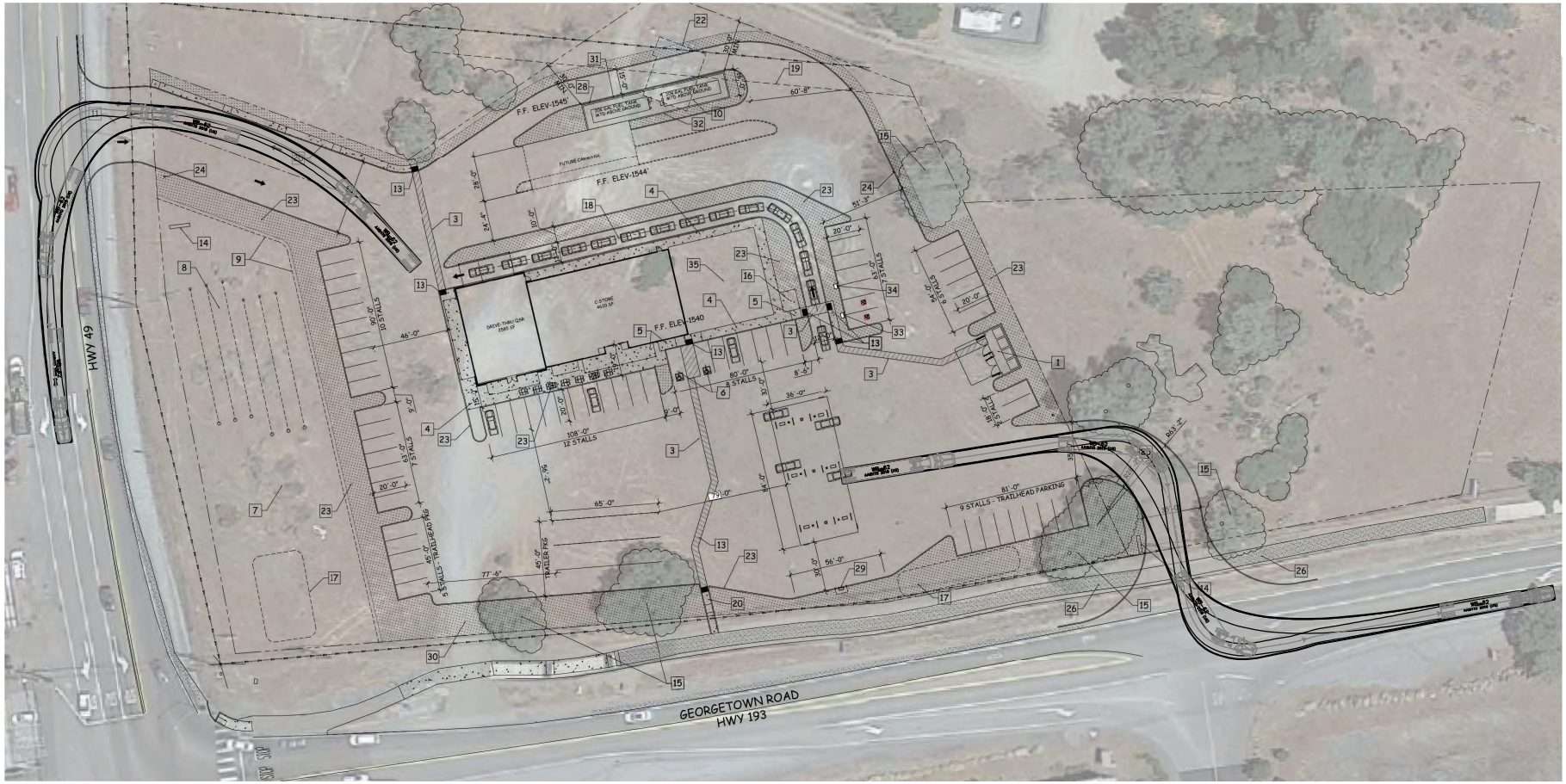
13.1.1 Large Over-Sized (STAA) Vehicles on State Route 49

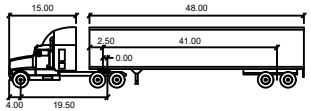
The State Route 49 American River Confluence Study has highlighted the issue of oversized vehicles (STAA-trucks) using SR 49 between Cool and Auburn as follows:[6]

“SR 49 in the study corridor is designated for use by California Legal sized trucks with a kingpin to rear axle length (KPRA) ranging from 30 to 38 feet. However, it is not uncommon to see oversized vehicles (48-53 feet KPRA) using SR 49 in the study corridor (over 30% of trucks using the SR 49 in the study corridor are 5+ axle trucks). The reason that truck length restrictions are applied to SR 49 within the study area is the winding roadway alignment and sharp curves unsuitable for larger trucks creating an unsafe condition. The national truck network that serves interstate truck travel has higher design standards that allow for vehicles with a KPRA up to 53 feet, which is 15 feet longer than allowed on SR 49.”

Due to the winding and narrow nature of the SR 49 segment between Cool and Auburn, the oversized trucks can cross-over the centerline into the opposite travel lane and potentially into oncoming vehicles. Based on discussions with the project applicant, they do not anticipate oversized vehicles (48-53 feet) servicing/delivering to their facility.[7] California legal-sized trucks would serve the facility with largest truck(s) anticipated for fuel delivery to the proposed service station. In addition, the applicant indicates they would recommend alternative routes for large trucks accessing the project site to use SR 49 between Highway 50 and Cool to try and

[6] DKS Associates, State Route (SR) 49 American River Confluence Study, Final Report, Prepared for El Dorado County Transportation Commission, February 2023.
[7] Mr. Melvin Higginbotham, Architect, MHA Design Services, Discussion of truck access to proposed project site and size limitations, Personal communication, April 18, 2024.





WB-62

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

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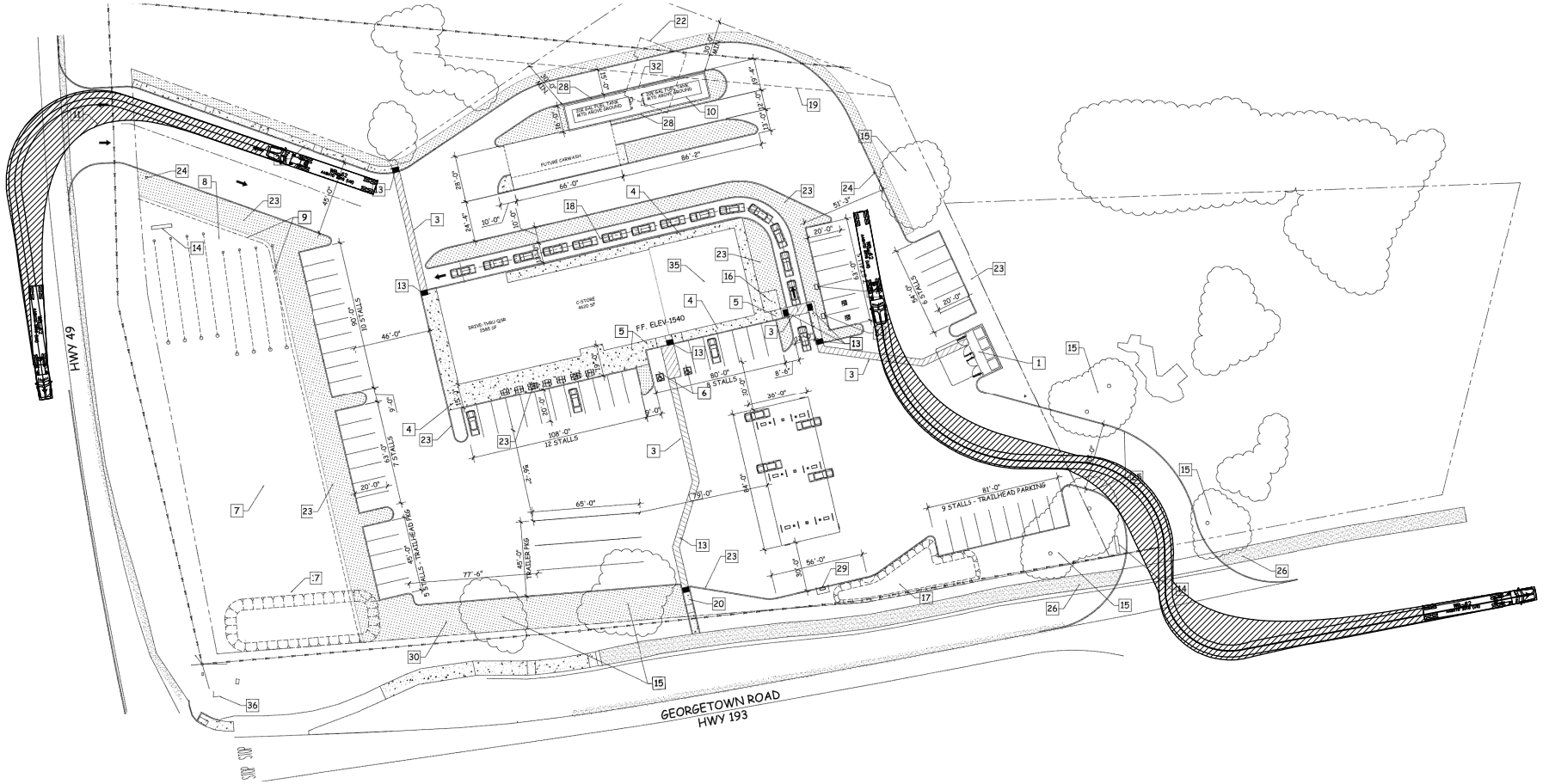
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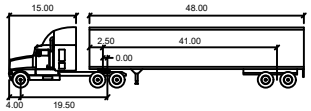
TRUCK TURNING TEMPLATE
OUTBOUND LEFT TURN MOVEMENTS

Project No. **12579129**
Date **8/14/2023**

FIGURE 13.1

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Plot Date: 14 August 2023 8:47 AM





WB-62

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

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CONCEPTUAL DRIVEWAY PLAN

Project No. **12579129**
Date **8/14/2023**

FIGURE 13.2

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Plot Date: 14 August 2023 8:54 AM

alleviate additional truck traffic on the SR 49 corridor between Cool and Auburn. One of the recommendations of the SR 49 Confluence Study would be to provide more visible (salient) truck restriction signage at the intersection for SR 49/SR 193 as well as on SR 49 north of the intersection. In response to trucks using SR 49 to access the proposed project site, the following measures recommend:

- California heavy vehicles accessing the proposed project site should be routed on SR 49 between Highway 50 and Cool (to the extent possible). As part of this recommendation, signs should be placed at outbound project driveway points indicating “Large Trucks Prohibited on SR 49 Segment North to Auburn.”

13.2 Project Driveway Access/Operations

Primary access to/from the site would be gained from two full-access driveways on SR 49 and SR 193 (see Updated Project Site Plan, (**Figure 2.1**). As noted, a 45-foot full-access driveway would serve the project site to/from SR 49 and be located approximately 400-feet north of SR 193 (Georgetown Road). A second 35-foot (conceptual 40-foot width) full-access driveway would be located on SR 193 directly opposite Ellinghouse Drive and approximately 600-feet east of SR 49. This project driveway would form a standard four-way intersection (southbound leg) with the SR 93/Ellinghouse Drive intersection. By necessity, the proposed project driveway on SR 193 would cross over the existing Class I pedestrian/bicycle path that parallels the highway on its north side. Based on updated driveway design, both project driveways have enlarged corner radii at both SR 49 and SR 193 for enhanced vehicle and truck access/egress.

With respect to overall project driveway operations, the SR 49/Project Retail-Project Driveway is expected to operate acceptably under all “with project” scenarios relative to intersection LOS and vehicle queuing. However, the following driveway lane geometries are recommended to ensure adequate vehicle/truck access and improve overall vehicle delays:

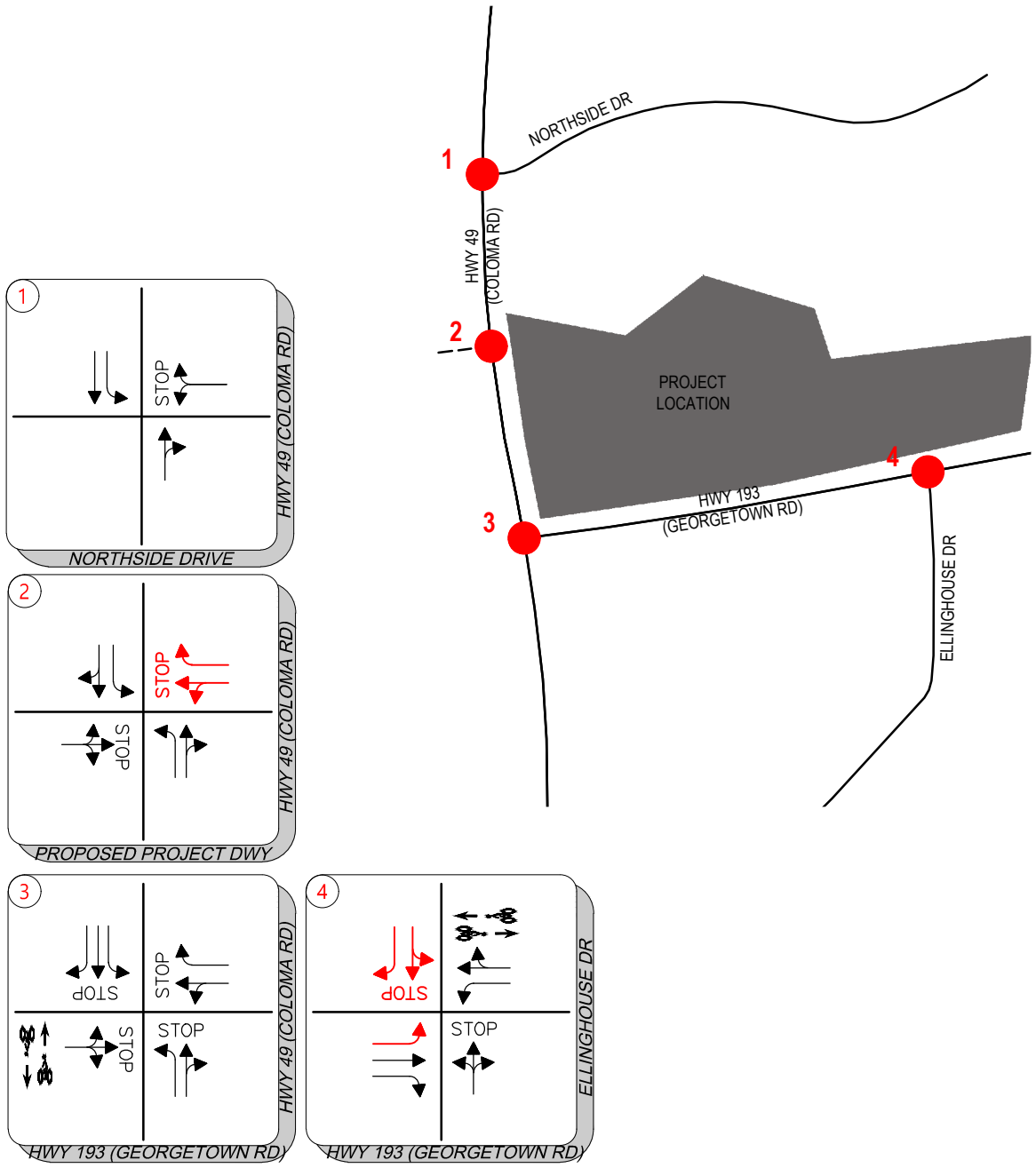
- SR 49/Retail Driveway-Project Driveway: It is recommended that a separate outbound (westbound) left-through and right-turn lanes (14-feet each) be striped with a 17-foot inbound lane (eastbound) to accommodate for efficient ingress/egress.

The SR 193/Ellinghouse Drive/Project Driveway would operate acceptably under Cumulative Year 2042 plus Project Conditions (LOS D or better). However, there would be other operational issues related to vehicle and pedestrian/bicycle safety issues related to the driveway. Specifically, a safety and vehicle sight distance issue

would be created due to the lack of a separate westbound left-turn and storage capacity from SR 193 into the project driveway. The lack of a separate westbound turn-lane on SR 193 into the project driveway creates a sight distance problem with motorists in the opposing (existing) westbound left-turn lane into Ellinghouse Drive. Westbound motorists wishing to access the proposed project driveway cannot see around vehicles queued eastbound left turn to through-traffic. In addition, motorists turning into the project driveway must drive across (inbound) an existing east-west Class I pedestrian/bike path (outbound vehicles) creating additional safety hazards. For these reasons, the following circulation improvements are recommended at the intersection:

- SR 193/Ellinghouse Drive/Project Driveway: It is recommended that SR 193 be widened and/or re-striped to accommodate a separate inbound (eastbound) left-turn lane for the proposed project driveway. Based on conceptual design parameters (Caltrans HDM), the left-turn lane should have a storage capacity of 75-feet (3 car lengths) with a bay taper of approximately 290-feet based on vehicle speeds (less than 45 mph) and lane width (11-feet).

Recommend study intersection lane geometries have been shown in **Figure 13.3.**



LEGEND:

- BICYCLE LANE
- VEHICLE LANE
- STOP — STOP CONTROL
- RECOMMENDED LANE GEOMETRIES

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COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

RECOMMENDED STUDY INTERSECTION LANE GEOMETRIES

Project No. **12579129**
Date **8/29/2023**

FIGURE 13.3

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13.3 Internal Circulation

Patrons would access the project site via State Route 49 and/or State Route 193 at the two project driveways. Internal drive aisles would provide access to both parking and vehicle fueling positions located on the southern portion of the project site. As shown in **Figure 2.1**, the main retail and restaurant buildings would be south-facing with parking areas located directly in front of the buildings. In addition. parking areas would be located primarily along the western, eastern, and limited southern portions of the site. Motorists (and large trucks) would be able to circulate through the site in a circular fashion (if necessary) via a large internal drive extending around the rear of the commercial retail buildings. Patrons using the project driveway inbound (northbound) from SR 193 would cross over the existing Class I pedestrian/bike shared use path and then extend west into the site. To allow for the topography and physical fauna, the driveway would curve west into the site approximately 80-100 feet north of SR 193. Therefore, it is likely that outbound vehicles from the site would queue across the existing Class I pedestrian/bike shared use path. Based on discussions with the project applicant, the existing bike path would be re-aligned to accommodate pedestrians and bicyclists. Recommendations for mitigating the effects of vehicle crossings at the Class I pedestrian/bike path are found in Pedestrian-Bicycle (**Section 13.6**).

13.4 Drive-Through Operations

At the request of Caltrans, the quick-service restaurant (QSR) with drive-through has been quantitatively evaluated for drive-through vehicle queuing operations. Please note, at this time it is not known what type of fast-food and/or QSR tenant would be occupying the space. Knowing the specific fast-food/QSR would be useful to focus on the unique characteristics and demand of the drive-through lane. Based on previous vehicle queuing analyses of other fast-food/QSR projects, the drive-through vehicle queues can vary based on the brand of the tenant. For this reason, the drive-through lane demand for the proposed project was assessed based on two high-intensity tenants as a "worst-case" analysis. These included drive-through lane vehicle queue surveys conducted for Starbucks and In-N-Out Burger Restaurants.[8] (See Attachment G. Starbucks and In-N-Out Burger Vehicle Queue Surveys)

Based on the revised project site plan, the fast-food/QSR drive-through lane would have a capacity of approximately 14 vehicles (275-feet @ 20'/vehicle). Vehicles would enter the drive-through lane on the east side of the building complex extending north then west along the rear side of the future retail pad, convenience store, and fast-food/QSR. Vehicles would then exit out of the drive-through lane via the project driveway at Highway 49 and/or circulate south and east to the project driveway at SR 193.

Three drive-through lane vehicle queuing surveys (each) were conducted at three different Starbucks and In-N-Out Burger Restaurants in the Bay Area.[9] Based on the average 95th percentile vehicle queue length, Starbucks has an 11-vehicle demand and for In-N-Out Burger Restaurants a 16-vehicle demand for the drive-through lane. Peak drive-through lane demand occurred during the weekday AM peak hour for the Starbucks and both the weekday midday and PM peak hour for In-N-Out Burger. Based on the proposed project's drive-through lane capacity of 14 vehicles, measured vehicle queues for the 95th percentile would be exceeded by two (2) vehicles. However, additional vehicles could be accommodated on-site based on available storage in wide internal circulation areas without interfering with other internal traffic flow or either project driveway on SR 49 or SR 193.

13.5 Parking

The proposed project would provide 81 total parking spaces made up of 76 standard spaces (9x20'), 2 ADA spaces (9x20'), 1 loading zone space (8x20'), and 2 Level 2 EVC spaces (9'x20'). Based on the County of El Dorado parking code, the proposed project's parking requirements have been calculated based on the use

[8] Omni-Means Engineers and Planners, Survey Summary of In-N-Out Burger & Starbucks Trip Generation, Parking Demand, and Vehicle Queuing, March 29, 2017.
[9] Omni-Means Engineering and Planners, Survey Summary Ibid…….

overall size (square feet) and/or active use area (AUA). Active use area is defined as "all developed areas within a building except for storage areas, restrooms, and employee lunchroom/cafeteria(s)." Based on parking code requirements for Retail Sales and Services, Shopping Center, Restaurants (with drive-through), and Office uses the proposed project's required parking demand would be as follows:

Convenience Store (4,620 sf.—2,400 sf. AUA & 2,220 sf. storage & 2 check stands)

Retail Food & Beverage : 1 space per 200 sf. of AUA, plus 1 space per check stand, plus 1 space per 600 sf. of storage

2,400 sf. AUA / 200 sf.	= 12 spaces
2,220 sf. storage / 600 sf.	= 4 spaces
2 check stands x 1 space	= 2 spaces
Subtotal	**= 18 spaces**

Restaurant with Drive-Through (2,500 sf.)

1 space per 300 sf. of GFA,; plus 1 RV space for every 20 parking spaces

2,525 sf. GFA / 300 sf. = 9 spaces

Future Retail Pad (2,582. – 625 sf. AUA)

1 space per 300 sf. of Neighborhood Shopping Center (<15k)

2,582 sf. NSC / 300 sf. = 9 spaces

Total Required Parking Spaces: =36 spaces

As calculated above, the proposed project is required to provide 36 parking spaces based on County Code requirements. The proposed parking supply of 81 spaces would provide a surplus of 45 spaces. In addition, the proposed project would provide fourteen (14) supplemental parking stalls for trail parking as part of the 81-space supply. These parking stalls could be used for the adjacent Class I pedestrian/bike shared use path and/or patrons of the Olmsted Loop Trail trailhead located on the west side of SR 49 just north of the proposed project site off Saint Florian Court. Finally, the proposed project would also provide bicycle parking spaces based on the County's code requirement of 1 bicycle parking space for every 5 required parking spaces. This would equate to eight (8) bicycle parking spaces located adjacent to the Class I pedestrian/bicycle path along the southern frontage of the project. As noted, bicycle racks will be designed to enable a bicycle to be locked and installed in a manner for convenient access.

13.6 Pedestrian and Bicycle Access

Pedestrian and bicycle access to the proposed project is currently limited to existing pedestrian crossings at the SR 49/SR 193 intersection and the Class I pedestrian/bicycle path located along the SR 193 (north side) and SR 49 (west side, south of SR 193). As part of proposed project development, a Class II bike lane along the project site's western frontage would extend north from SR 193 along SR 49 to provide additional access and safety to complement the existing Class I pedestrian/bicycle path.

At the request of Caltrans, further information related to the re-construction of the existing Class I pedestrian/bicycle and overall sight distance for eastbound bicyclists has been addressed. Currently, the proposed placement of the project driveway to/from SR 193 situates it across the existing Class I pedestrian/bike path as shown in **Figure 2.1**. There is a concern that the existing earthen hill (grade) will block motorist's sight distance as they exit the driveway and will not be able to see bicyclists approaching from the east. Based on a review of the revised project site plan and Civil engineering design, a new retaining wall would be constructed along the project site's southern frontage extending from the west side of the project's driveway at SR 193 towards SR 49. The retaining wall's height would only be 1-foot tall at its highest point. Based on this low height, bicyclists will have a clear view of all vehicles entering/exiting the driveway and vice-versa. In addition, the retaining wall on the east side of the frontage paralleling the Class I pedestrian/bicycle

trail would be 4-feet tall at its highest point. Again, this four-foot height would still provide adequate sight distance for both bicyclists and motorists where the path crosses the proposed project driveway along SR 193.

As noted, the proposed project driveway to/from SR 193 opposite Ellinghouse Drive would cross over the existing Class I pedestrian/bicycle path that extends in an east-west direction along the north side of SR 193 approximately 20-feet from the highway. Again, this existing Class I pedestrian/bicycle facility would be re-designed at the driveway crossing (further north) to ensure safe access and prevent vehicle conflicts. As part of the proposed Class I pedestrian/path re-design, the following measure are recommended and shown in **Figure 13.4:**

- SR 193/Ellinghouse Drive/Project Driveway: It is recommended that where the proposed project driveway crosses the Class I pedestrian/bicycle path on the north side of SR 193 install green conflict zone markings. In addition, there should be warning signage for trail users (DRIVEWAY AHEAD) and warning signage for motorists (TRAIL XING W11-15 & W11-15P). Consideration should be given to the installation of yield pavement markings "shark teeth" for north-south driveway approaches prior to crossing the trail.

Transportation mitigation measures for Existing Plus Project conditions for project study intersections and pedestrian-bicycle safety have been recommended in **Section 15 (Mitigation and Summary).**

14. Quantitative Vehicle Miles Traveled (VMT)

14.1 State VMT Guidance

SB-743, which went into effect state-wide in July 2020, established a new framework for assessing transportation impacts under CEQA. Vehicular level of service (LOS), which had previously been the primary metric for assessing transportation impacts, could no longer be used for CEQA impacts (though it could be used for other things). In its place, vehicle miles travelled would be the main framework for assessing transportation impacts.

CEQA gives lead agencies broad discretion over analytical methodologies. CEQA Guidelines §15064.3(b)(4), which is new with SB-743, reads:

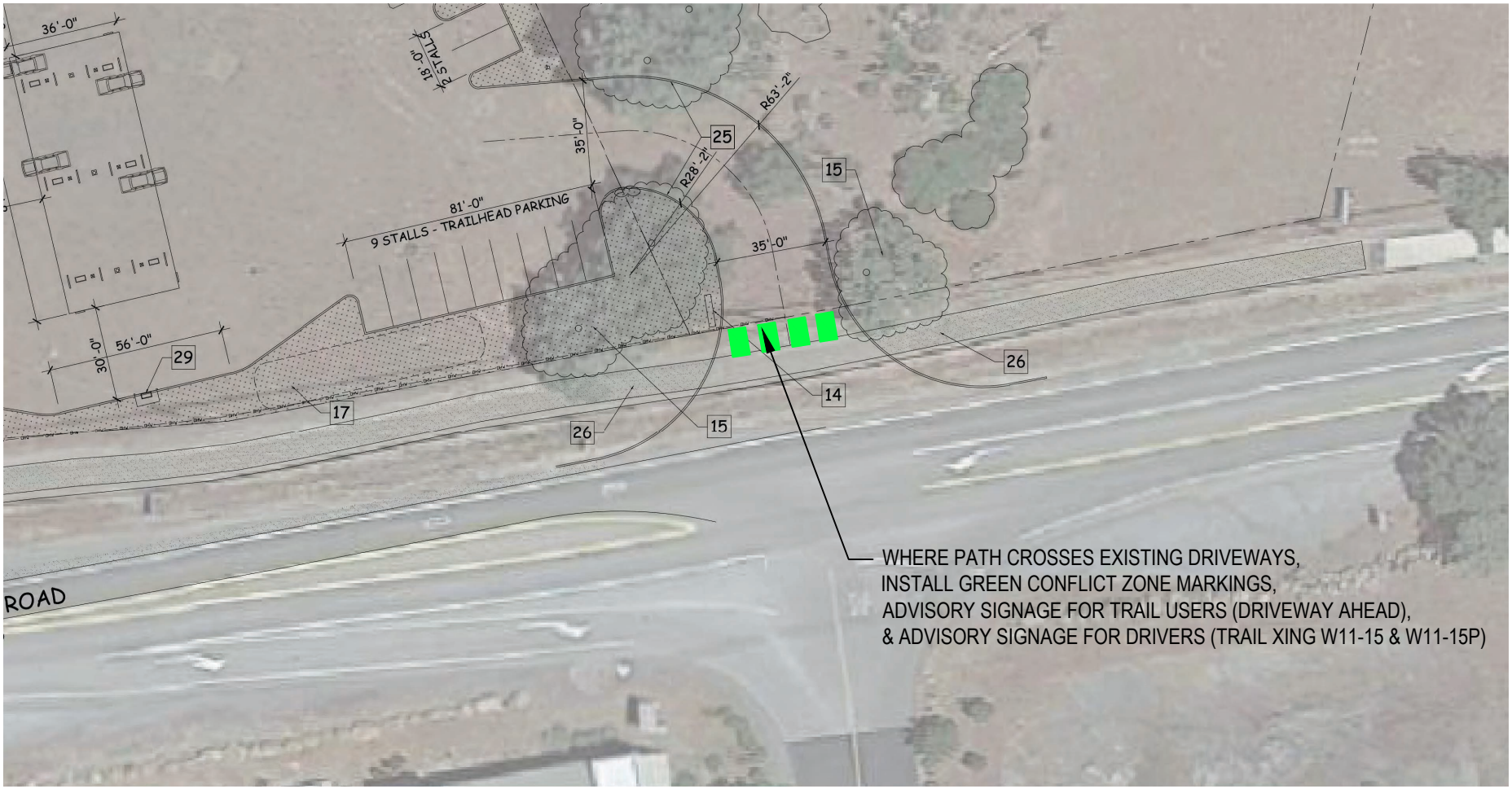
> "*Methodology: A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section*."

No particular methodology or metric is mandated; the choice is left to the lead agency, as is the choice of threshold.

14.2 El Dorado County VMT Guidance

The County of El Dorado (County Board of Supervisors) adopted Resolution 141-2020[10] to create a framework and thresholds for VMT analysis in Resolution. The portions of the resolution relevant to the current analysis are (emphasis added):

[10] County of El Dorado, Board of Supervisors, Resolution 141-2020, Adopting the El Dorado County "Vehicle Miles Traveled" Thresholds of Significance for Purposes of Analyzing Transportation Impacts Under the California Environmental Quality Act, October 6, 2020.



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MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

MULTI-USE TRAIL MITIGATION SIGNAGE AND MARKINGS

Project No. **12579129**
Date **8/14/2023**

FIGURE 13.4

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3) *The County shall generally use the El Dorado County Travel Demand Model for establishing the baseline VMT for the unincorporated County as a whole and calculating VMT for specific projects in order to apply the significance thresholds and screening tools adopted herein. However,* ***a different method of calculating VMT may be used if, in the exercise of sound engineering judgement, a different method is determined to be more accurate because the unique circumstances of a particular project or particular use that are not captured in the El Dorado County Travel Demand Model result in an underestimation or overestimation of VMT****. Any such deviations in calculating VMT shall be explained in the written analysis relied on in the environmental analysis for CEQA*.

4) *The County shall use the* ***Countywide VMT average*** *as the measure of transportation impacts for CEQA compliance*.

6) *The* ***County shall apply the significant threshold of*** *15%, as recommended by OPR's Technical Advisory, below baseline for residential and office land use and* ***no net increase for retail projects****. Consistent with OPR's Technical Advisory, the Board finds that a proposed project exceeding a level of 15 percent below the existing VMT per capita may indicate a significant transportation impact*.

The approached used to analyze the current project conforms to this framework, as will be described in the next sub-section.

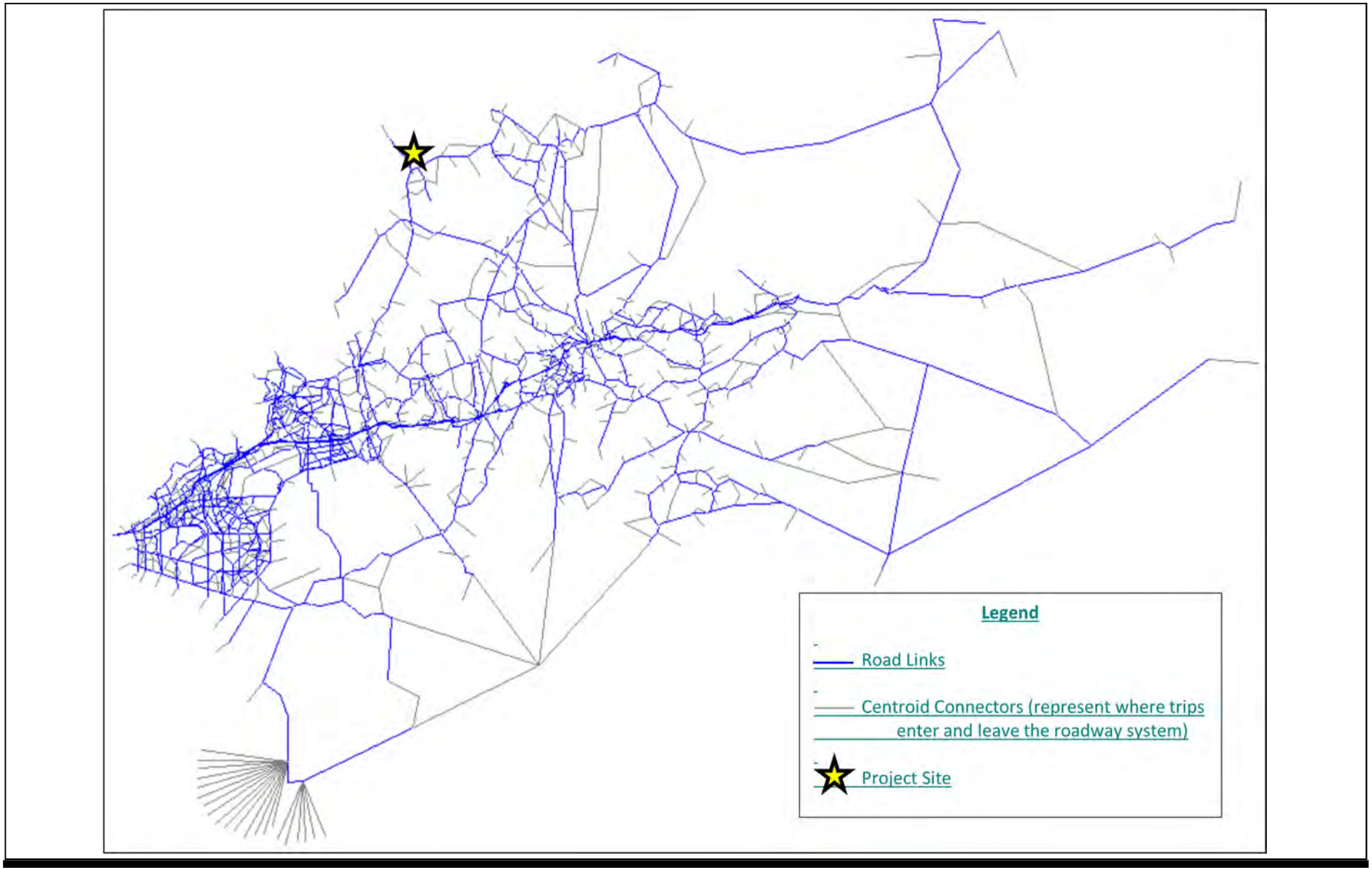
14.3 VMT Analysis of Cool Automobile and Commercial Center

The Proposed Project consists entirely of retail and service establishments. The VMT associated with such a project would have two components, one deriving from the trips made by employees of the new establishments, and the second deriving from the trips made by the patrons.

Initial consideration was given to using the El Dorado County Travel Demand Model to analyze these components. However, in this case the project site is located at the very edge of the modeled area (see **Figure 14.1**). For a variety of technical reasons, traffic models are most accurate towards their center, where most of the trips are from land uses that are explicitly represented in the model and where the majority of calibration points are located. The closer one gets to the edge of a model the higher the percentage of trips are from external land uses that are represented very abstractly, and the less calibration is done. This is somewhat analogous to focusing a camera; when you focus on an object in the center, objects on the edges become blurry. For that reason, as allowed in Section 3 of 141-2020, GHD elected to use Big Data from Replica[12] to examine each of these components rather than the county-wide model. Replica is used by cities, counties, states, MPOs, and transit agencies of all sizes around the country. SACOG, for example, uses Replica.

Replica represents movement by combining data from three primary sources: public use population census data, proprietary locational data from telecommunications and other IT infrastructure in the region, and field observations data from customer public agencies (ground truth). Much of its data comes from cell phones or in-vehicle GPS devices that track individual trips. Although the data is anonymized to protect the privacy of travelers, Replica is able to determine the residential and employment locations of travelers in general terms (i.e. neighborhoods rather than individual addresses). This provides a rich, new data source of travel behavior.

[12] For more information see: https://www.replicahq.com/



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MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

PROJECT SITE IN RELATION TO THE
EL DORADO COUNTY MODEL NETWORK

Project No. 12579129
Date 1/17/2024

FIGURE 14.1

GHD used Replica to determine the average trip length for work commutes, shopping trips, and dining trip for Cool and for El Dorado County as a whole. For the purposes of this analysis, "Cool" was defined as Block groups 1, 3, and 4 of El Dorado Census Tract 306.01 (see **Figure 14.2**). **Table 14.1** below compares the average trip lengths for Cool to those of El Dorado County as a whole. Note that the county average is the basis for comparison, per Section 4 of Resolution 141-2020.

Table 14.1: Average Trip Lengths for Cool and El Dorado County

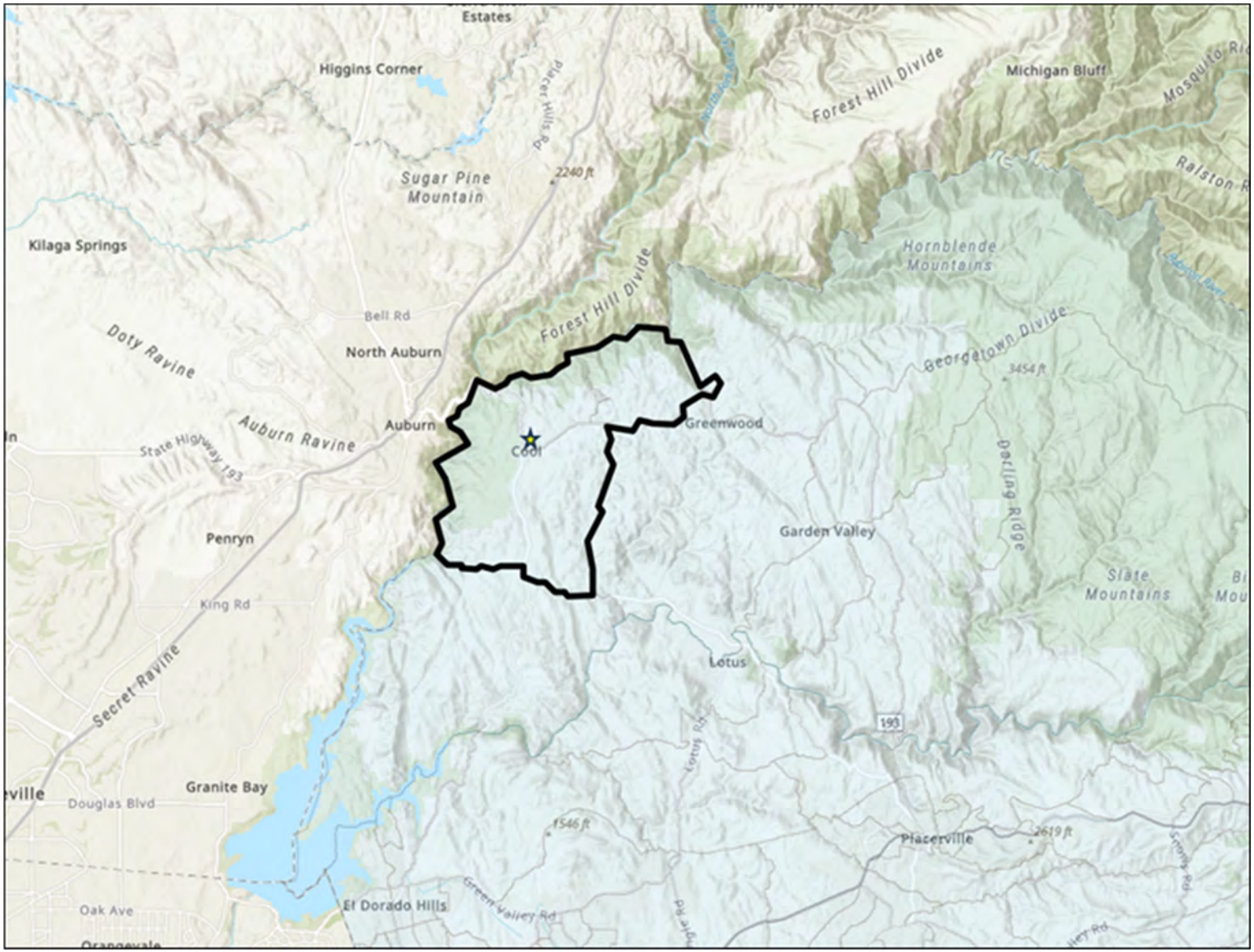
Trip Purpose	Trip Origin			Trip Destination		
	Cool	El Dorado County	Percent Difference	Cool	El Dorado County	Percent Difference
	(A)	(B)	(C)=(A)/(B)-1	(D)	(E)	(F)=(D)/(E)-1
Work trips	39.4	22.7	74%	18.4	18.9	-3%
Shopping Trips	14.2	10.6	34%	9.8	11.3	-13%
Dining Trips	13.7	11.2	22%	7.4	12.2	-39%

As can be seen in **Table 14.1**, residents of the Cool area drive significantly further than the county-wide average for work trips, shopping trips, and dining trips (see columns A, B, and C, which show data from when the Cool area is the trip origin). However, when Cool is the trip destination for work or for shopping, the trip lengths are shorter than the county-wide average (see columns D, E, and Fs, which show Cool as the destination). This is because the jobs/housing balance in the Cool area provides few opportunities to work and shop relative to the number of residents. For that reason, many of the jobs in the proposed development are likely to go to local residents who would otherwise work at jobs further away, and that the retail patrons would likely also be local residents substituting trips to the new establishments for trips to more distant shops. Outside residents who use the shops are likely to be pass-by trips will little net increase in VMT arising from their entering and leaving the site.

Other sources of data support the conclusion that the Proposed Project would result in a net decrease in VMT. A before-and-after study of the effects of a new retail development in Davis, California[13] found that shoppers self-selected the nearer shopping option when stores sold similar products, resulting in a net reduction in VMT. In addition, the International Council of Shopping Centers (ICSC) developed a classification system for retail establishments based on information from a database of over 115,000 sites in the U.S. (see **Table 14.2**). They found that small retail centers, which averaged 13 KSF in size (the Proposed Project is 11.7 KSF) typically had the smallest trade area. This is consistent with the finding from Replica that the Proposed Project is likely to serve a local clientele.

Based on this analysis, which shows that the Proposed Project is likely to result in a net decrease in VMT, we conclude that the Proposed Project's VMT impacts will be less-than-significant.

[13] *Measuring the impacts of local land-use policies on vehicle miles of travel: The case of the first big-box store in Davis, California*. Lovejoy, Sciara, Salon, Handy, and Mokhtarian, 2013.



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MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

BOUNDARY OF THE COOL AREA
FOR THE PURPOSE OF THIS ANALYSIS

Project No. 12579129
Date 1/17/2024

FIGURE 14.2

Source: https://www.arcgis.com/home/item.html?id=e061559721b742b281a000b9ffa2e2f4

Table 14.2 U.S. Shopping Center Classification and Characteristics

U.S. Shopping-Center Classification and Characteristics												
Type of Shopping Center	Concept	Center Count	Aggregate GLA (Sq. Ft.)	% Share of Industry GLA	Average Size (Sq. Ft.)	Typical GLA Range (Sq. Ft.)	Acres	# of Anchors	% Anchor GLA	Typical Number of Tenants	Typical Type of Anchors	Trade Area Size
General-Purpose Centers		**112,520**										
Super-Regional Mall	Similar in concept to regional malls, but offering more variety and assortment.	620	778,336,548	10.2%	1,255,382	800,000+	60-120	3+	50-70%	NA	Full-line or junior department store, mass merchant, discount department store and/or fashion apparel store.	5-25 miles
Regional Mall	General merchandise or fashion-oriented offerings. Typically, enclosed with inward-facing stores connected by a common walkway. Parking surrounds the outside perimeter.	600	353,795,548	4.7%	589,659	400,000-800,000	40-100	2+	50-70%	40-80 stores	Full-line or junior department store, mass merchant, discount department store and/or fashion apparel store.	5-15 miles
Community Center ("Large Neighborhood Center")	General merchandise or convenience- oriented offerings. Wider range of apparel and other soft goods offerings than neighborhood centers. The center is usually configured in a straight line as a strip, or may be laid out in an L or U shape, depending on the site and design.	9,776	1,930,849,736	25.4%	197,509	125,000-400,000	10-40	2+	40-60%	15-40 stores	Discount store, supermarket, drug, large-specialty discount (toys, books, electronics, home improvement/furnishings or sporting goods, etc.)	3-6 miles
Neighborhood Center	Convenience oriented.	32,588	2,340,711,371	30.8%	71,827	30,000-125,000	3-5	1+	30-50%	5-20 stores	Supermarket	3 miles
Strip/Convenience	Attached row of stores or service outlets managed as a coherent retail entity, with on-site parking usually located in front of the stores. Open canopies may connect the store fronts, but a strip center does not have enclosed walkways linking the stores. A strip center may be configured in a straight line, or have an "L" or "U" shape. A convenience center is among the smallest of the centers, whose tenants provide a narrow mix of goods and personal services to a very limited trade area.	68,936	911,202,922	12.0%	13,218	< 30,000	<3	Anchor-less or a small convenience-store anchor.	NA	NA	Convenience store, such as a mini-mart.	<1 mile
Specialized-Purpose Centers		**3,275**										
Power Center	Category-dominant anchors, including discount department stores, off-price stores, wholesale clubs, with only a few small tenants.	2,258	990,416,667	13.0%	438,626	250,000-600,000	25-80	3+	70-90%	NA	Category killers, such as home improvement, discount department, warehouse club and off-price stores	5-10 miles
Lifestyle	Upscale national-chain specialty stores with dining and entertainment in an outdoor setting.	491	164,903,247	2.2%	335,852	150,000-500,000	10-40	0-2	0-50%	NA	Large format upscale specialty	8-12 miles
Factory Outlet	Manufacturers' and retailers' outlet stores selling brand-name goods at a discount.	367	87,368,113	1.2%	238,060	50,000-400,000	10-50	NA	NA	NA	Manufacturers' and retailers' outlets	25-75 miles
Theme/Festival	Leisure, tourist, retail and service-oriented offerings with entertainment as a unifying theme. Often located in urban areas, they may be adapted from older--sometimes historic--buildings and can be part of a mixed-use project.	159	23,498,769	0.3%	147,791	80,000-250,000	5-20	Unspecified	NA	NA	Restaurants, entertainment	25-75 miles
Limited-Purpose Property		**62**										
Airport Retail	Consolidation of retail stores located within a commercial airport	62	15,452,860	0.2%	249,240	75,000-300,000	NA	NA	NA	NA	No anchors; retail includes specialty retail and restaurants	NA
Total Industry		**115,857**										
Total Industry	Traditional + Specialty + Special Purpose	115,857	7,596,535,781	100.0%	65,568							

Source: International Council of Shopping Centers (https://www.icsc.com/uploads/research/general/US_CENTER_CLASSIFICATION.pdf)

15. Mitigations and Recommendations

15.1 Existing Plus Project Conditions

The traffic operations analysis has found that under Existing Plus Project conditions, all four project study intersections would operate acceptably (LOS D or better) and vehicle queuing would not exceed measured storage capacity. In addition, roadway segment operation on SR 49 north and south of SR 193 and SR 193 east of SR 49 would be acceptable. However, traffic operations analyses of proposed project driveway operations at SR 49 and SR 193 associate with vehicle/truck access as well as pedestrian and bicycle safety would be significant in nature. Specifically, project driveway operations related to large truck access, safe vehicle access, and pedestrian/bicycle safety would be impacted by proposed project development. In response, GHD recommends the following improvements:

- SR 193/Ellinghouse Drive/Project Driveway: The internal curve radius on the project driveway at SR 193 (located approximately 80-100 feet from SR 193) has been enlarged and straightened to allow acceptable truck access. As shown in the conceptual driveway plan in **Figure 13.2,** the driveway has been re-aligned to enter the site at a more northerly direction allowing large trucks to ingress/egress acceptably without affecting opposing traffic flows.
- SR 49/Retail Driveway-Project Driveway: It is recommended that a separate outbound (westbound) left-through lane and right-turn lane (12-feet each) be striped with a 16-foot inbound lane (eastbound) to accommodate for efficient ingress/egress.
- SR 193/Ellinghouse Drive/Project Driveway: It is recommended that SR 193 be widened and/or re-striped to accommodate a separate inbound (eastbound) left-turn lane for the proposed project driveway. Based on conceptual design parameters (*Caltrans HDM*), the left-turn lane should have a storage capacity of 75-feet (3 car lengths) with a bay taper of approximately 290-feet based on vehicle speeds (less than 45 mph) and lane width (11-feet).
- SR 193/Ellinghouse Drive/Project Driveway: It is recommended that where the proposed project driveway crosses the Class I pedestrian/bicycle path on the north side of SR 193 install green conflict zone markings. In addition, there should be warning signage for trail users (DRIVEWAY AHEAD) and warning signage for motorists (TRAIL XING W11-15 & W11-15P). Consideration should be given to the installation of “sharks tooth” pavement markings for north-south driveway approaches prior to crossing the trail.
- California heavy vehicles accessing the proposed project site should be routed on SR 49 between Highway 50 and Cool (to the extent possible). As part of this recommendation, signs should be placed at outbound project driveway points indicating “Large Trucks Prohibited on SR 49 Segment North to Auburn.”
- Design of proposed project driveways on SR 49 and SR 193 will be consistent with Appendix J of the Caltrans Highway Design (HDM—Figure 205.1, see Attachment I).
- Caltrans will require an encroachment permit for any project-related work along or within the State Right-of-Way (ROW).

With the circulation improvements recommended above, study intersection LOS was re-calculated and has been shown in **Table 15.1.**

As presented in **Table 15.1**, all four study intersections would be operating at or above acceptable levels (LOS Existing Plus Project Conditions).

TABLE 15.1 MITIGATED STUDY INTERSECTION LEVEL-OF-SERVICE

ID	Intersection	Peak Hour	Existing Plus Project Plus Mitigation			Near Term Plus Project Plus Mitigation			Cumulative Plus Project Plus Mitigation		
			Control	Delay	LOS	Control	Delay	LOS	Control	Delay	LOS
1	Highway 49 (Coloma Road) & Northside Drive	AM	TWSC	12.3	B	TWSC	12.7	B	TWSC	13.1	B
		PM		15.2	C		15.3	C		16.2	C
2	Highway 49 (Coloma Road) & Retail Driveway/Project Driveway	AM	TWSC	16.3	C	TWSC	18.0	C	TWSC	19.5	C
		PM		19.4	C		20.3	C		22.7	C
3	Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Road)	AM	AWSC	11.0	B	AWSC	12.0	B	AWSC	12.7	B
		PM		14.8	B		19.3	C		23.7	C
4	Ellinghouse Drive/Highway 193 (Georgetown Road)	AM	TWSC	11.9	B	TWSC	12.6	B	TWSC	13.1	B
		PM		21.0	C		21.4	C		24.3	C

BOLD Indicates LOS of E or worse

1 TWSC = Two-Way-Stop-Control, Vehicle delay based on minor street stopped traffic (worst case).

2 AWSC = All-Way-Stop-Control, Vehicle delay based on average delay for each approach (worst case).

In addition to the recommended project-specific intersection mitigation identified as part of this analysis, the State Route 49 American River Confluence Study also suggests intersection operation analyses at the SR 49/SR 193 intersection.

- Perform an Intersection Control Evaluation (ICE) study at the intersection of SR 49 and SR 193 to determine suitability of a roundabout or other configuration that would support future traffic volumes should they reach a level unsupported by the current stop control intersection.

Should El Dorado County move forward with an ICE study for the SR 49/SR 193 intersection, the proposed project could contribute a proportional fair share towards the analysis. It is noted that suggested operational analyses of the SR 49/SR 193 are supported by Caltrans.

15.2 Near-Term Year 2032 Plus Project Conditions

The traffic operations analysis has found that under Near-Term Year 2032 Plus Project conditions, all four project study intersections would operate acceptably (LOS C or better) and vehicle queuing would not exceed measured storage capacity. In addition, roadway segment operation on SR 49 north and south of SR 193 and SR 193 east of SR 49 would be acceptable. Therefore, the same mitigation measures recommended for Existing Plus Project Conditions would apply to proposed project development under Near-Term Year 2032 Plus Project Conditions.

As presented in **Table 13.1**, all four study intersections would be operating at or above acceptable levels (LOS Near-Term Year 2032 Plus Project Conditions).

15.3 Cumulative Year 2042 Plus Project Conditions

The traffic operations analysis has found that under Cumulative Year 2042 Plus Project conditions, all four project study intersections would operate acceptably (LOS D or better) and vehicle queuing would not exceed measured storage capacity. With the circulation improvements recommended from Existing Plus Project Conditions, Cumulative Year 2042 Plus Project study intersection LOS was re-calculated and has been shown in **Table 13.1.** All four study intersections would be operating at or above acceptable levels (LOS C-D) during the AM and PM peak hour with recommended circulation improvements.

15.4 On Site Circulation

Patrons would access the project site via State Route 49 and/or State Route 193 at the two project driveways. Internal drive aisles would provide access to both parking and vehicle fueling positions located on the southern portion of the project site. As shown in **Figure 2.1**, the main retail and restaurant buildings would be south-facing with parking areas located directly in front of the buildings. In addition. parking areas would be located primarily along the western, eastern, and limited southern portions of the site. Motorists (and large trucks) would be able to circulate through the site in a circular fashion (if necessary) via a large internal drive extending around the rear of the commercial retail buildings. Patrons using the project driveway inbound (northbound) from SR 193 would cross over the existing Class I pedestrian/bike shared use path and then extend west into the site. To allow for the topography and physical fauna, the driveway would curve west into the site approximately 80-100 feet north of SR 193. Therefore, it is likely that outbound vehicles from the site would queue across the existing Class I pedestrian/bike shared use path. Based on discussions with the project applicant, the existing bike path would be re-aligned to accommodate pedestrians and bicyclists.

15.5 Parking Analysis

The proposed project's parking requirements were calculated using the El Dorado County parking ordinance for retail sales and service, restaurant (with drive-through), and neighborhood retail (<15k). As calculated, the proposed project would be required to provide 36 parking spaces based on County parking code requirements. The proposed project's parking supple would be 81 spaces providing a surplus of 45 parking spaces.

15.6 Project Description

The proposed 4,620 square-foot convenience market with 12 fueling positions and car wash, 2,585 square-foot QSR with drive-through, and 2,582 square-foot future retail pad project in Cool California is expected to generate 4,442 daily trips with 112 AM net new peak hour trips and 105 net new PM peak hour trips. This trip generation does capture both pass-by and internal trip reductions. It is noted that pass-by trips reductions do not reduce driveway traffic volumes.

The proposed project will be accessed via SR 49 and SR 193 through two (2) full-access driveways. The proposed project driveway on SR 49 would be located approximately 400-feet north of SR 193 whereas the project driveway on SR 193 would be directly opposite Ellinghouse Drive approximately 600 feet east of SR 49.

It is noted that a review of the proposed project site plan indicates that it would not encroach on potential ROW needed along SR 49 or SR 193 for potential conversion to a RAB control at the SR 49/SR 193 intersection.

15.7 VMT Analysis

As shown in **Table 14.1**, residents of the Cool area drive significantly further than the county-wide average for work trips, shopping trips, and dining trips (see columns A, B, and C, which show data from when the Cool area is the trip origin). However, when Cool is the trip destination for work or for shopping, the trip lengths are shorter than the county-wide average (see columns D, E, and Fs, which show Cool as the destination). This is because the jobs/housing balance in the Cool area provides few opportunities to work and shop relative to the number of residents. For that reason, many of the jobs in the proposed development are likely to go to local residents who would otherwise work at jobs further away, and that the retail patrons would likely also be local residents substituting trips to the new establishments for trips to more distant shops. Outside residents who use the shops are likely to be pass-by trips will little net increase in VMT arising from their entering and leaving the site

The proposed Cool Automotive and Commercial-Retail project and is a purely local-serving retail development and does not exceed 50,000 square feet. From a CEQA standpoint, a strong case could be made that all proposed project uses (gasoline, convenience market, car wash, and quick-service restaurant) are locally serving retail. None of the proposed project uses would be considered a regional draw in that all of these

similar retail uses are available in Auburn and/or Georgetown areas. In addition, “strip commercial centers”, “mini-marts”, and/or “convenience stores” are considered purely local in nature serving the needs of the adjacent communities. Based on research conducted by the International Council of Shopping Centers, strip-convenience centers typically have a trade area of one-mile or less. As shown in **Table 14.2**, strip-convenience centers with a convenience store as its anchor (or anchor-less) draw from areas of one-mile or less.

Based on the retail case studies and shopping center characteristics for retail uses (strip commercial-convenience stores) provided above, the development of proposed project uses would likely reduce overall VMT in the Cool area. By providing locally serving retail uses, area residents would be less likely to travel longer distances to access similar retail services. Based on this quantitative VMT analysis, which shows that the Proposed Project is likely to result in a net decrease in VMT, GHD concludes the Proposed Project’s VMT impacts will be less-than-significant.

15.8 Traffic Operations

All four project study intersections and three roadway segments are expected to operate at acceptable conditions (LOS D or better) under Existing, Near-Term Year 2032, and Cumulative Year 2042 (No Project) conditions. With proposed project traffic, study intersections and roadway segments would continue to operate acceptable levels. However, large truck driveway access as well as vehicle-pedestrian conflicts would occur with proposed project development at the SR 49 and SR 193 project driveways. As a result, circulation improvements have been recommended to mitigate AM and PM peak hour conditions as outlined in **Section 14.1**. With recommended circulation improvements, all four study intersections and roadway segments would be operating at acceptable levels during the AM and PM peak hour under all analyzed scenarios of Existing, Near-Term Year 2032, and Cumulative Year 2042 “with project” conditions. In addition, the intersection of SR 49/SR 193 would continue to meet the minimum volumes for signalization (CAMUTCD Warrant #3) during the PM peak hour with existing traffic volumes. Proposed project development would add to this warrant. However, the SR 49/SR 193 intersection is projected to operate acceptably (LOS D or better) under all “with project” scenarios.

Please note, Caltrans will require an encroachment permit for any project-related work along or within the State Right-of-Way (ROW). In addition design of proposed project driveways on SR 49 and SR 193 should be consistent with Appendix J of the Caltrans Highway Design (HDM—Figure 205.1).

15.9 Alternative Transportation

With the proposed project, the Class I pedestrian/bicycle shared use path would be re-designed (east or west) along the proposed project’s SR 193 frontage to provide acceptable access and improve safety. In addition, a Class II bicycle lane would be installed along the proposed project’s western frontage of SR 49 to provide improved bicycle access along the highway. Internal sidewalks would be provided around all on-site commercial-retail buildings. Bicycle racks will be provided for uses adjacent to Class I path connections and on-site buildings. In addition, supplemental parking spaces would be provided for trail parking.

15.10 Emergency Access

Emergency access is adequately provided through the project driveways on SR 49 and SR 193.

15.11 Safety Analysis

Based on review of the past five years of collision data, there was a total of six (6) collisions at the three primary study intersections along SR 49 and SR 193. There were no fatal or severe injury collisions, and all three intersections are experiencing collision rates below the California State average for similar facilities. In addition, the proposed project driveway on SR 193 is located directly opposite Ellinghouse Drive serving the existing Holiday Market development directly south of the project site. The creation of a four-way intersection

on SR 193 helps to reduce potential vehicle-pedestrian conflicts and provides a uniform operation for vehicle ROW with no driveway offset.

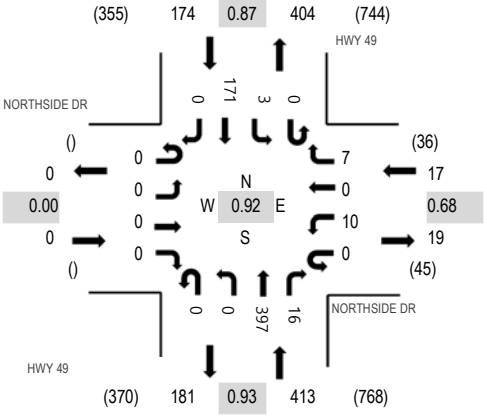
Attachment A: Turning Movement Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 HWY 49 & NORTHSIDE DR AM
Date: Thursday, July 28, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour

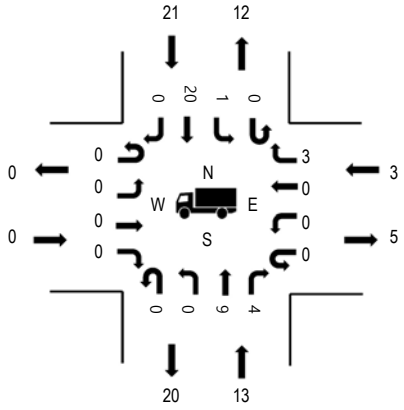
Motorized Vehicles



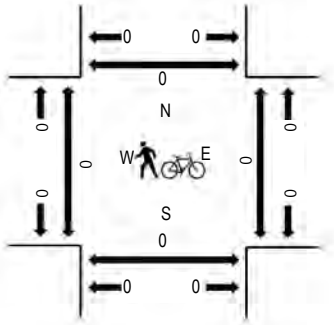
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	17.6%	0.68
NB	3.1%	0.93
SB	12.1%	0.87
All	6.1%	0.92

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	NORTHSIDE DR Eastbound				NORTHSIDE DR Westbound				HWY 49 Northbound				HWY 49 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	3	0	1	0	0	97	4	0	1	59	0	165	604
7:15 AM	0	0	0	0	0	4	0	3	0	0	99	4	0	0	34	0	144	555
7:30 AM	0	0	0	0	0	1	0	2	0	0	109	2	0	2	27	0	143	553
7:45 AM	0	0	0	0	0	2	0	1	0	0	92	6	0	0	51	0	152	557
8:00 AM	0	0	0	0	0	0	0	1	0	0	73	4	0	0	38	0	116	555
8:15 AM	0	0	0	0	0	2	0	3	0	0	90	6	0	2	39	0	142	
8:30 AM	0	0	0	0	0	4	0	2	0	0	88	3	0	0	50	0	147	
8:45 AM	0	0	0	0	0	5	0	2	0	0	81	10	0	1	51	0	150	
Count Total	0	0	0	0	0	21	0	15	0	0	729	39	0	6	349	0	1,159	
Peak Hour	0	0	0	0	0	10	0	7	0	0	397	16	0	3	171	0	604	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

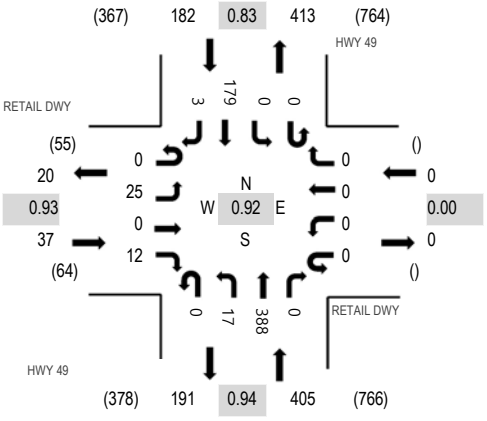
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	3	0	16	19	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	0	2	2	2	6	7:15 AM	0	1	0	0	1	7:15 AM	0	0	0	0	0
7:30 AM	0	8	0	3	11	7:30 AM	0	1	0	0	1	7:30 AM	0	0	0	0	0
7:45 AM	0	0	1	0	1	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	0	1	0	3	4	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	2	0	3	5	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	0	3	2	1	6	8:30 AM	0	1	0	0	1	8:30 AM	0	0	0	0	0
8:45 AM	0	2	1	3	6	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	0	21	6	31	58	Count Total	0	3	0	0	3	Count Total	0	0	0	0	0
Peak Hour	0	13	3	21	37	Peak Hour	0	2	0	0	2	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 HWY 49 & RETAIL DWY AM
Date: Thursday, July 28, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour

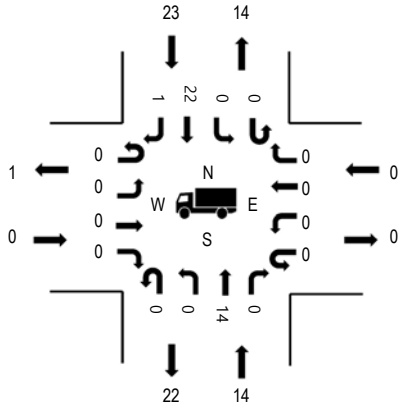
Motorized Vehicles



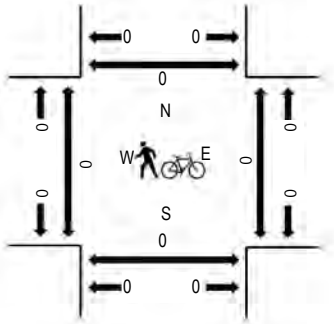
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.93
WB	0.0%	0.00
NB	3.5%	0.94
SB	12.6%	0.83
All	5.9%	0.92

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	RETAIL DWY Eastbound				RETAIL DWY Westbound				HWY 49 Northbound				HWY 49 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	7	0	2	0	0	0	0	0	8	93	0	0	0	59	1	170	624
7:15 AM	0	6	0	4	0	0	0	0	0	3	99	0	0	0	40	0	152	572
7:30 AM	0	6	0	4	0	0	0	0	0	4	104	0	0	0	27	1	146	569
7:45 AM	0	6	0	2	0	0	0	0	0	2	92	0	0	0	53	1	156	577
8:00 AM	0	4	0	3	0	0	0	0	0	4	70	0	0	0	36	1	118	573
8:15 AM	0	3	0	1	0	0	0	0	0	11	95	0	0	0	39	0	149	
8:30 AM	0	5	0	6	0	0	0	0	0	7	83	0	0	0	47	6	154	
8:45 AM	0	5	0	0	0	0	0	0	0	5	86	0	0	0	55	1	152	
Count Total	0	42	0	22	0	0	0	0	0	44	722	0	0	0	356	11	1,197	
Peak Hour	0	25	0	12	0	0	0	0	0	17	388	0	0	0	179	3	624	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

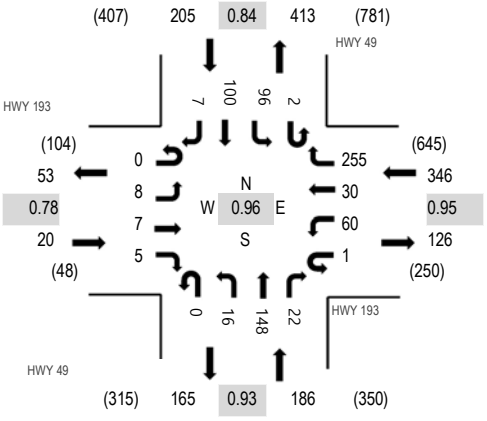
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	3	0	15	18	7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0
7:15 AM	0	3	0	4	7	7:15 AM	0	1	0	0	1	7:15 AM	0	0	0	0	0
7:30 AM	0	8	0	3	11	7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	0	1	0	4	5	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	3	0	2	5	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	0	3	0	4	7	8:30 AM	0	0	0	1	1	8:30 AM	0	0	0	0	0
8:45 AM	0	4	0	6	10	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	0	25	0	39	64	Count Total	0	3	0	2	5	Count Total	0	0	0	0	0
Peak Hour	0	14	0	23	37	Peak Hour	0	3	0	1	4	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 HWY 49 & HWY 193 AM
Date: Thursday, July 28, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour

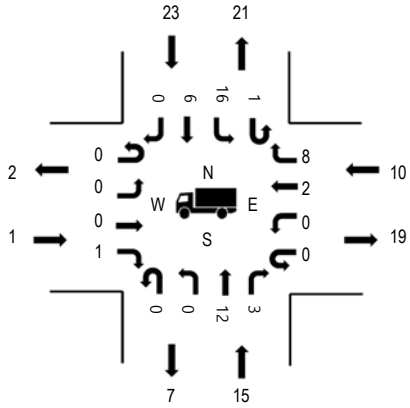
Motorized Vehicles



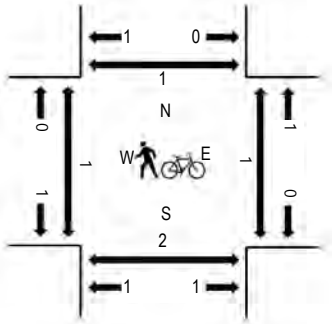
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.0%	0.78
WB	2.9%	0.95
NB	8.1%	0.93
SB	11.2%	0.84
All	6.5%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	HWY 193 Eastbound				HWY 193 Westbound				HWY 49 Northbound				HWY 49 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	1	1	1	12	10	68	0	5	33	5	0	34	26	1	198	757
7:15 AM	0	4	2	2	0	18	11	55	0	5	42	3	1	21	24	2	190	706
7:30 AM	0	2	1	1	0	16	4	67	0	1	38	5	1	16	18	1	171	701
7:45 AM	0	1	3	1	0	14	5	65	0	5	35	9	0	25	32	3	198	713
8:00 AM	0	2	4	1	0	10	6	44	0	7	27	5	1	18	22	0	147	693
8:15 AM	0	3	3	1	0	13	6	68	0	2	35	6	2	23	22	1	185	
8:30 AM	0	3	4	2	0	10	10	60	0	7	31	2	0	19	34	1	183	
8:45 AM	0	2	2	1	0	6	8	58	0	1	32	9	0	29	28	2	178	
Count Total	0	18	20	10	1	99	60	485	0	33	273	44	5	185	206	11	1,450	
Peak Hour	0	8	7	5	1	60	30	255	0	16	148	22	2	96	100	7	757	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

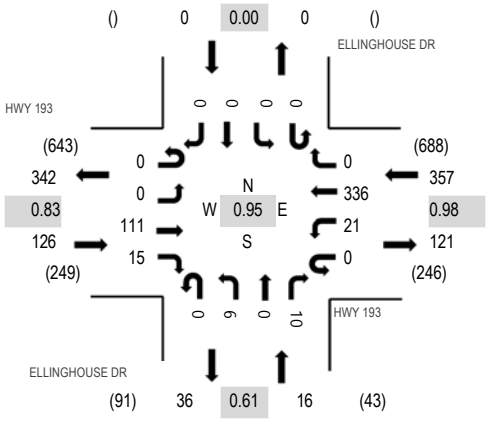
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	2	3	13	19	7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1
7:15 AM	0	5	2	5	12	7:15 AM	0	0	1	0	1	7:15 AM	0	0	0	0	0
7:30 AM	0	6	4	4	14	7:30 AM	0	0	0	1	1	7:30 AM	1	0	0	0	1
7:45 AM	0	2	1	1	4	7:45 AM	0	0	0	0	0	7:45 AM	0	1	1	1	3
8:00 AM	0	1	2	2	5	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	5	0	4	9	8:15 AM	0	0	0	0	0	8:15 AM	1	0	0	0	1
8:30 AM	1	3	1	5	10	8:30 AM	0	0	0	0	0	8:30 AM	1	1	0	0	2
8:45 AM	0	2	2	7	11	8:45 AM	0	0	0	0	0	8:45 AM	0	1	0	0	1
Count Total	2	26	15	41	84	Count Total	0	0	1	1	2	Count Total	3	4	1	1	9
Peak Hour	1	15	10	23	49	Peak Hour	0	0	1	1	2	Peak Hour	1	2	1	1	5

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 ELLINGHOUSE DR & HWY 193 AM
Date: Thursday, July 28, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

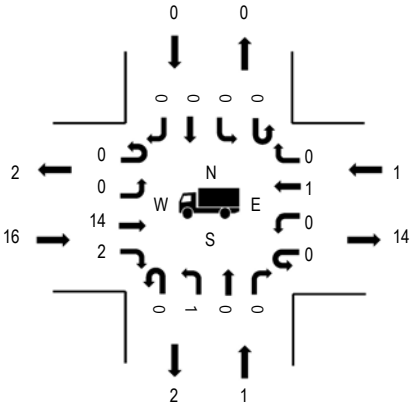
Motorized Vehicles



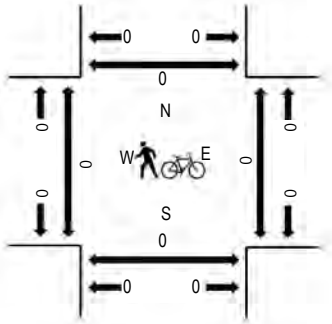
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	12.7%	0.83
WB	0.3%	0.98
NB	6.3%	0.61
SB	0.0%	0.00
All	3.6%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	HWY 193 Eastbound				HWY 193 Westbound				ELLINGHOUSE DR Northbound				ELLINGHOUSE DR Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	35	3	0	3	86	0	0	1	0	2	0	0	0	0	130	499
7:15 AM	0	0	24	5	0	5	86	0	0	2	0	2	0	0	0	0	124	471
7:30 AM	0	0	21	1	0	4	82	0	0	2	0	4	0	0	0	0	114	484
7:45 AM	0	0	31	6	0	9	82	0	0	1	0	2	0	0	0	0	131	483
8:00 AM	0	0	22	4	0	12	59	0	0	1	0	4	0	0	0	0	102	481
8:15 AM	0	0	26	5	0	11	84	0	0	4	0	7	0	0	0	0	137	
8:30 AM	0	0	23	3	0	3	79	0	0	1	0	4	0	0	0	0	113	
8:45 AM	0	0	34	6	0	11	72	0	0	1	0	5	0	0	0	0	129	
Count Total	0	0	216	33	0	58	630	0	0	13	0	30	0	0	0	0	980	
Peak Hour	0	0	111	15	0	21	336	0	0	6	0	10	0	0	0	0	499	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

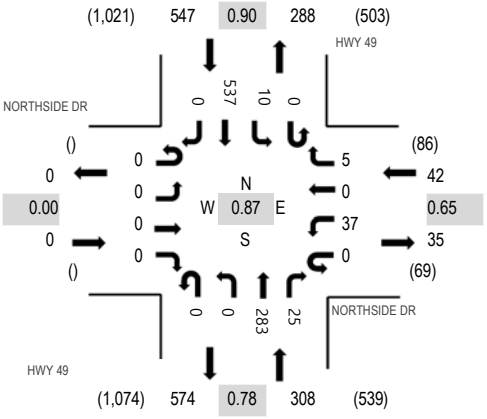
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	9	0	0	0	9	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	4	0	0	0	4	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	2	1	1	0	4	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	1	0	0	0	1	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	1	0	1	0	2	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	2	0	1	0	3	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	3	0	0	0	3	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	1	0	1	0	2	8:45 AM	0	1	0	0	1	8:45 AM	0	0	0	0	0
Count Total	23	1	4	0	28	Count Total	0	1	0	0	1	Count Total	0	0	0	0	0
Peak Hour	16	1	1	0	18	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 HWY 49 & NORTHSIDE DR PM
Date: Thursday, July 28, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

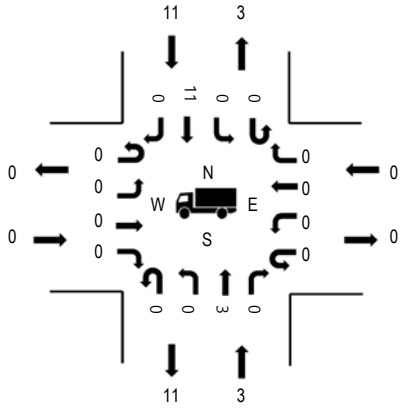
Motorized Vehicles



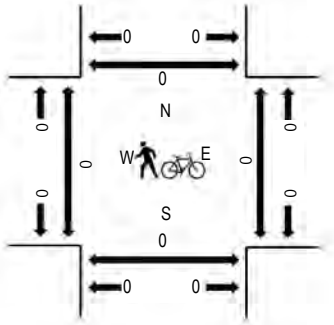
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.65
NB	1.0%	0.78
SB	2.0%	0.90
All	1.6%	0.87

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	NORTHSIDE DR Eastbound				NORTHSIDE DR Westbound				HWY 49 Northbound				HWY 49 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	14	0	1	0	0	93	6	0	4	140	0	258	897
4:15 PM	0	0	0	0	0	7	0	0	0	0	58	4	0	0	120	0	189	811
4:30 PM	0	0	0	0	0	9	0	1	0	0	65	7	0	4	148	0	234	823
4:45 PM	0	0	0	0	0	7	0	3	0	0	67	8	0	2	129	0	216	791
5:00 PM	0	0	0	0	0	11	0	4	0	0	43	8	0	3	103	0	172	749
5:15 PM	0	0	0	0	0	6	0	1	0	0	56	5	0	3	130	0	201	
5:30 PM	0	0	0	0	0	5	0	0	0	0	71	7	0	3	116	0	202	
5:45 PM	0	0	0	0	0	15	0	2	0	0	38	3	0	2	114	0	174	
Count Total	0	0	0	0	0	74	0	12	0	0	491	48	0	21	1,000	0	1,646	
Peak Hour	0	0	0	0	0	37	0	5	0	0	283	25	0	10	537	0	897	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

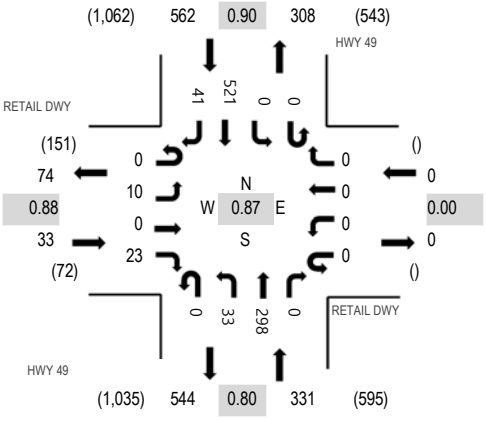
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	2	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	5	5	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	2	3	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	2	0	2	4	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	3	0	0	3	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	5	1	0	6	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	13	1	11	25	Count Total	0	0	0	0	0	Count Total	0	0	0	0	0
Peak Hour	0	3	0	11	14	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 HWY 49 & RETAIL DWY PM
Date: Thursday, July 28, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

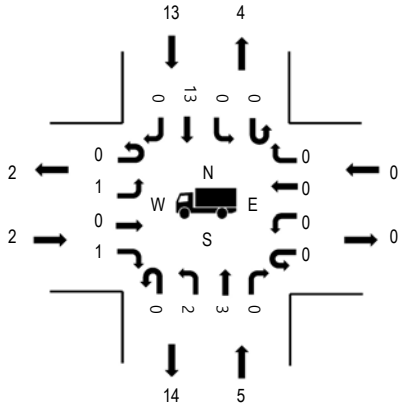
Motorized Vehicles



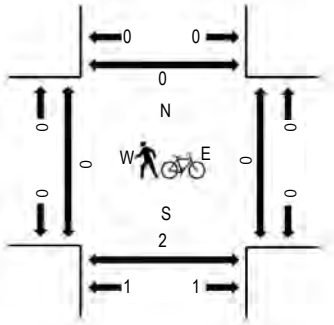
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	6.1%	0.88
WB	0.0%	0.00
NB	1.5%	0.80
SB	2.3%	0.90
All	2.2%	0.87

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	RETAIL DWY Eastbound				RETAIL DWY Westbound				HWY 49 Northbound				HWY 49 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	3	0	8	0	0	0	0	0	6	97	0	0	0	139	14	267	926
4:15 PM	0	4	0	3	0	0	0	0	0	8	59	0	0	0	118	8	200	844
4:30 PM	0	1	0	6	0	0	0	0	0	7	71	0	0	0	150	6	241	861
4:45 PM	0	2	0	6	0	0	0	0	0	12	71	0	0	0	114	13	218	832
5:00 PM	0	2	0	10	0	0	0	0	0	10	50	0	0	0	101	12	185	803
5:15 PM	0	2	0	8	0	0	0	0	0	11	61	0	0	0	128	7	217	
5:30 PM	0	7	0	5	0	0	0	0	0	8	72	0	0	0	111	9	212	
5:45 PM	0	2	0	3	0	0	0	0	0	13	39	0	0	0	125	7	189	
Count Total	0	23	0	49	0	0	0	0	0	75	520	0	0	0	986	76	1,729	
Peak Hour	0	10	0	23	0	0	0	0	0	33	298	0	0	0	521	41	926	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

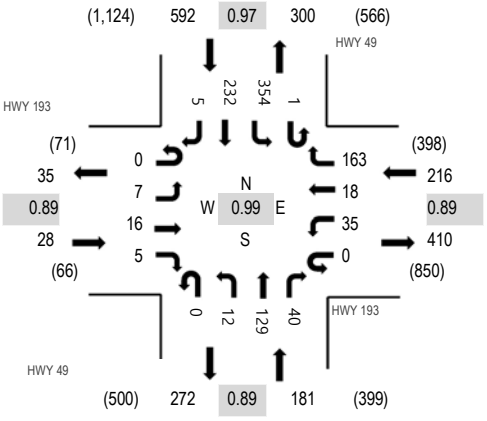
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	0	3	4	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	2	0	3	5	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	1	0	0	3	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	1	2	0	4	7	4:45 PM	0	0	0	0	0	4:45 PM	0	2	0	0	2
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	3	0	1	4	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	5	0	0	5	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	2	15	0	15	32	Count Total	0	0	0	0	0	Count Total	0	2	0	0	2
Peak Hour	2	5	0	13	20	Peak Hour	0	0	0	0	0	Peak Hour	0	2	0	0	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 HWY 49 & HWY 193 PM
Date: Thursday, July 28, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour

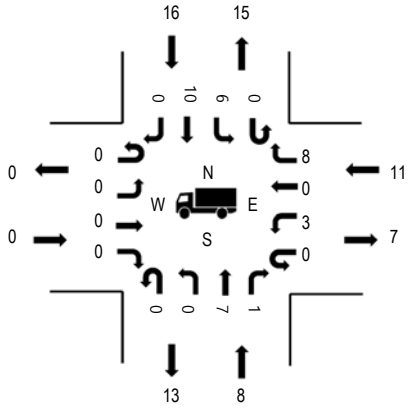
Motorized Vehicles



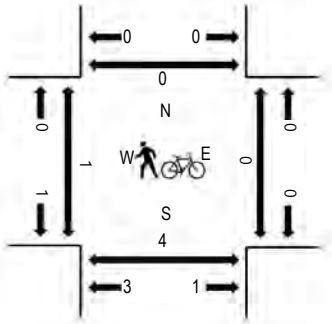
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.89
WB	5.1%	0.89
NB	4.4%	0.89
SB	2.7%	0.97
All	3.4%	0.99

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	HWY 193 Eastbound				HWY 193 Westbound				HWY 49 Northbound				HWY 49 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	4	5	0	0	8	3	33	0	5	34	12	0	89	63	0	256	1,017
4:15 PM	0	0	3	2	0	12	4	40	0	2	29	16	0	89	51	1	249	988
4:30 PM	0	2	3	1	0	6	5	49	0	2	27	8	0	83	68	1	255	1,008
4:45 PM	0	1	5	2	0	9	6	41	0	3	39	4	1	93	50	3	257	995
5:00 PM	0	1	6	2	0	10	3	28	0	1	29	20	1	91	33	2	227	970
5:15 PM	0	1	9	1	0	18	2	41	0	2	32	20	0	97	45	1	269	
5:30 PM	0	4	3	4	0	8	6	31	0	7	45	9	1	73	47	4	242	
5:45 PM	0	1	6	0	0	8	6	21	0	1	29	23	1	83	52	1	232	
Count Total	0	14	40	12	0	79	35	284	0	23	264	112	4	698	409	13	1,987	
Peak Hour	0	7	16	5	0	35	18	163	0	12	129	40	1	354	232	5	1,017	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

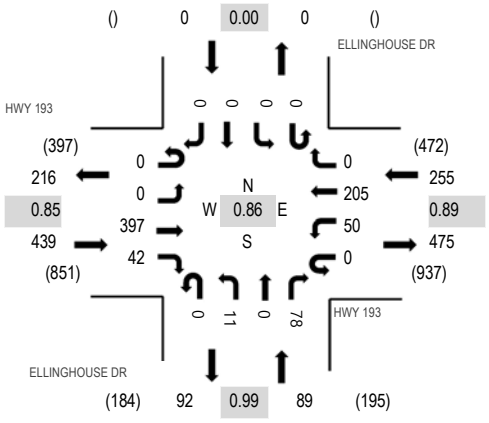
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	3	2	5	10	4:00 PM	0	0	0	0	0	4:00 PM	1	4	0	0	5
4:15 PM	0	0	4	4	8	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	3	4	3	10	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	2	1	4	7	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	1	3	2	6	5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1
5:30 PM	0	1	4	0	5	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	4	2	0	6	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	14	21	18	53	Count Total	0	0	0	0	0	Count Total	1	4	1	0	6
Peak Hour	0	8	11	16	35	Peak Hour	0	0	0	0	0	Peak Hour	1	4	0	0	5

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 ELLINGHOUSE DR & HWY 193 PM
Date: Thursday, July 28, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

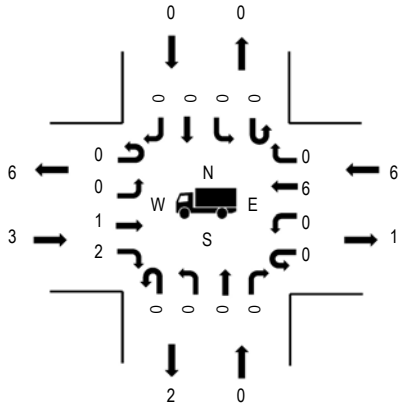
Motorized Vehicles



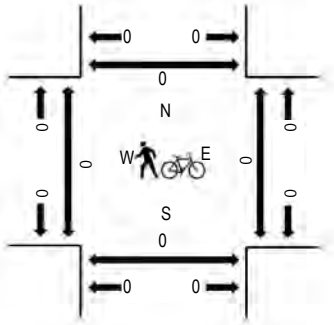
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.7%	0.85
WB	2.4%	0.89
NB	0.0%	0.99
SB	0.0%	0.00
All	1.1%	0.86

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	HWY 193 Eastbound				HWY 193 Westbound				ELLINGHOUSE DR Northbound				ELLINGHOUSE DR Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	96	12	0	12	42	0	0	3	0	21	0	0	0	0	186	763
4:15 PM	0	0	95	13	0	14	52	0	0	5	0	20	0	0	0	0	199	754
4:30 PM	0	0	83	8	0	9	54	0	0	4	0	21	0	0	0	0	179	783
4:45 PM	0	0	92	12	0	15	55	0	0	1	0	24	0	0	0	0	199	775
5:00 PM	0	0	104	10	0	12	38	0	0	3	0	10	0	0	0	0	177	755
5:15 PM	0	0	118	12	0	14	58	0	0	3	0	23	0	0	0	0	228	
5:30 PM	0	0	76	10	0	12	42	0	0	2	0	29	0	0	0	0	171	
5:45 PM	0	0	101	9	0	10	33	0	0	2	0	24	0	0	0	0	179	
Count Total	0	0	765	86	0	98	374	0	0	23	0	172	0	0	0	0	1,518	
Peak Hour	0	0	397	42	0	50	205	0	0	11	0	78	0	0	0	0	783	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	1	2	0	4	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	1	1	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	2	0	2	0	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	1	0	2	0	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	0	3	0	4	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	2	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	5	2	14	0	21	Count Total	0	0	0	0	0	Count Total	0	0	0	0	0
Peak Hour	3	0	6	0	9	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

Attachment B: Peak Hour Signal Warrants

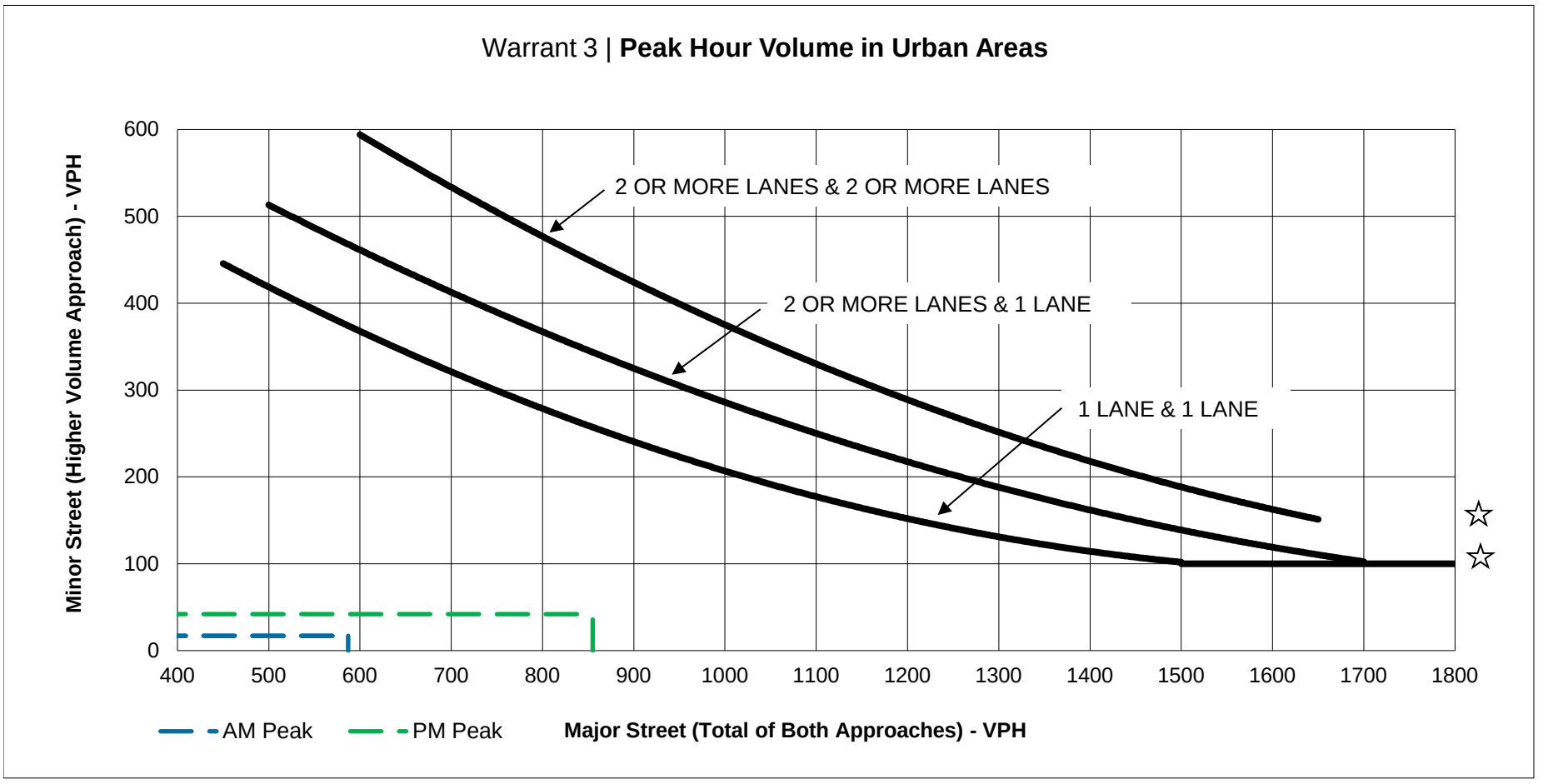
Intersection #1: Highway 49 & Northstar Drive

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	587	855	
Minor St. Volume (higher volume approach):	17	42	
Warrant Met?:	**No**	**No**	

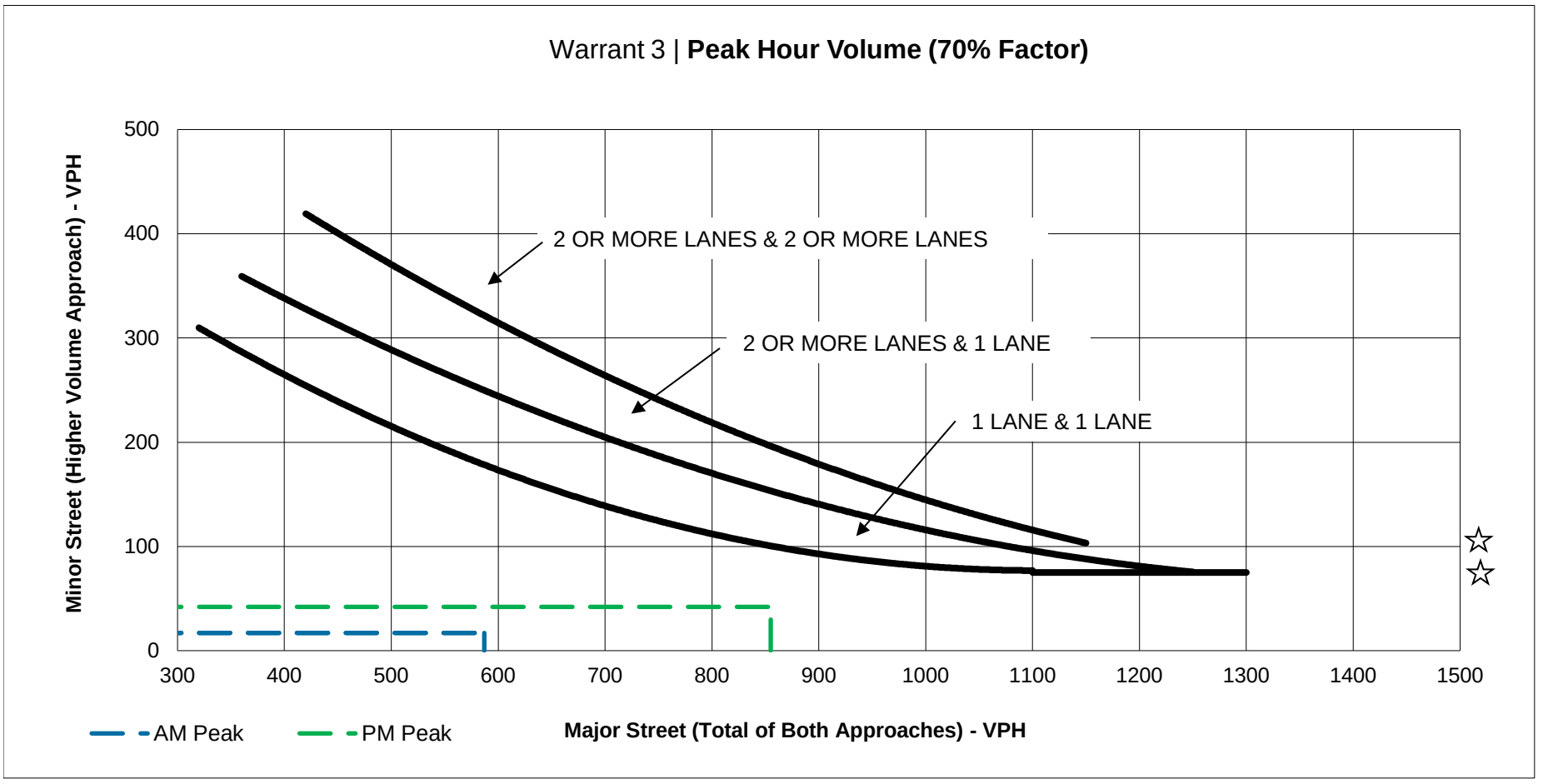
Fig 4C-3 (100% Option)

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	587	855	
Minor St. Volume (higher volume approach):	17	42	
Warrant Met?:	**No**	**No**	

Fig 4C-4 (70% Option)

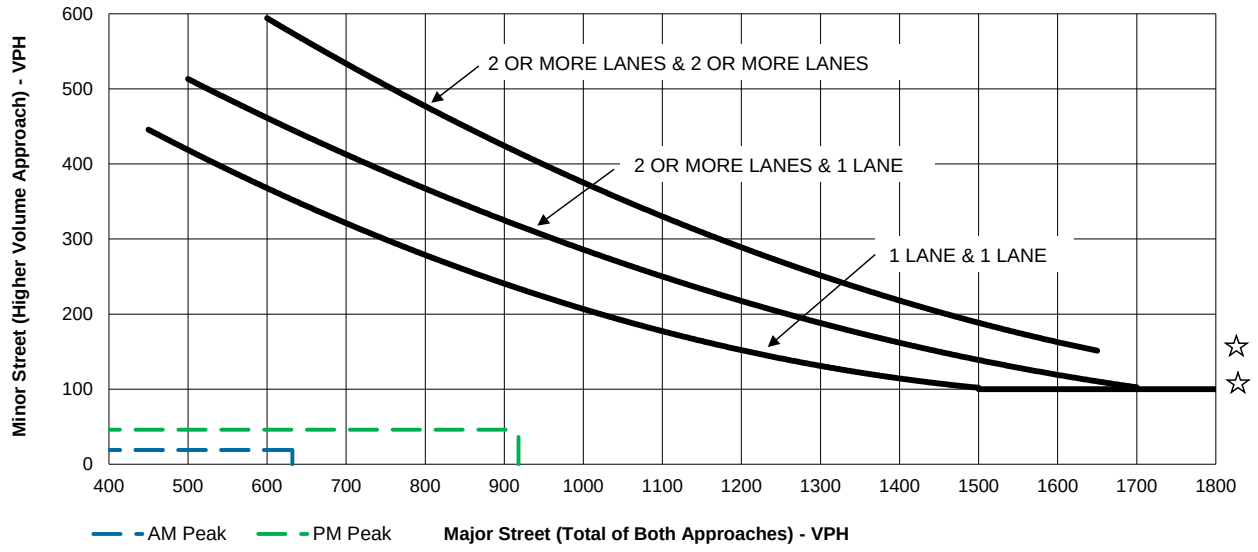
Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

Warrant 3 | **Peak Hour Volume in Urban Areas**



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	632	918	
Minor St. Volume (higher volume approach):	19	46	
Warrant Met?:	**NO**	**NO**	

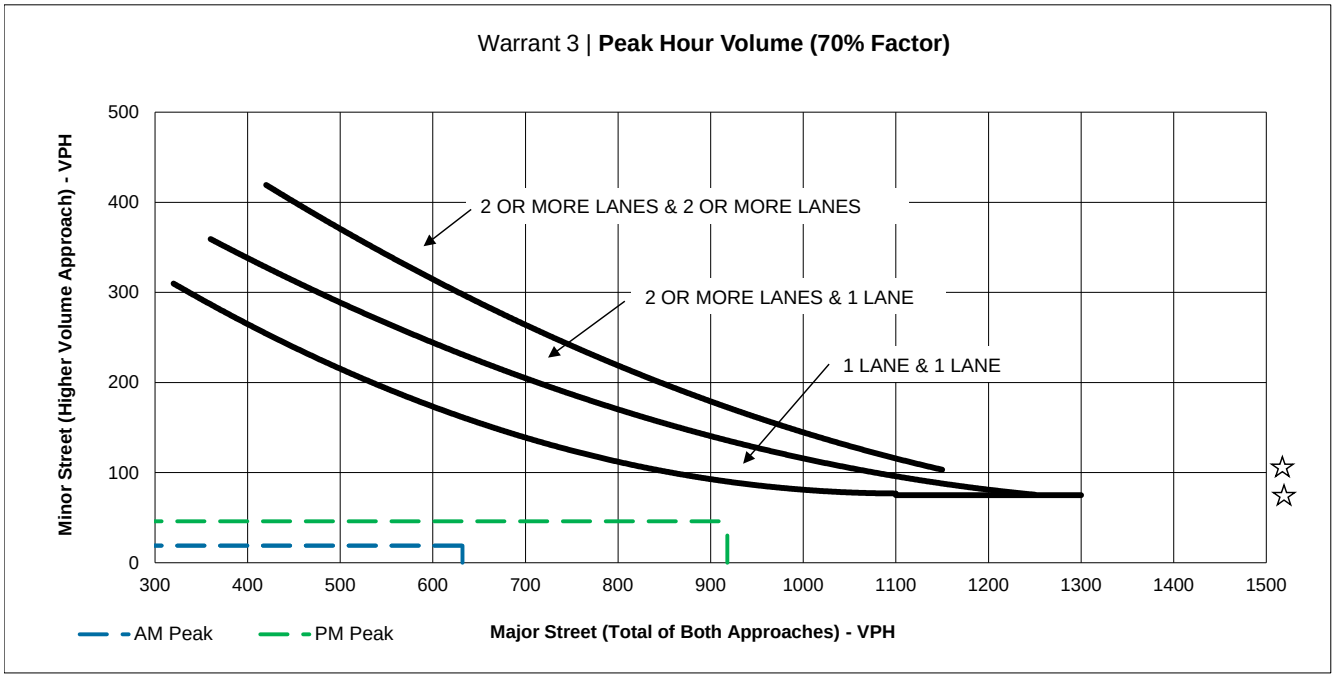
Fig 4C-3 (100% Option)

Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	632	918	
Minor St. Volume (higher volume approach):	19	46	
Warrant Met?:	**NO**	**NO**	

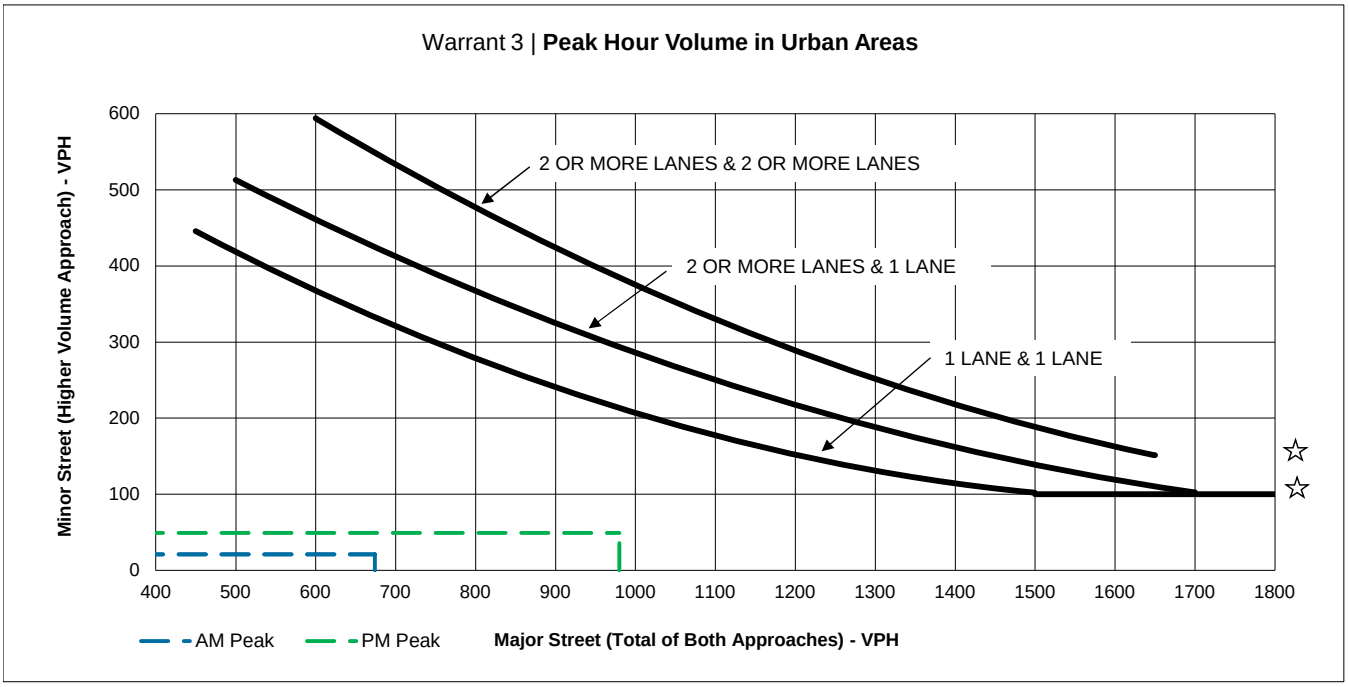
Fig 4C-4 (70% Option)

Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	674	980	
Minor St. Volume (higher volume approach):	21	49	
Warrant Met?:	**NO**	**NO**	

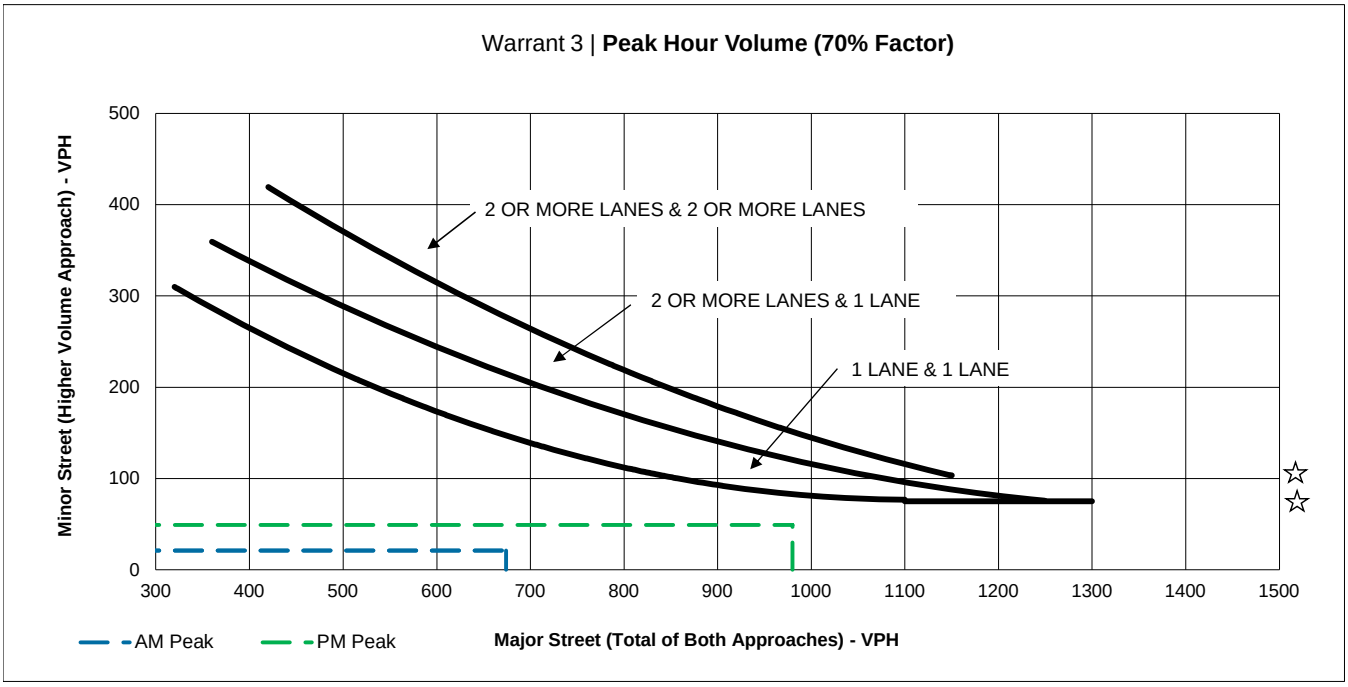
Fig 4C-3 (100% Option)

Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	674	980	
Minor St. Volume (higher volume approach):	21	49	
Warrant Met?:	**NO**	**NO**	

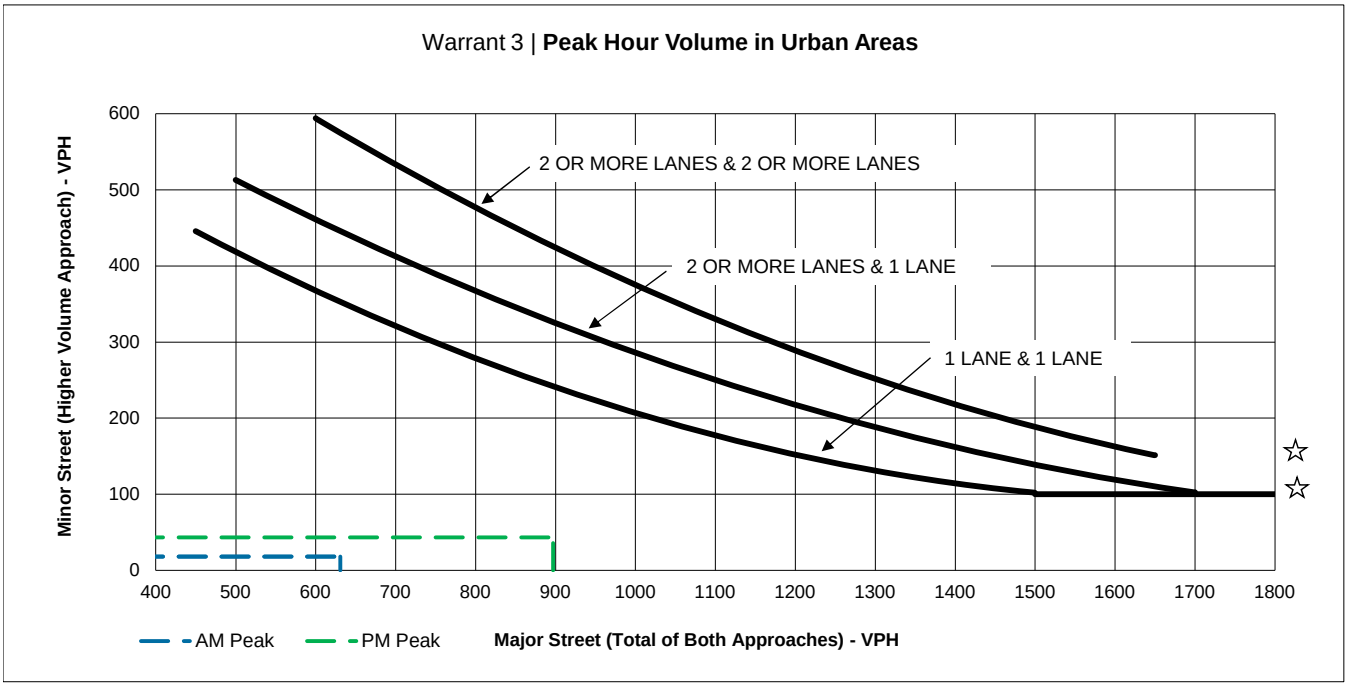
Fig 4C-4 (70% Option)

Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	631	897	
Minor St. Volume (higher volume approach):	18	43	
Warrant Met?:	**NO**	**NO**	

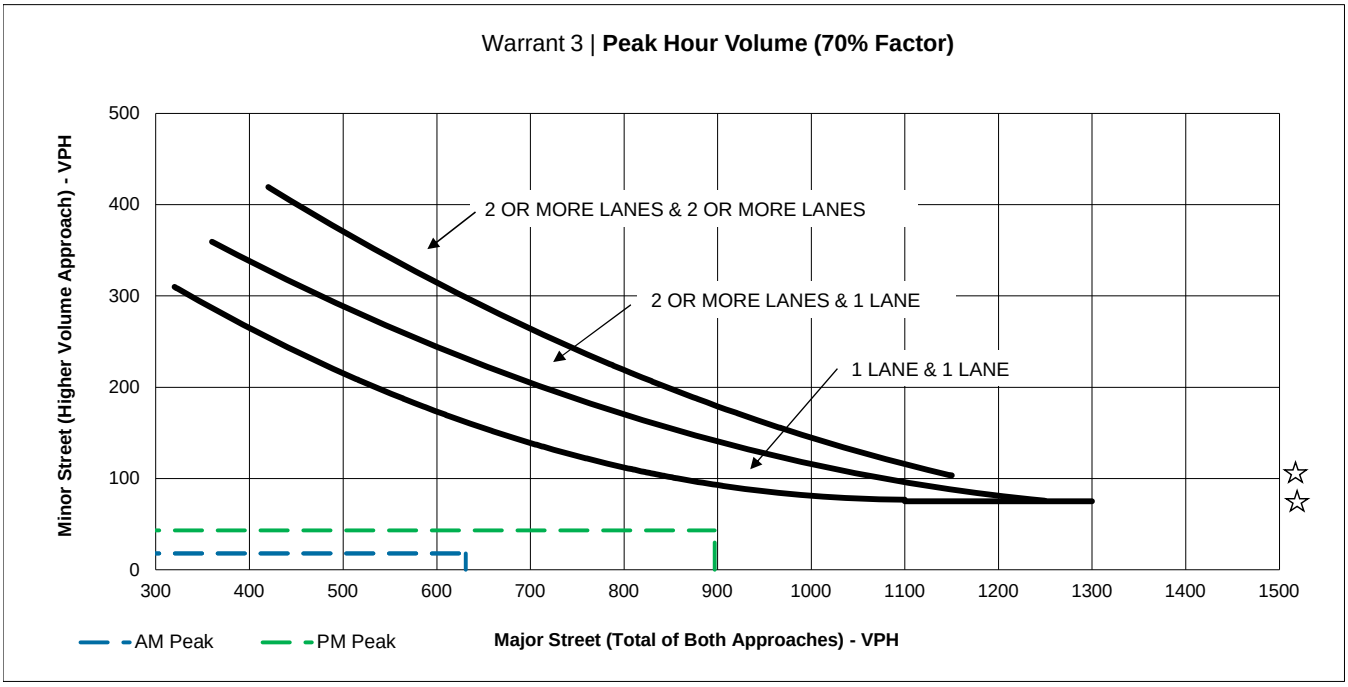
Fig 4C-3 (100% Option)

Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	631	897	
Minor St. Volume (higher volume approach):	18	43	
Warrant Met?:	**NO**	**NO**	

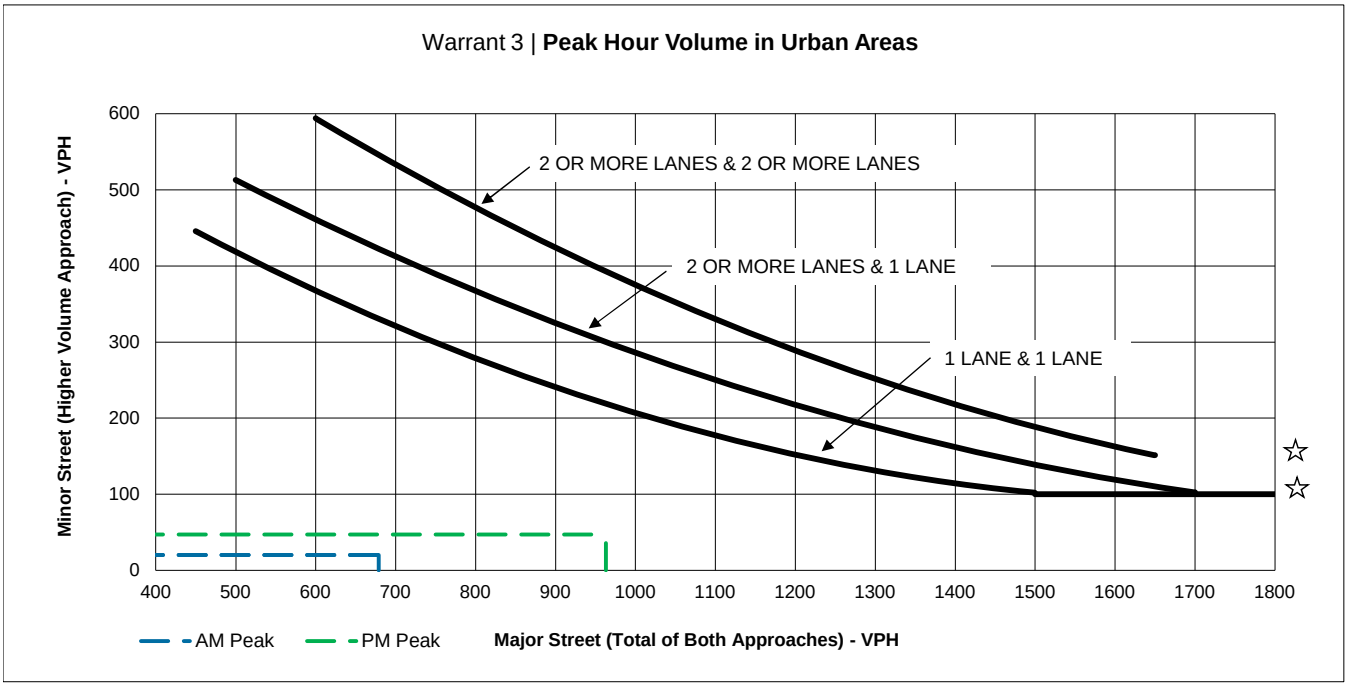
Fig 4C-4 (70% Option)

Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	679	963	
Minor St. Volume (higher volume approach):	20	47	
Warrant Met?:	**NO**	**NO**	

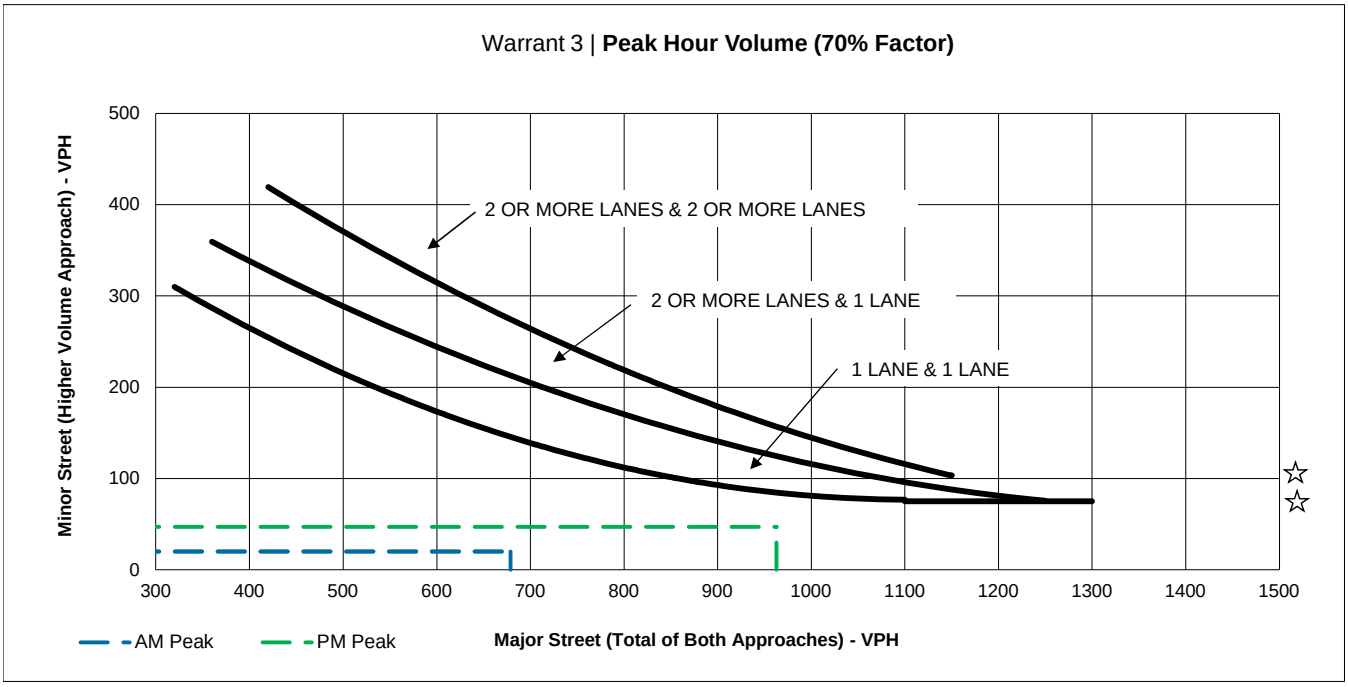
Fig 4C-3 (100% Option)

Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	679	963	
Minor St. Volume (higher volume approach):	20	47	
Warrant Met?:	**NO**	**NO**	

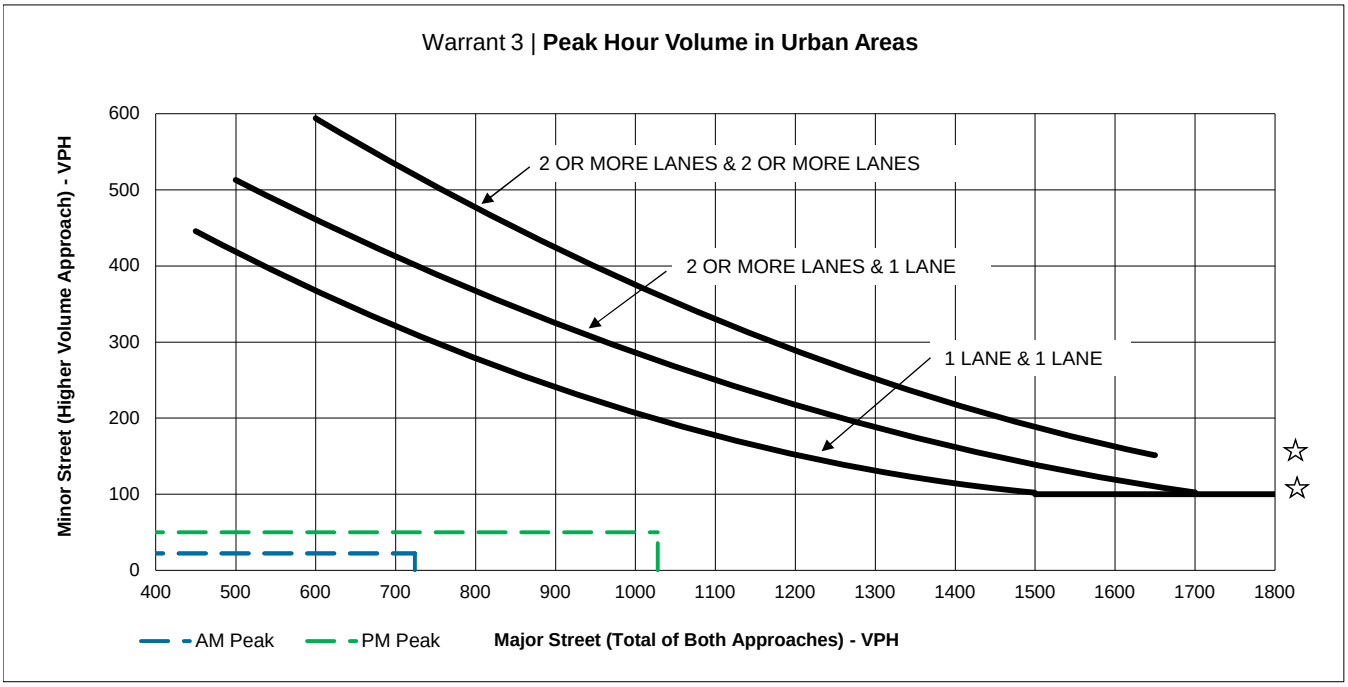
Fig 4C-4 (70% Option)

Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	724	1,028	
Minor St. Volume (higher volume approach):	22	50	
Warrant Met?:	**NO**	**NO**	

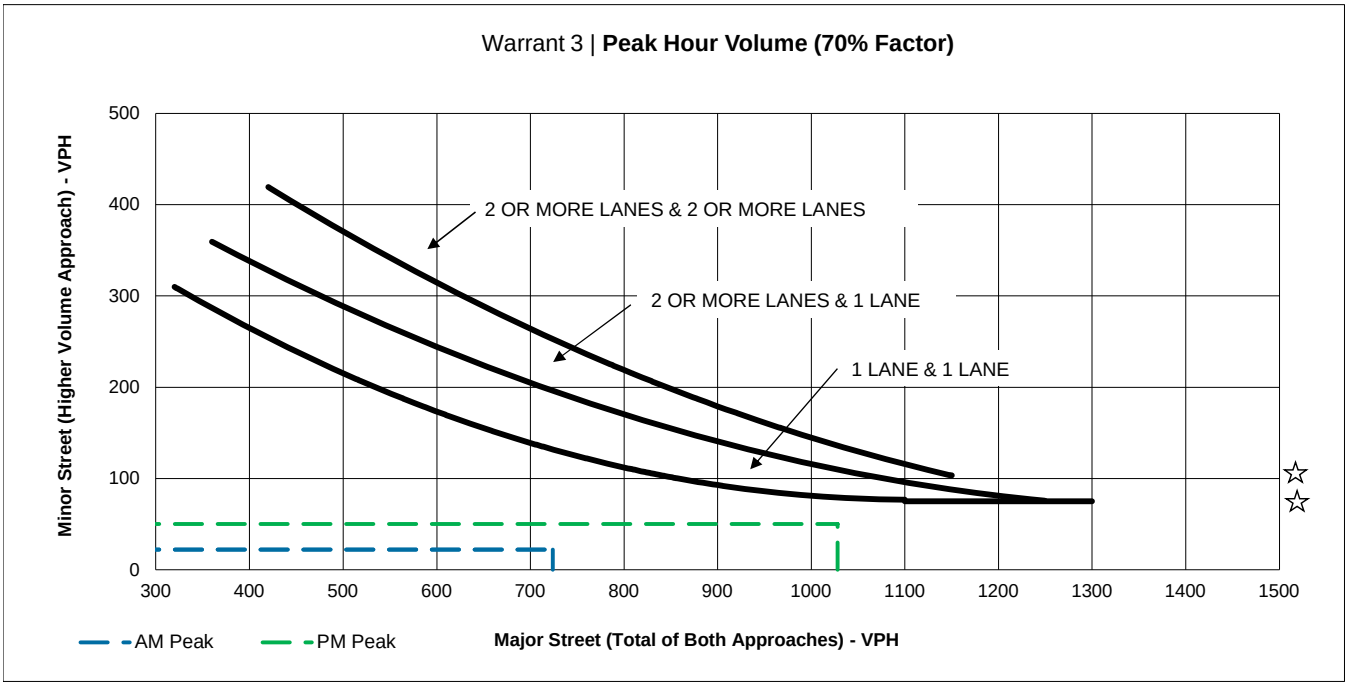
Fig 4C-3 (100% Option)

Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Northside Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	724	1,028	
Minor St. Volume (higher volume approach):	22	50	
Warrant Met?:	**NO**	**NO**	

Fig 4C-4 (70% Option)

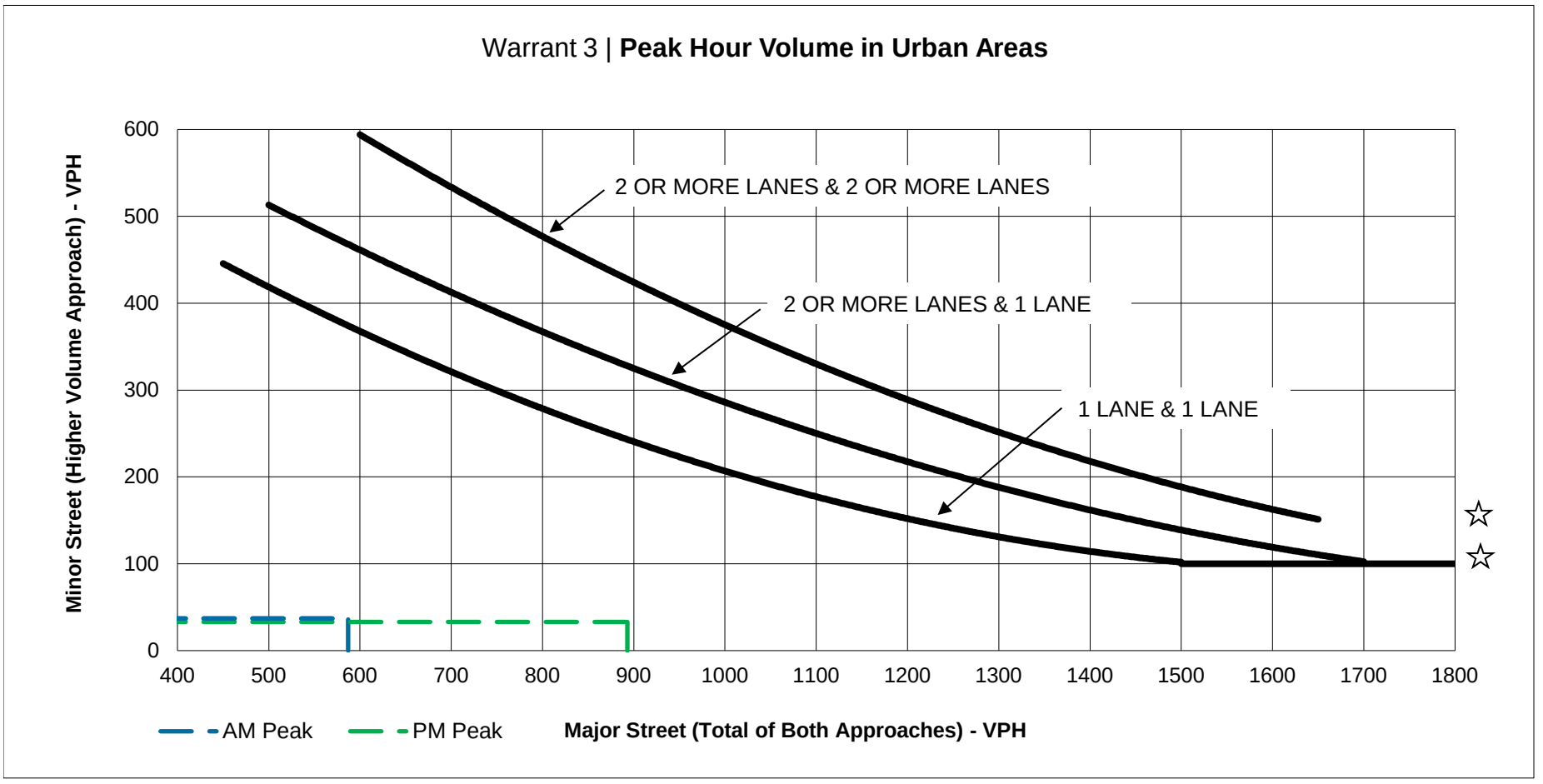
Intersection #2: Highway 49 & Retail-Project Driveway

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Exist Retail Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	587	893	
Minor St. Volume (higher volume approach):	37	33	
Warrant Met?:	**No**	**No**	

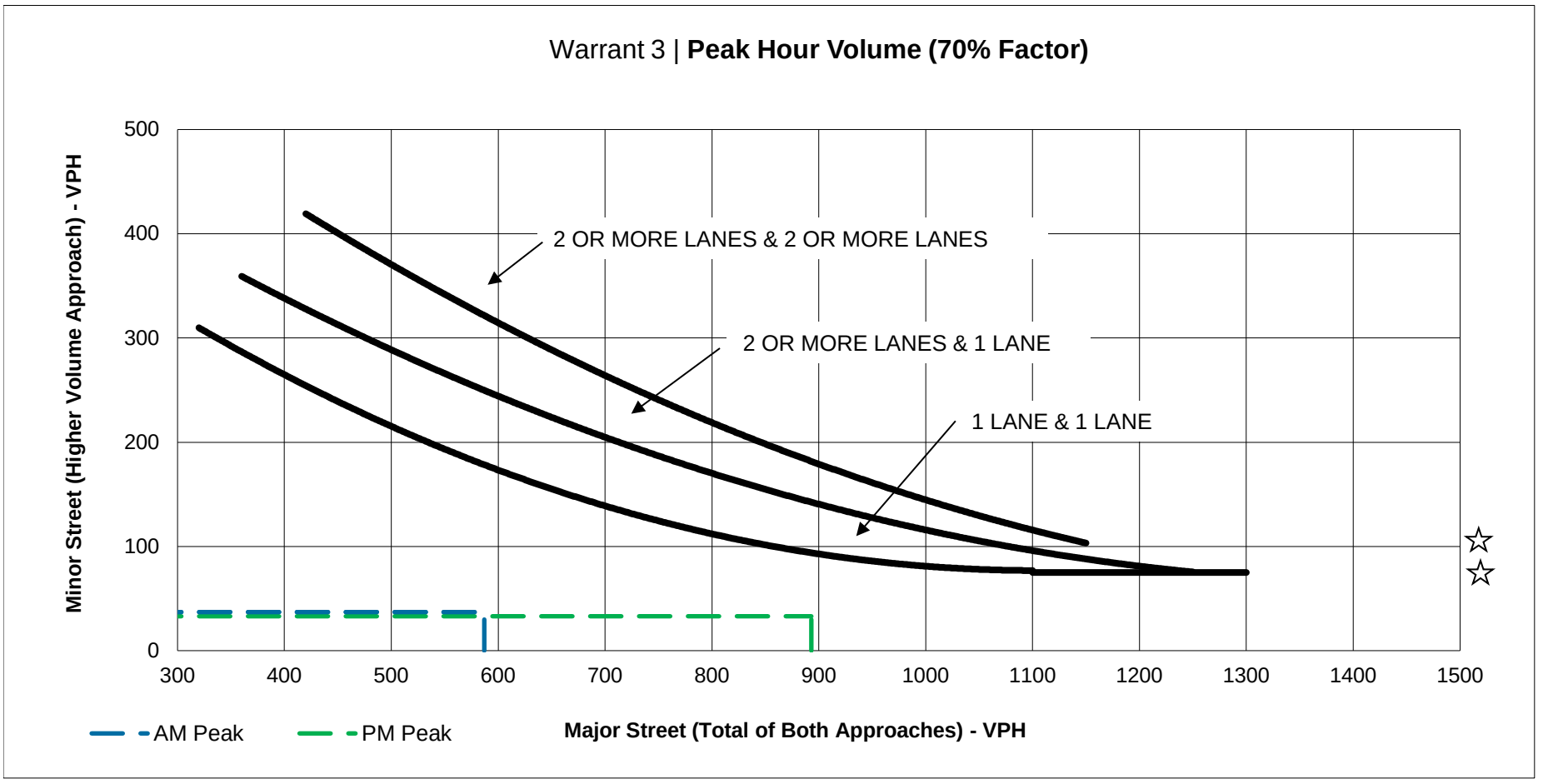
Fig 4C-3 (100% Option)

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Exist Retail Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	587	893	
Minor St. Volume (higher volume approach):	37	33	
Warrant Met?:	**NO**	**NO**	

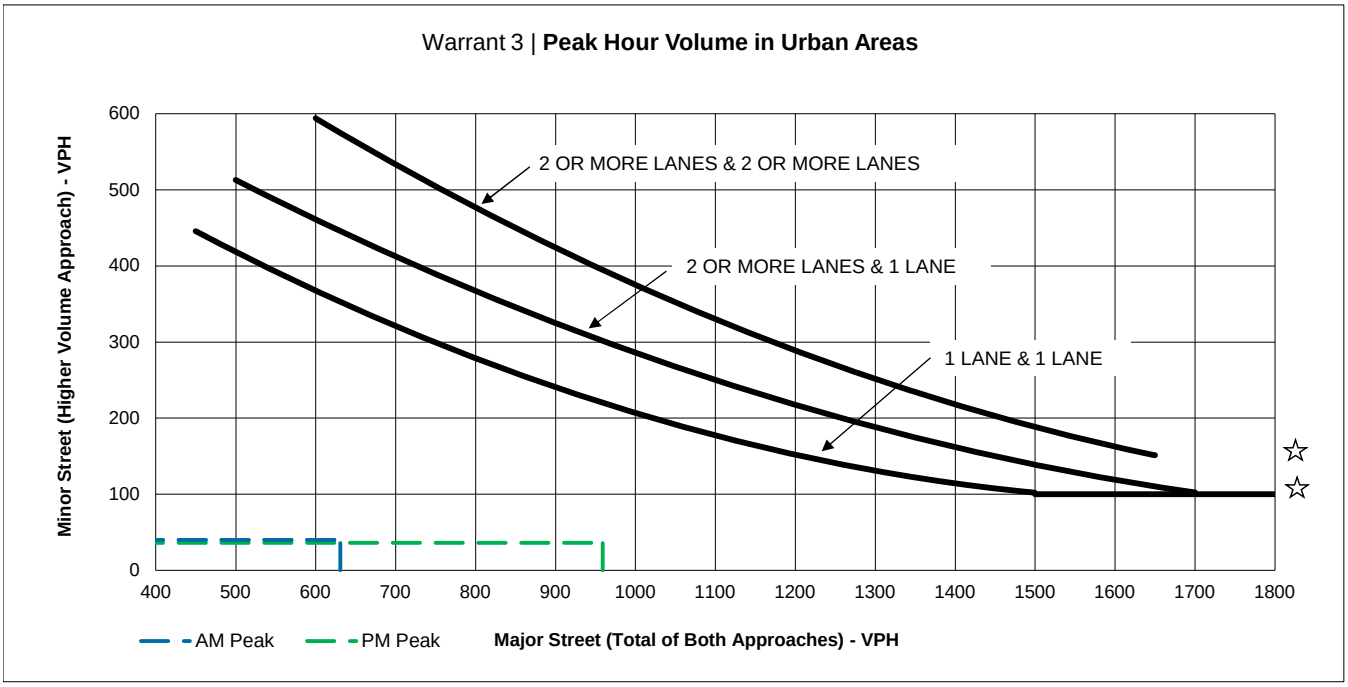
Fig 4C-4 (70% Option)

Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Exist Retail Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	631	959	
Minor St. Volume (higher volume approach):	40	36	
Warrant Met?:	**NO**	**NO**	

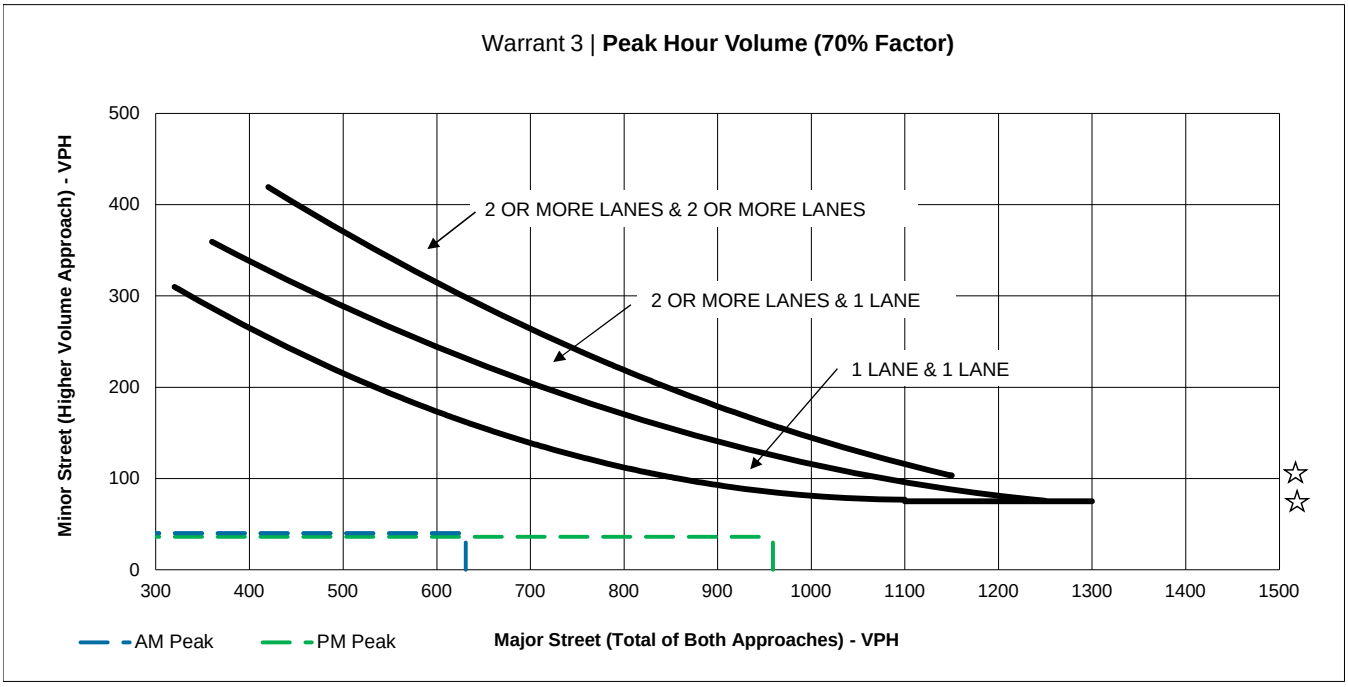
Fig 4C-3 (100% Option)

Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Exist Retail Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	631	959	
Minor St. Volume (higher volume approach):	40	36	
Warrant Met?:	**NO**	**NO**	

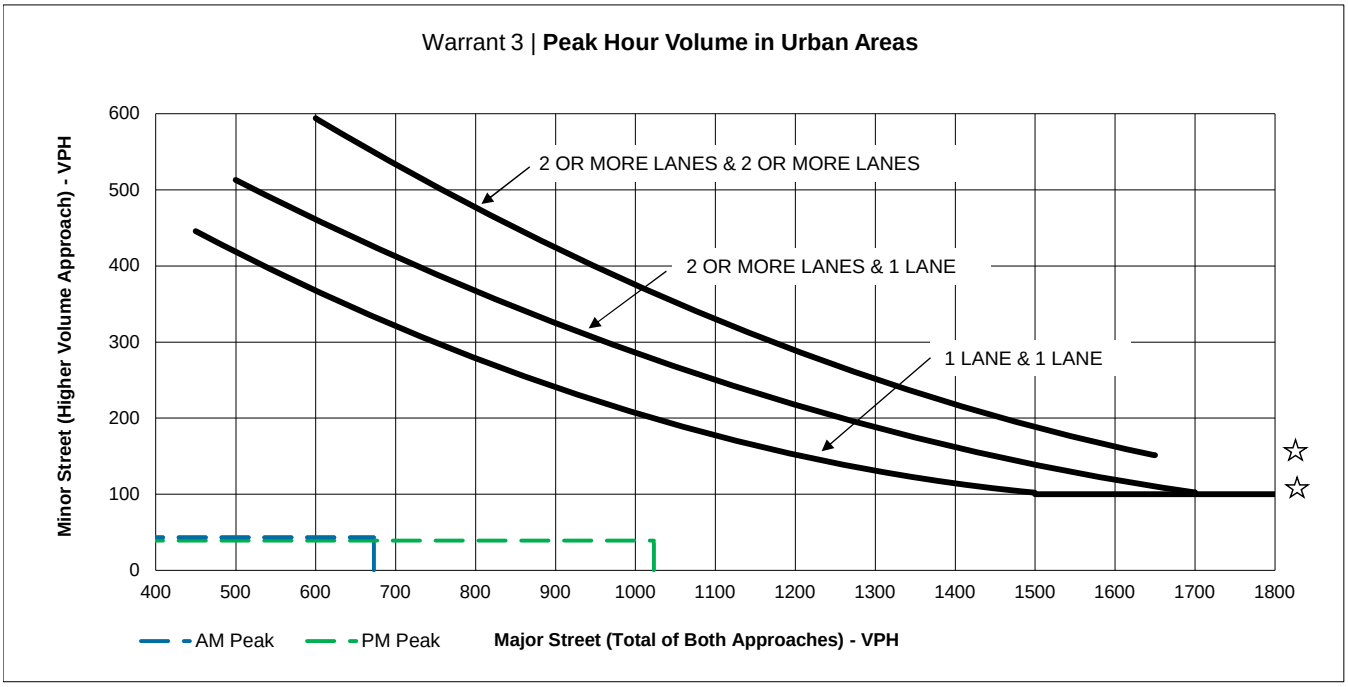
Fig 4C-4 (70% Option)

Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Exist Retail Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	673	1,023	
Minor St. Volume (higher volume approach):	43	39	
Warrant Met?:	**NO**	**NO**	

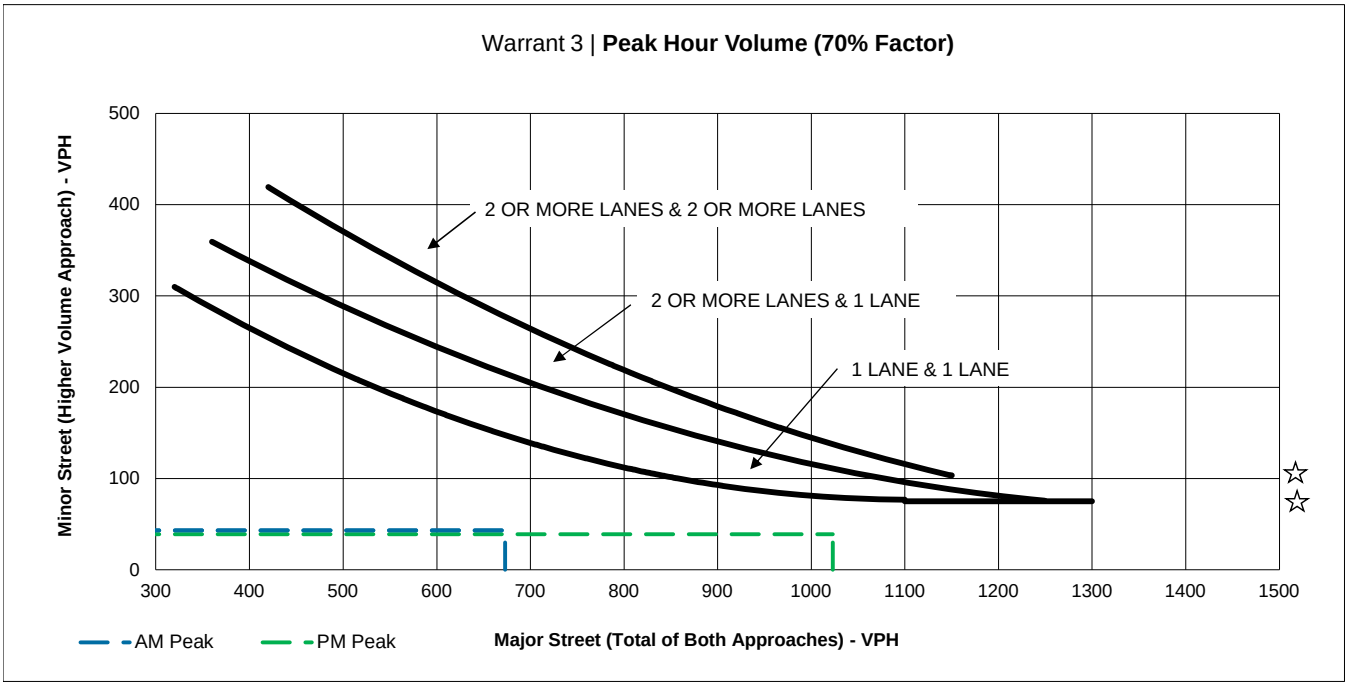
Fig 4C-3 (100% Option)

Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Exist Retail Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	673	1,023	
Minor St. Volume (higher volume approach):	43	39	
Warrant Met?:	**NO**	**NO**	

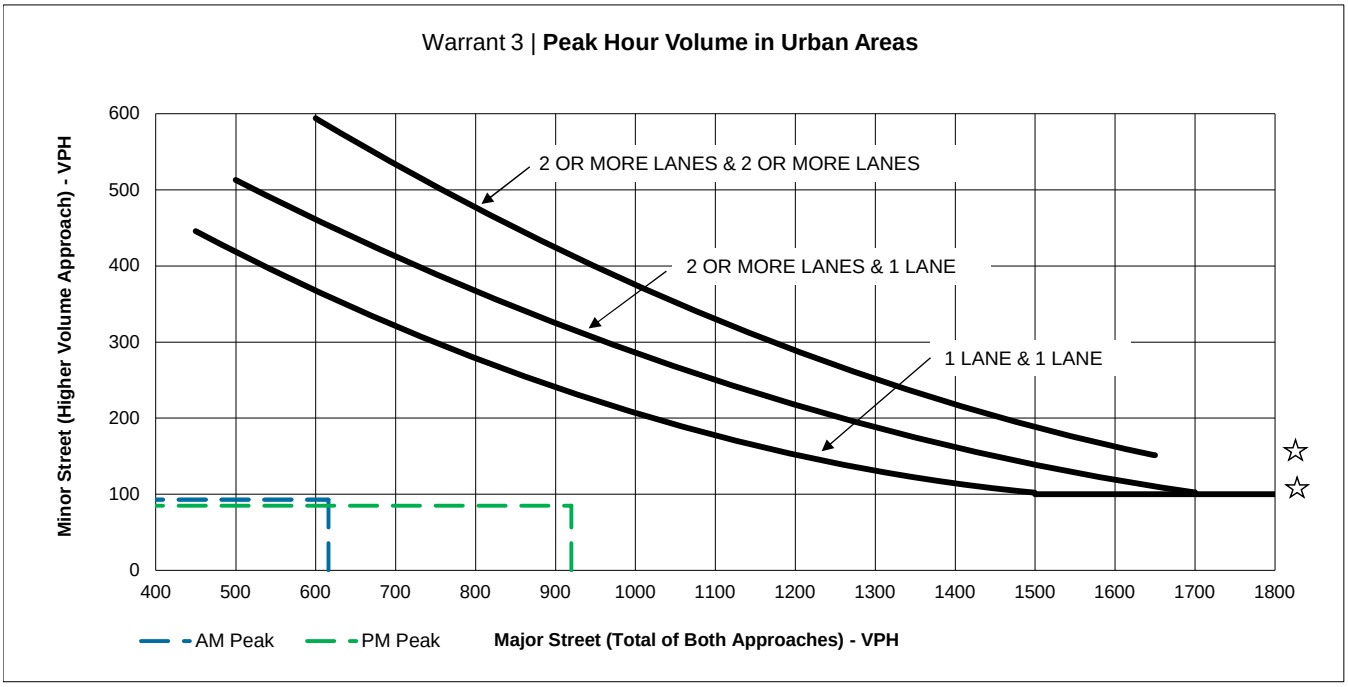
Fig 4C-4 (70% Option)

Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Project Driveway	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	616	920	
Minor St. Volume (higher volume approach):	93	85	
Warrant Met?:	**NO**	**NO**	

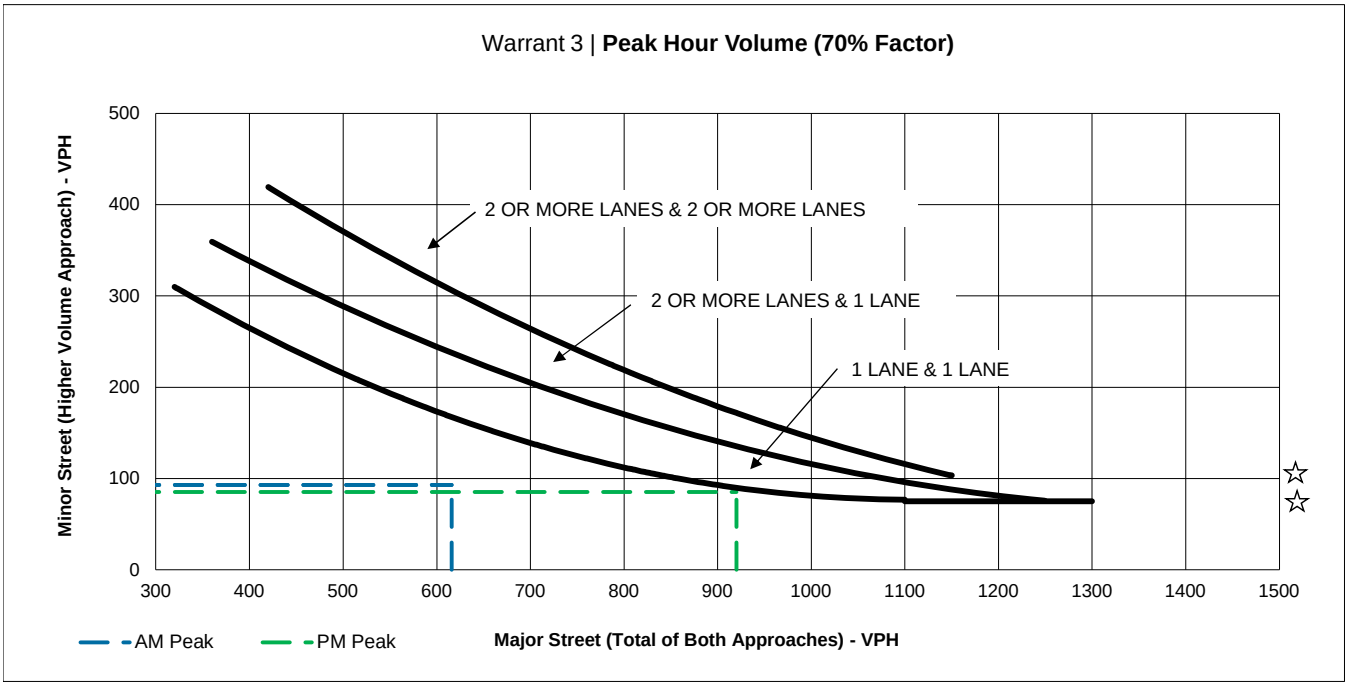
Fig 4C-3 (100% Option)

Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Project Driveway	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	616	920	
Minor St. Volume (higher volume approach):	93	85	
Warrant Met?:	**NO**	**NO**	

Fig 4C-4 (70% Option)

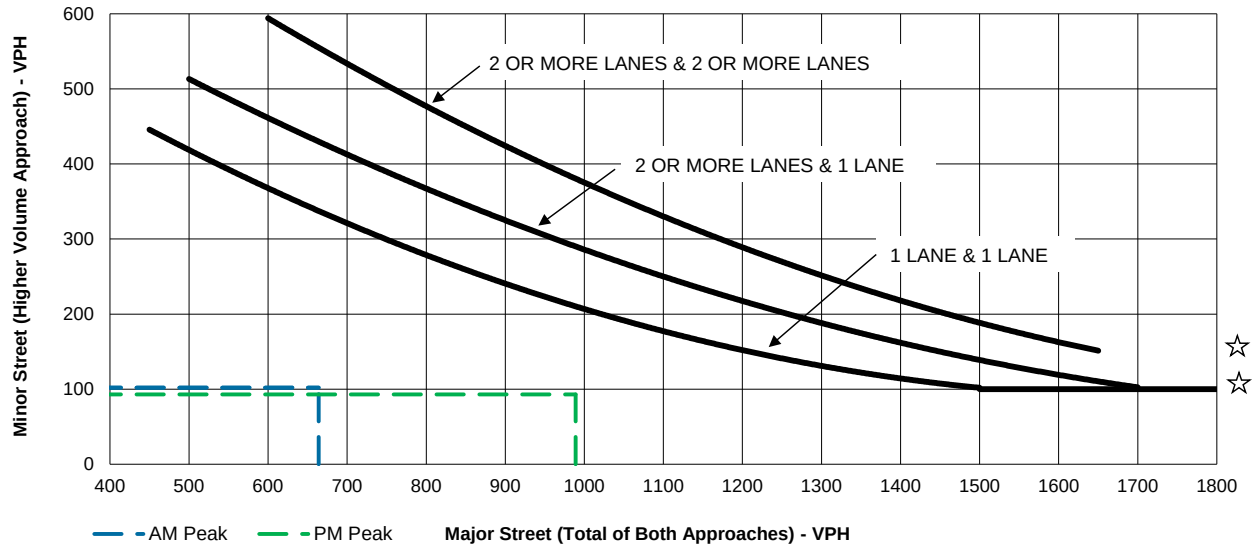
Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

Warrant 3 | **Peak Hour Volume in Urban Areas**



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Project Driveway	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	664	989	
Minor St. Volume (higher volume approach):	102	93	
Warrant Met?:	**NO**	**NO**	

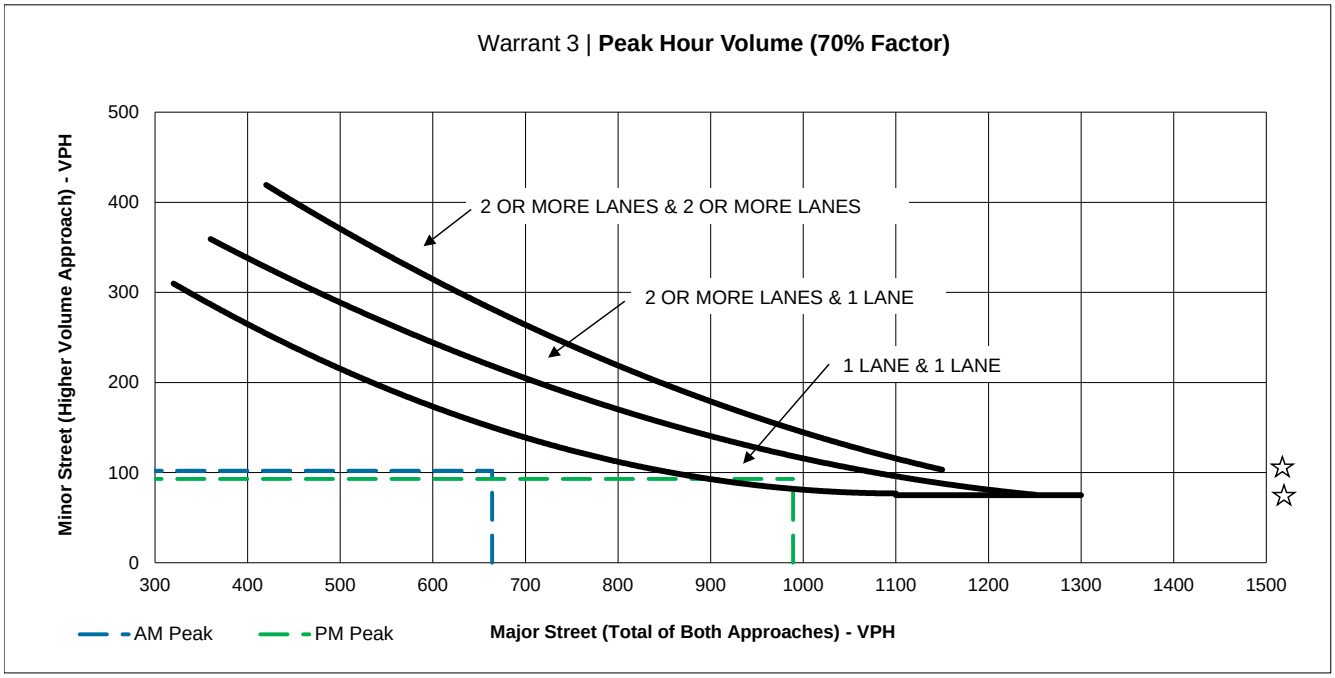
Fig 4C-3 (100% Option)

Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Project Driveway	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	664	989	
Minor St. Volume (higher volume approach):	102	93	
Warrant Met?:	**NO**	**NO**	

Fig 4C-4 (70% Option)

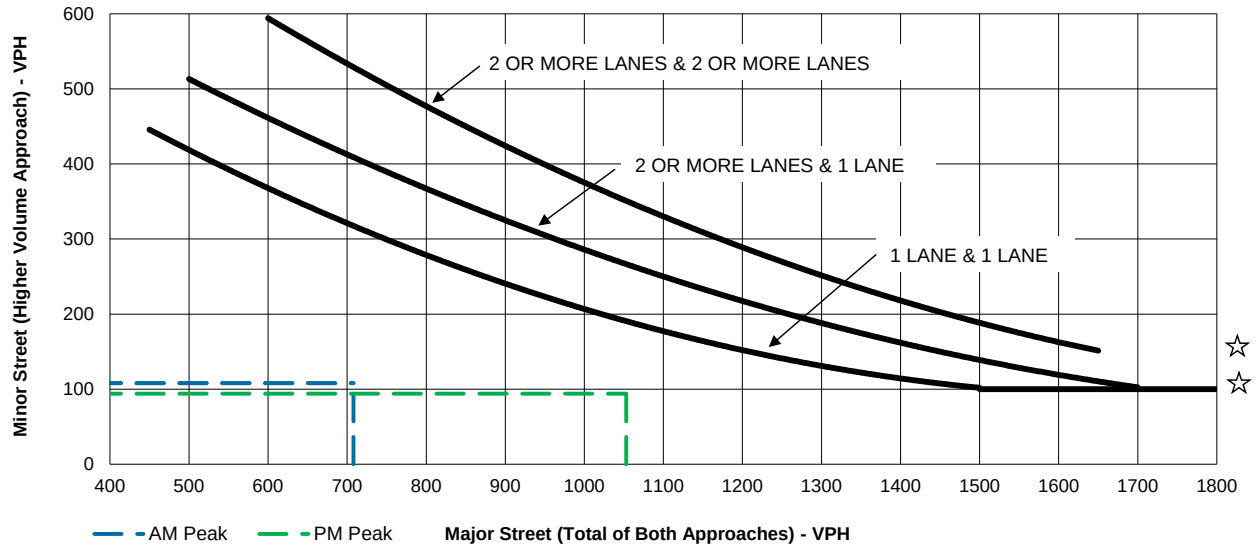
Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

Warrant 3 | **Peak Hour Volume in Urban Areas**



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Project Driveway	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	708	1,053	
Minor St. Volume (higher volume approach):	108	94	
Warrant Met?:	**No**	**No**	

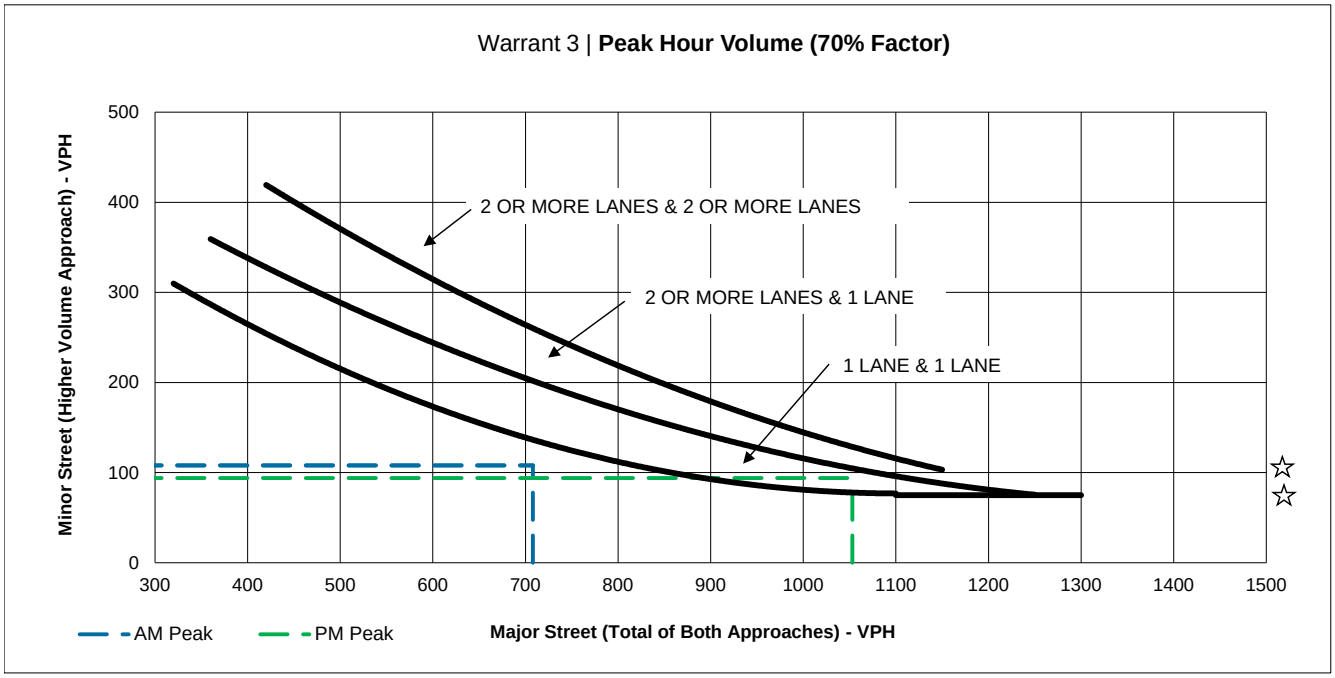
Fig 4C-3 (100% Option)

Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ ☆

☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	Project Driveway	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	708	1,053	
Minor St. Volume (higher volume approach):	108	94	
Warrant Met?:	**Yes**	**Yes**	

Fig 4C-4 (70% Option)

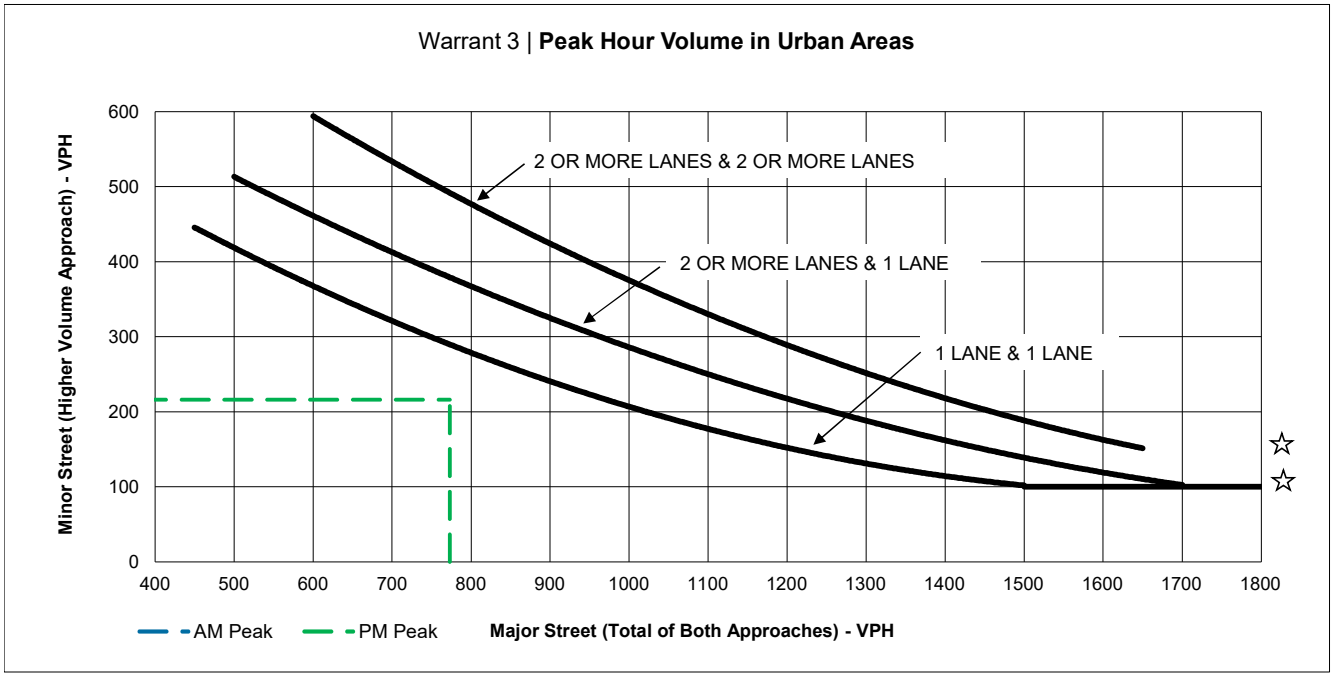
Intersection #3: Highway 49 & Highway 193

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	391	773	
Minor St. Volume (higher volume approach):	346	216	
Warrant Met?:	**No**	**No**	

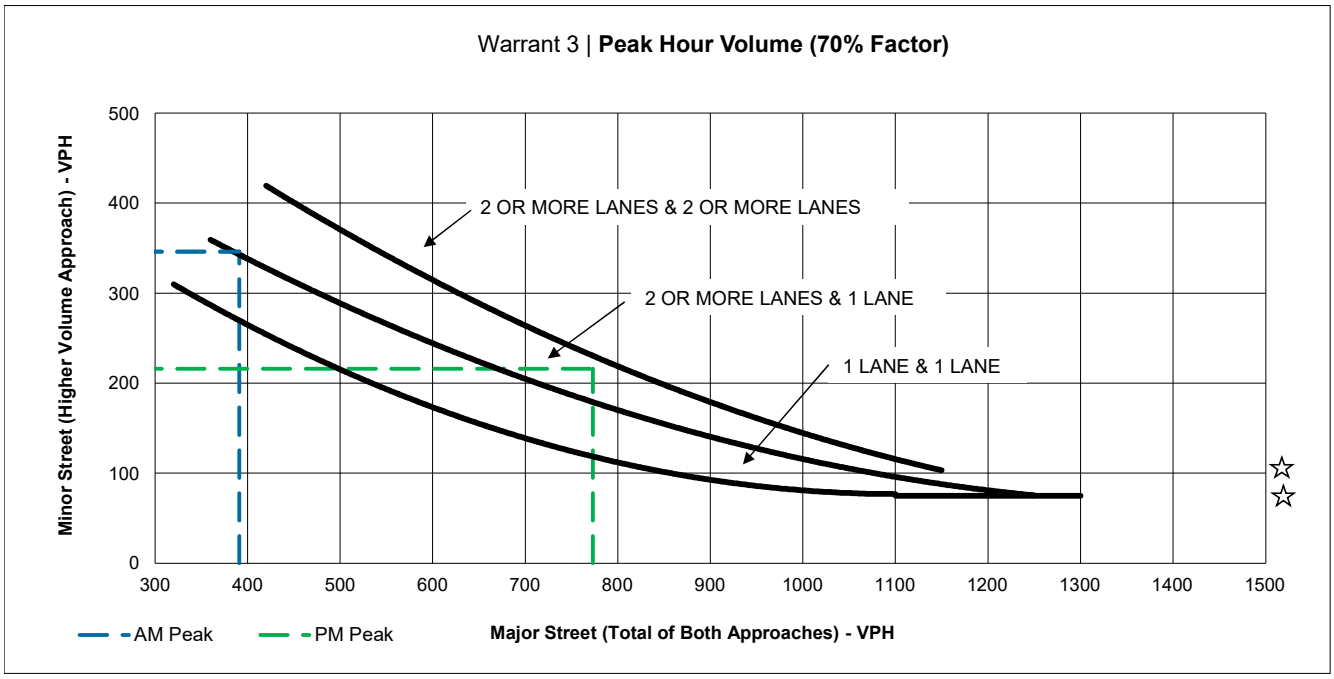
Fig 4C-3 (100% Option)

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	391	773	
Minor St. Volume (higher volume approach):	346	216	
Warrant Met?:	**Yes**	**Yes**	

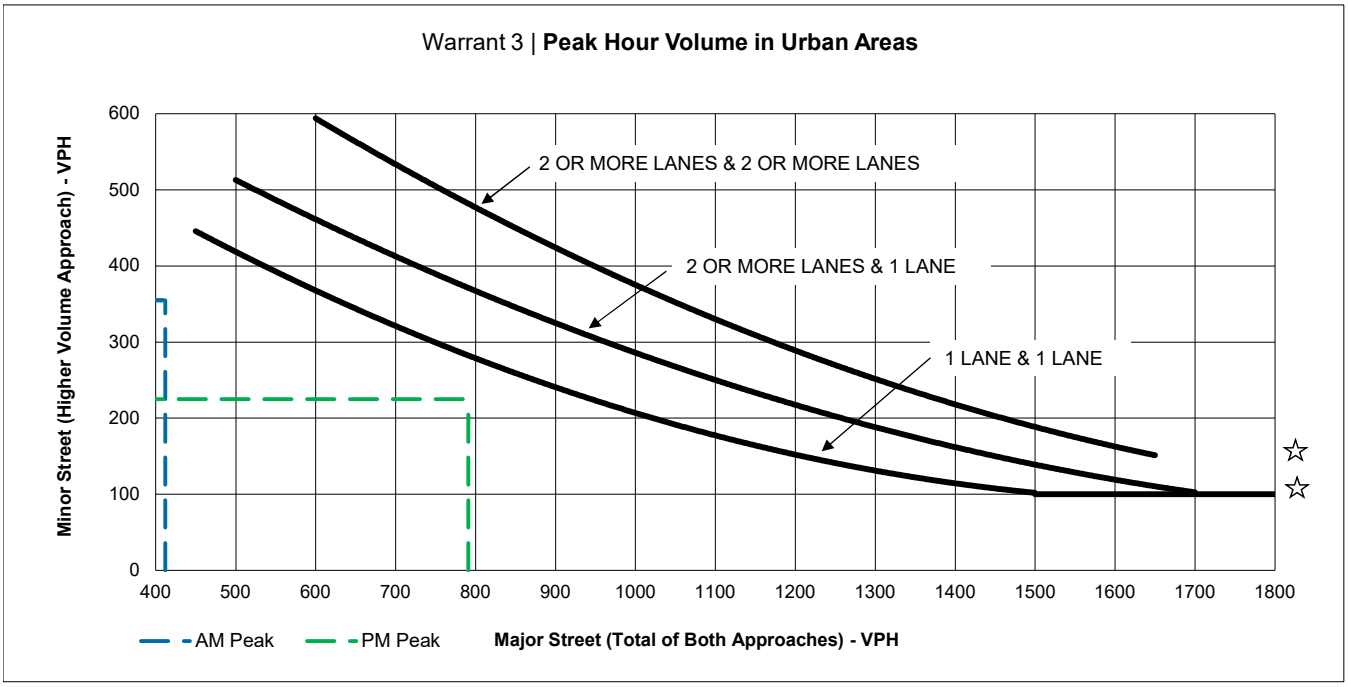
Fig 4C-4 (70% Option)

Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	412	791	
Minor St. Volume (higher volume approach):	355	225	
Warrant Met?:	**No**	**No**	

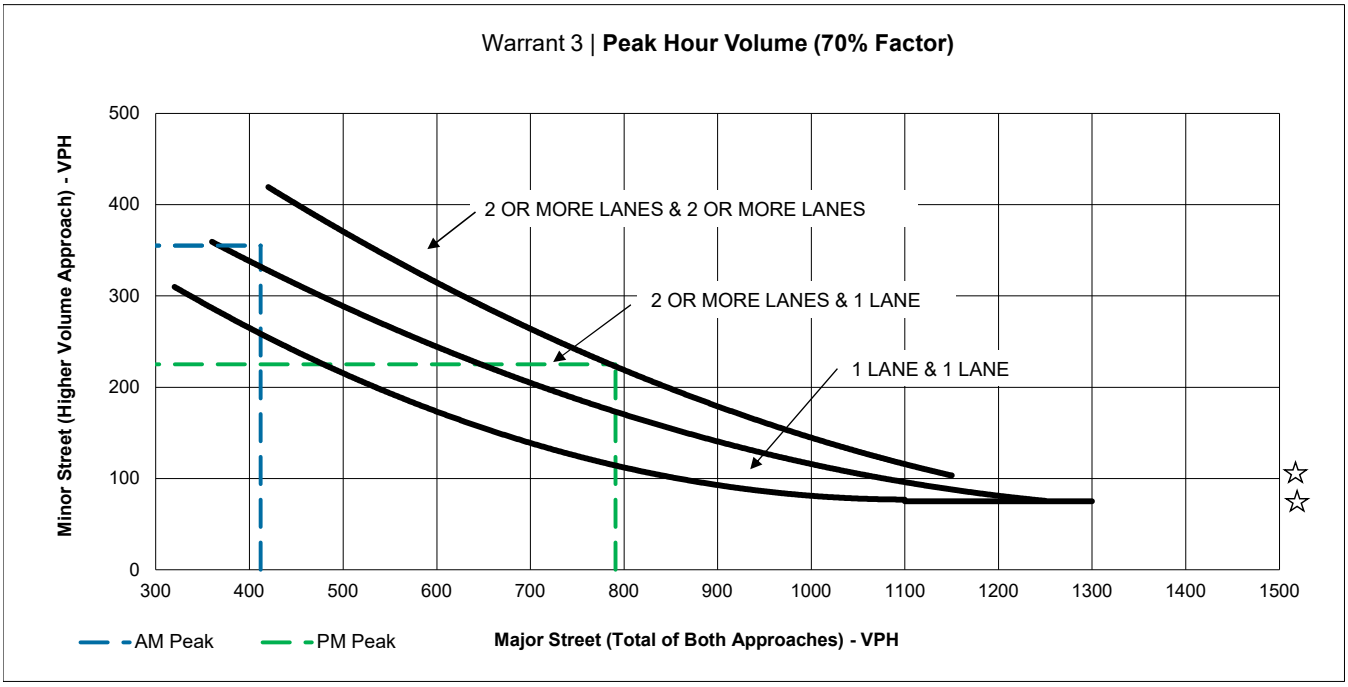
Fig 4C-3 (100% Option)

Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	412	791	
Minor St. Volume (higher volume approach):	355	225	
Warrant Met?:	**Yes**	**Yes**	

Fig 4C-4 (70% Option)

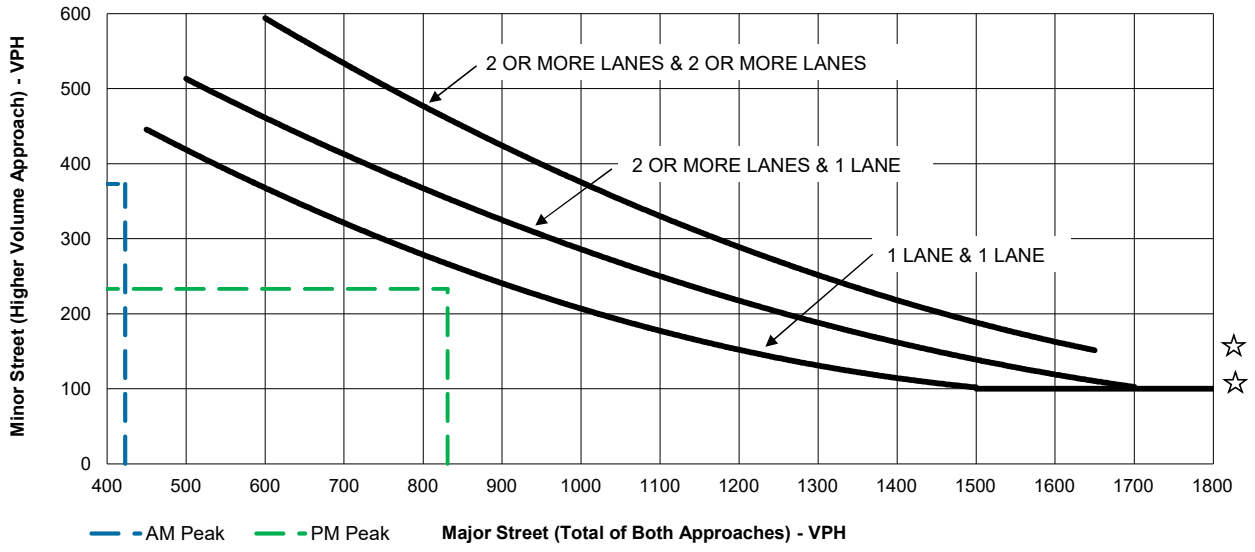
Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

Warrant 3 | **Peak Hour Volume in Urban Areas**



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	423	831	
Minor St. Volume (higher volume approach):	373	233	
Warrant Met?:	**No**	**No**	

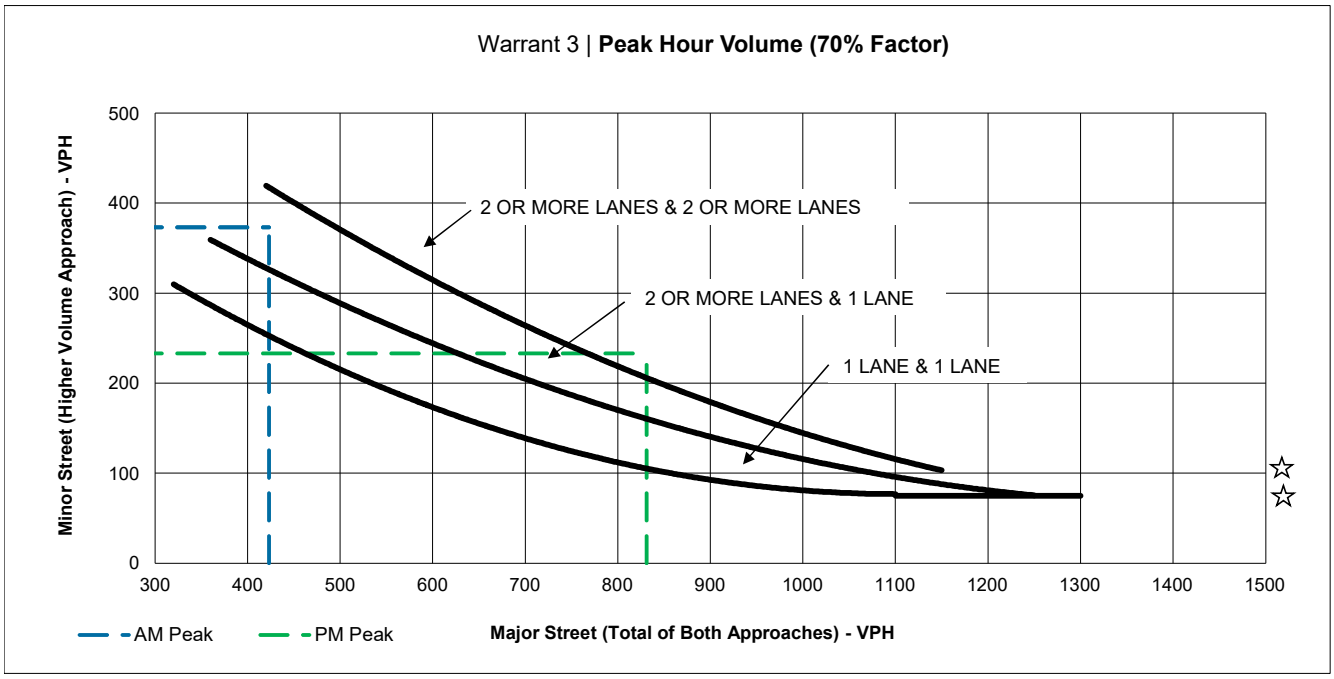
Fig 4C-3 (100% Option)

Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	423	831	
Minor St. Volume (higher volume approach):	373	233	
Warrant Met?:	**Yes**	**Yes**	

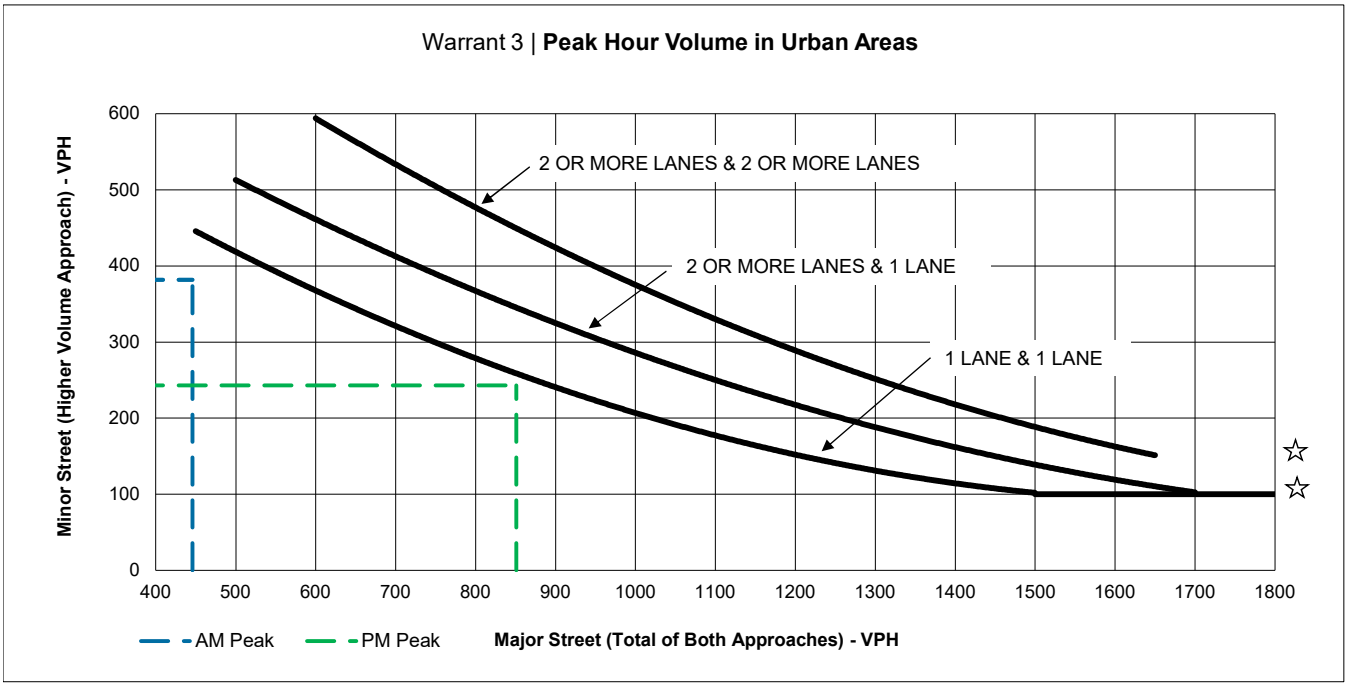
Fig 4C-4 (70% Option)

Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	446	851	
Minor St. Volume (higher volume approach):	382	243	
Warrant Met?:	**No**	**No**	

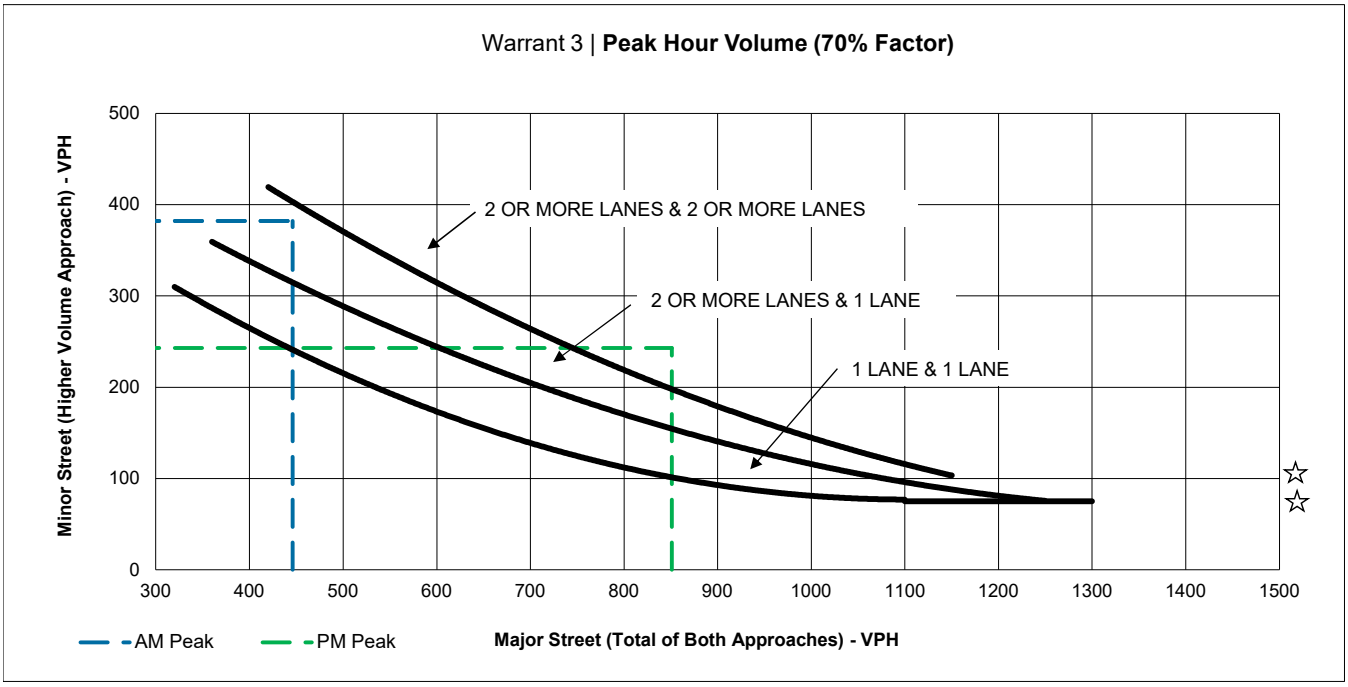
Fig 4C-3 (100% Option)

Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ ☆

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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
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	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	446	851	
Minor St. Volume (higher volume approach):	382	243	
Warrant Met?:	**Yes**	**Yes**	

Fig 4C-4 (70% Option)

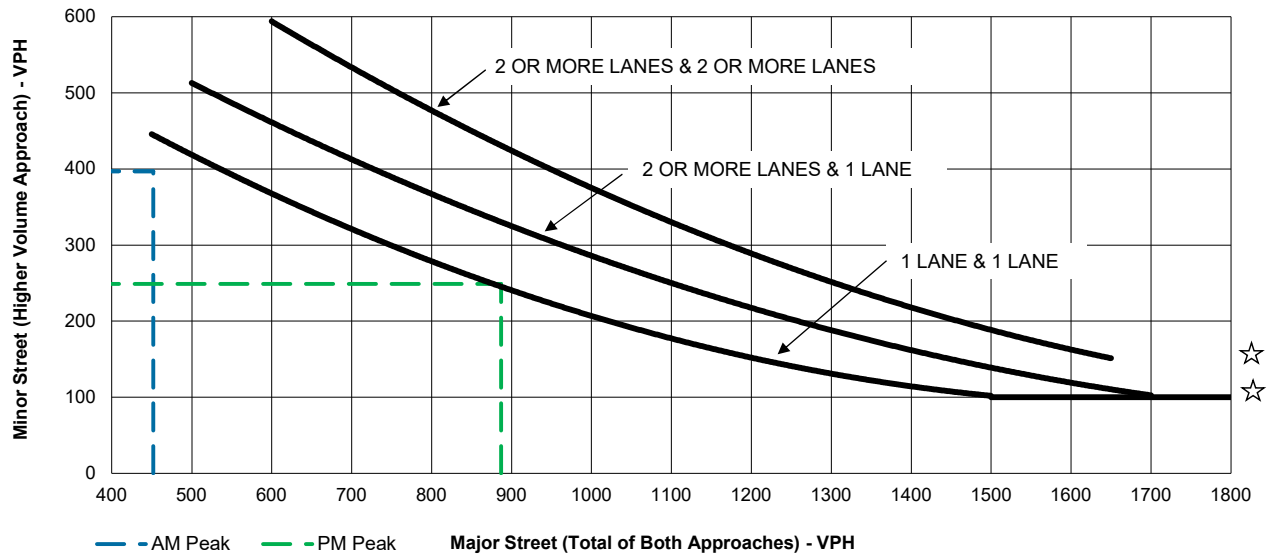
Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

Warrant 3 | **Peak Hour Volume in Urban Areas**



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	452	887	
Minor St. Volume (higher volume approach):	397	249	
Warrant Met?:	**No**	**No**	

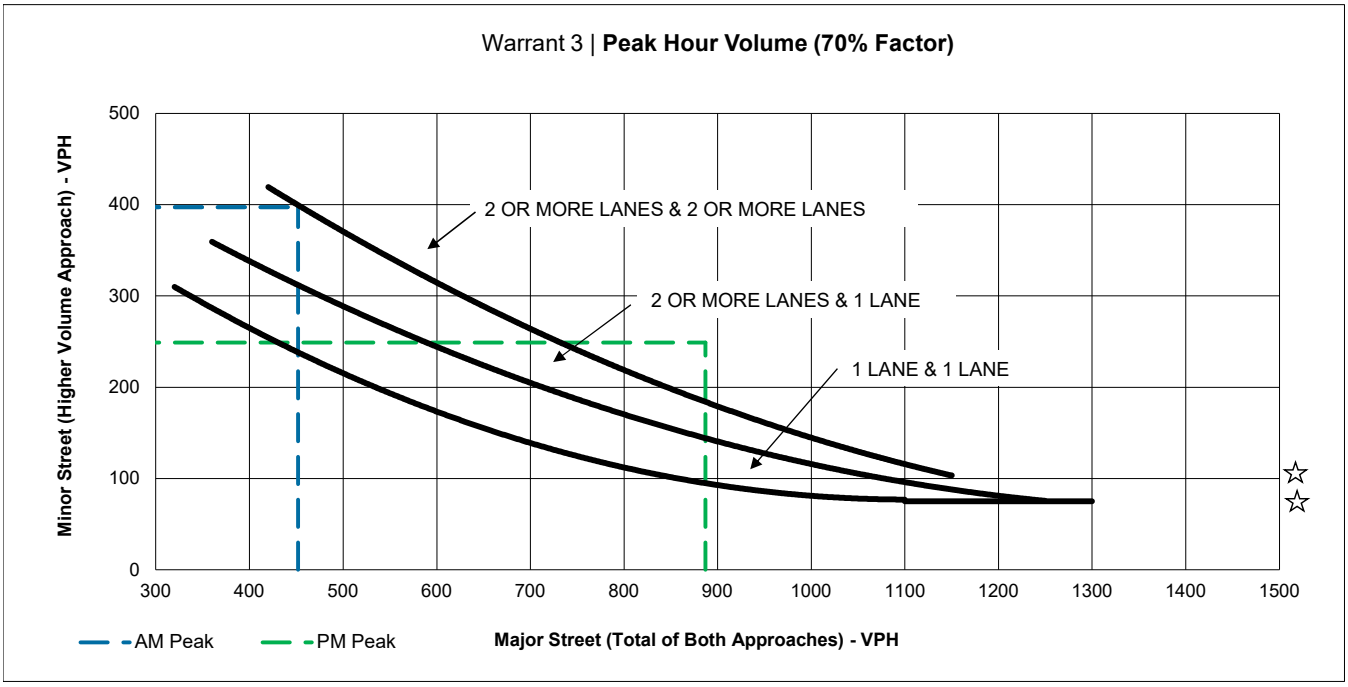
Fig 4C-3 (100% Option)

Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	452	887	
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Warrant Met?:	**Yes**	**Yes**	

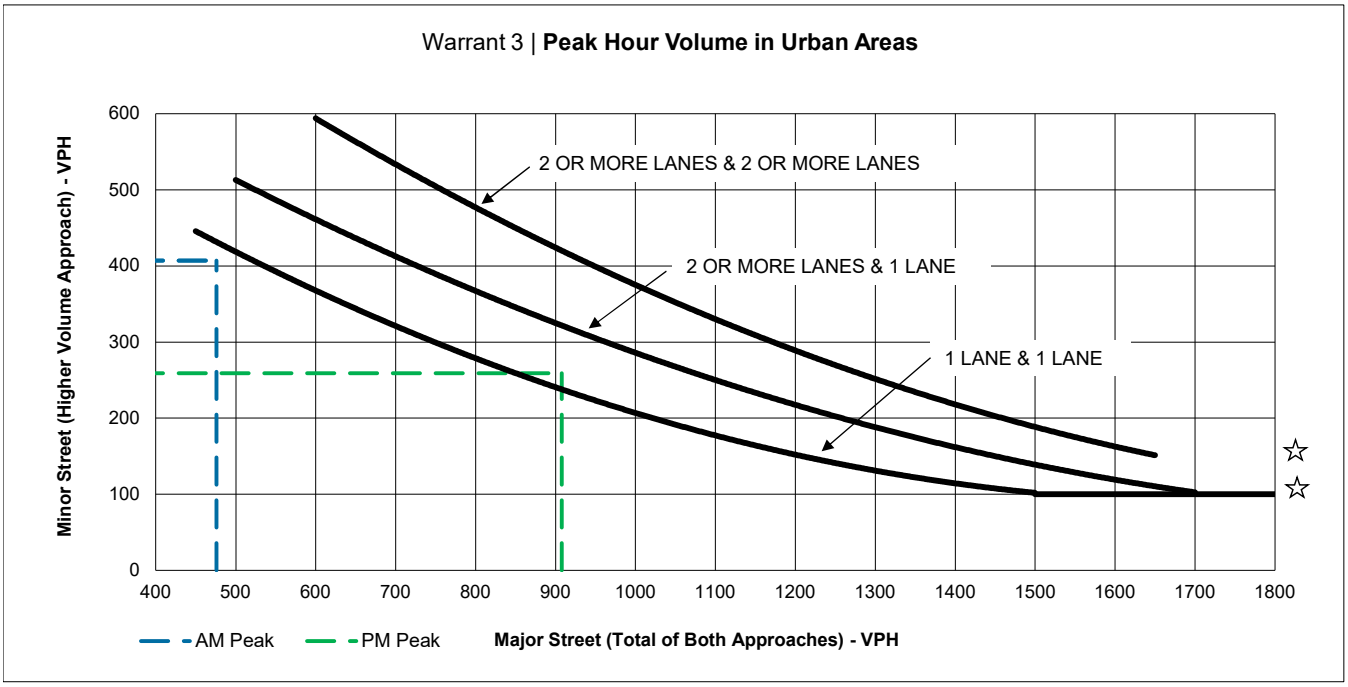
Fig 4C-4 (70% Option)

Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	476	908	
Minor St. Volume (higher volume approach):	407	259	
Warrant Met?:	**No**	**No**	

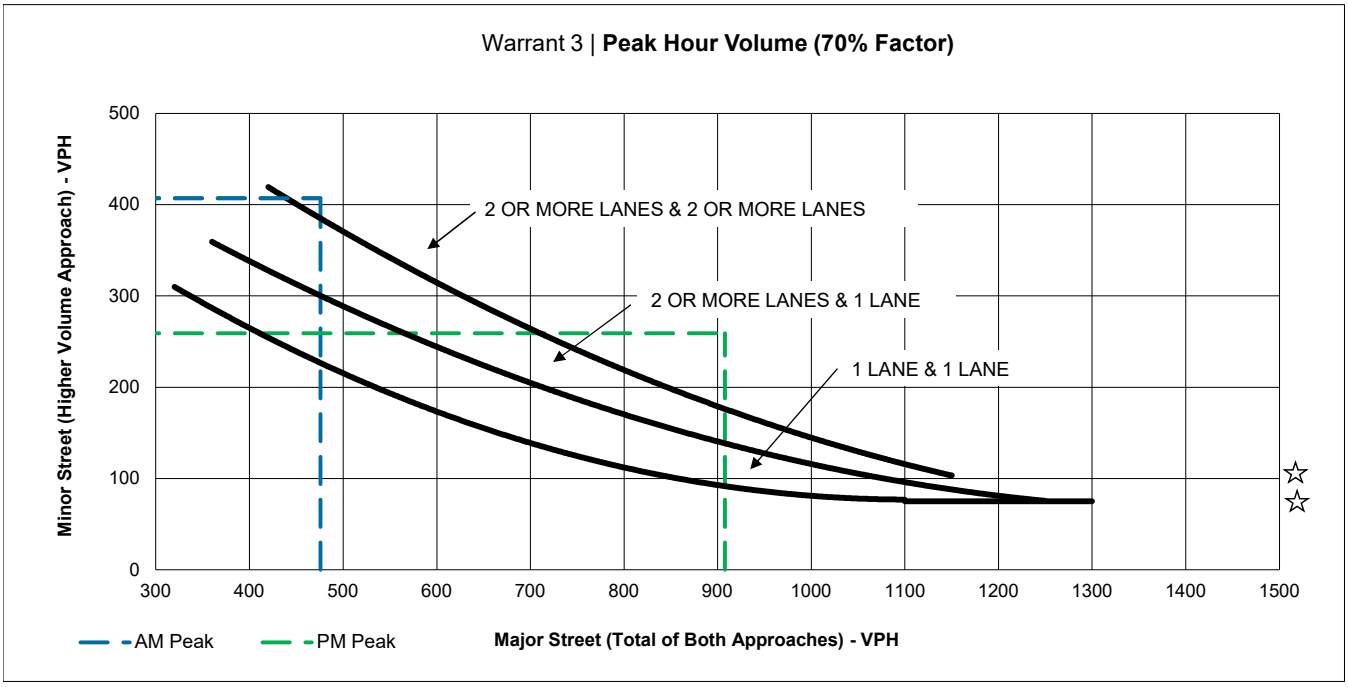
Fig 4C-3 (100% Option)

Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 49	2	
Minor Approach	SR 193	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	476	908	
Minor St. Volume (higher volume approach):	407	259	
Warrant Met?:	**Yes**	**Yes**	

Fig 4C-4 (70% Option)

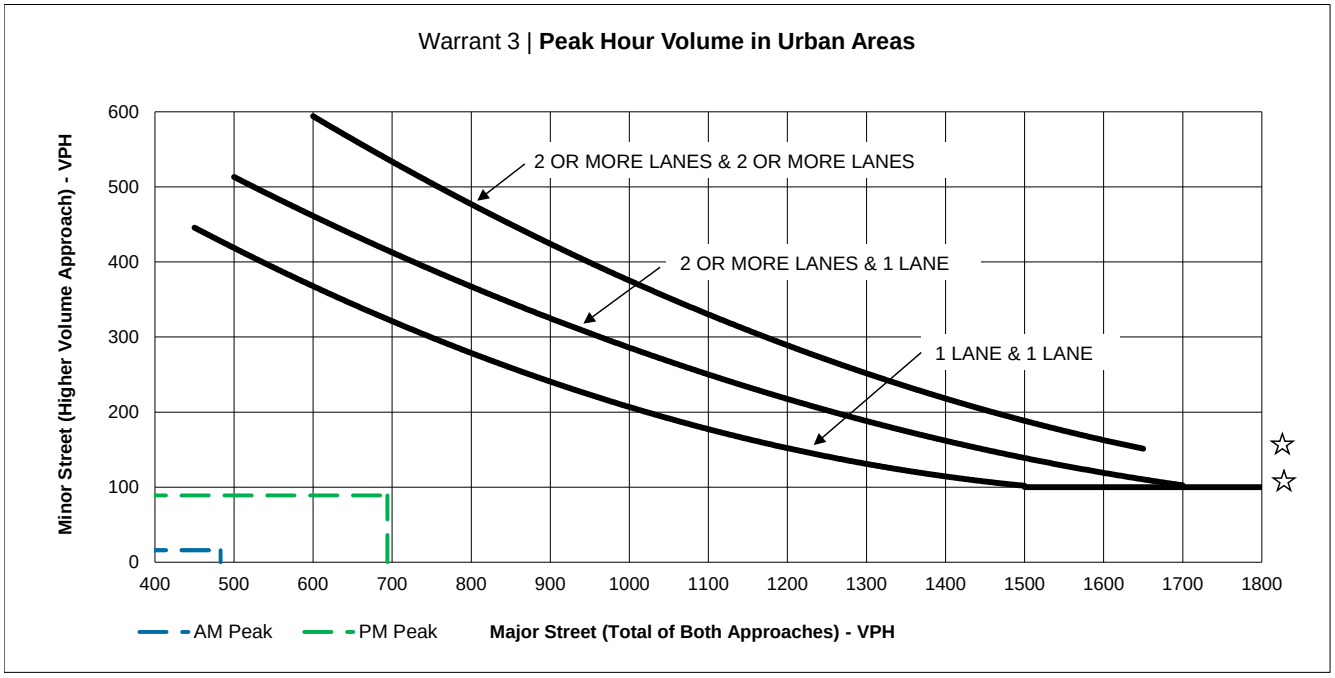
Intersection #4: Highway 193 & Ellinghouse Drive-Project Driveway

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	483	694	
Minor St. Volume (higher volume approach):	16	89	
Warrant Met?:	**No**	**No**	

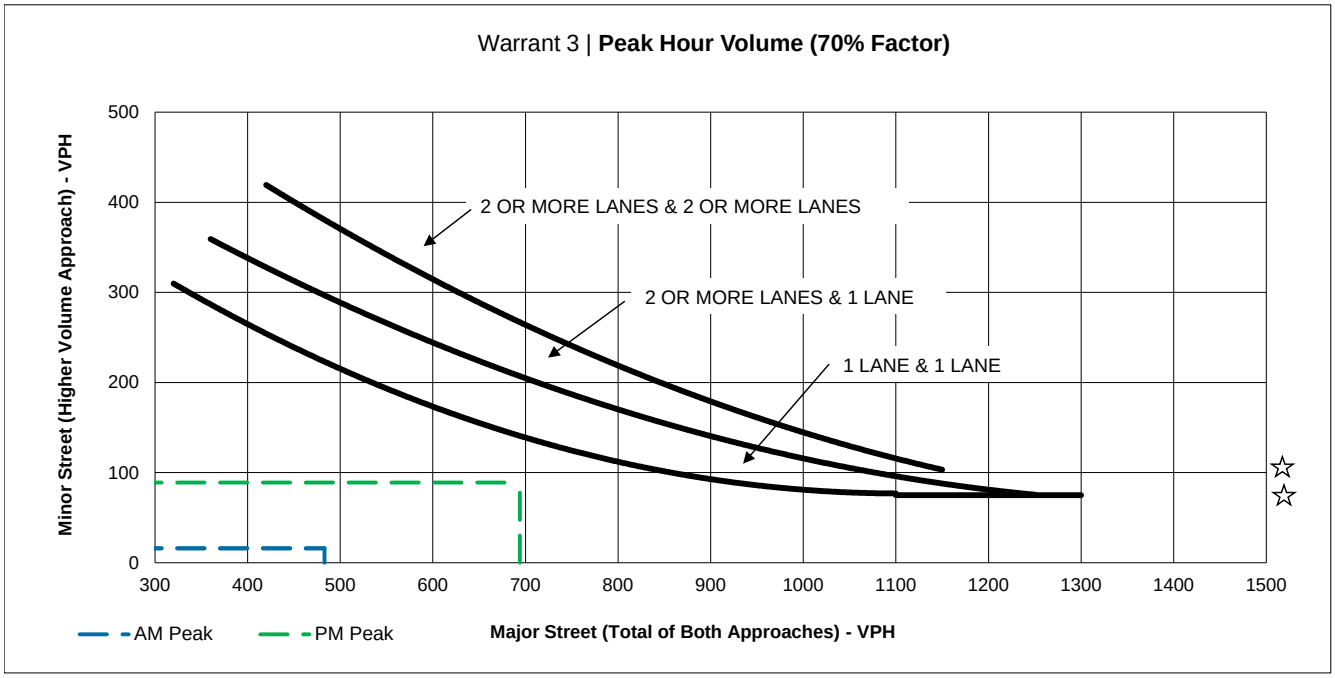
Fig 4C-3 (100% Option)

Existing Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	483	694	
Minor St. Volume (higher volume approach):	16	89	
Warrant Met?:	**NO**	**NO**	

Fig 4C-4 (70% Option)

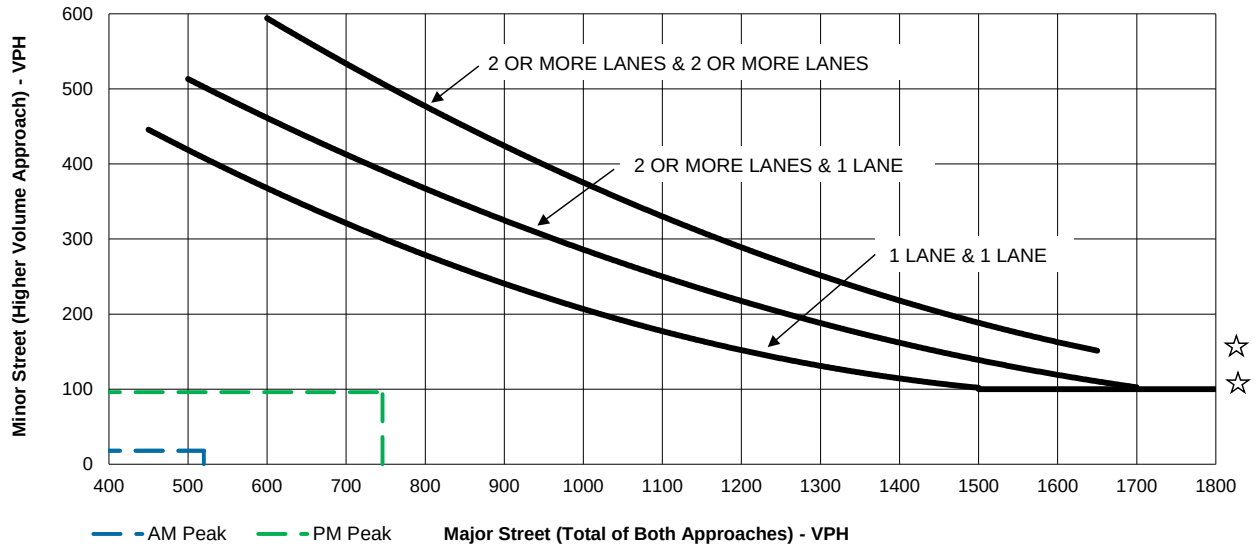
Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

Warrant 3 | **Peak Hour Volume in Urban Areas**



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	520	746	
Minor St. Volume (higher volume approach):	18	96	
Warrant Met?:	**NO**	**NO**	

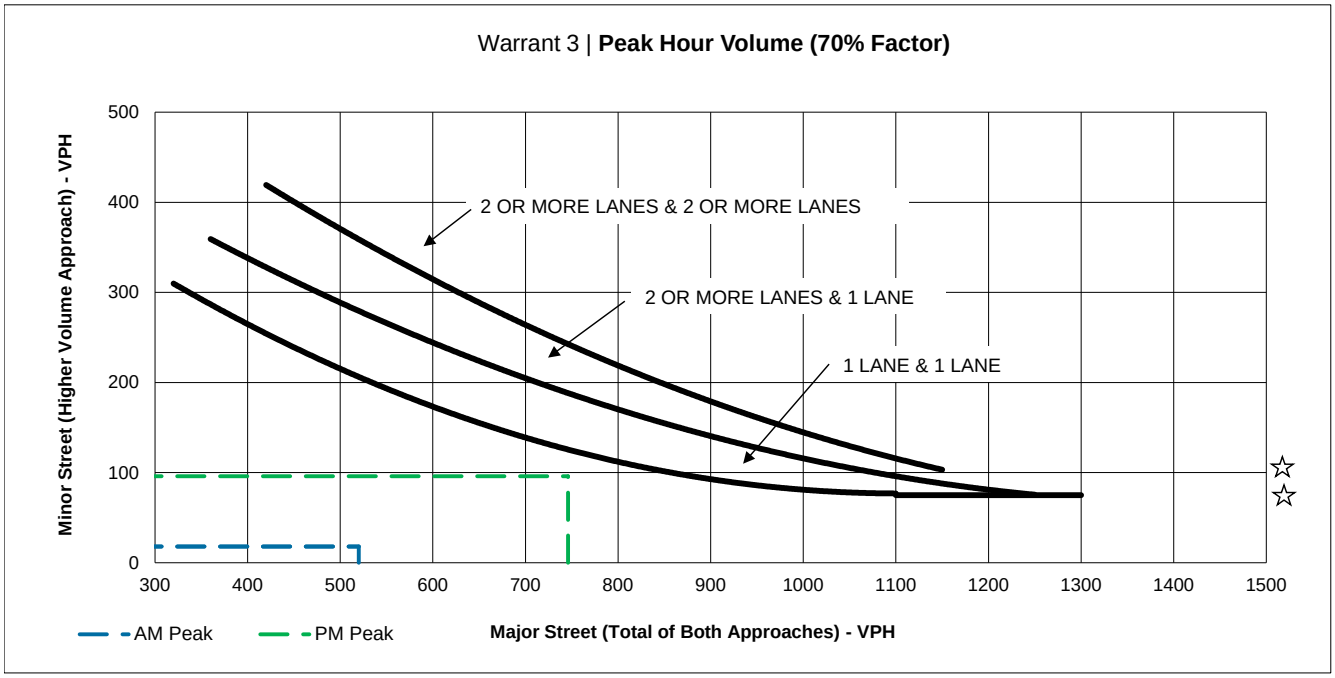
Fig 4C-3 (100% Option)

Near Term Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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SCENARIO (AM/PM)			
		Number of Lanes	
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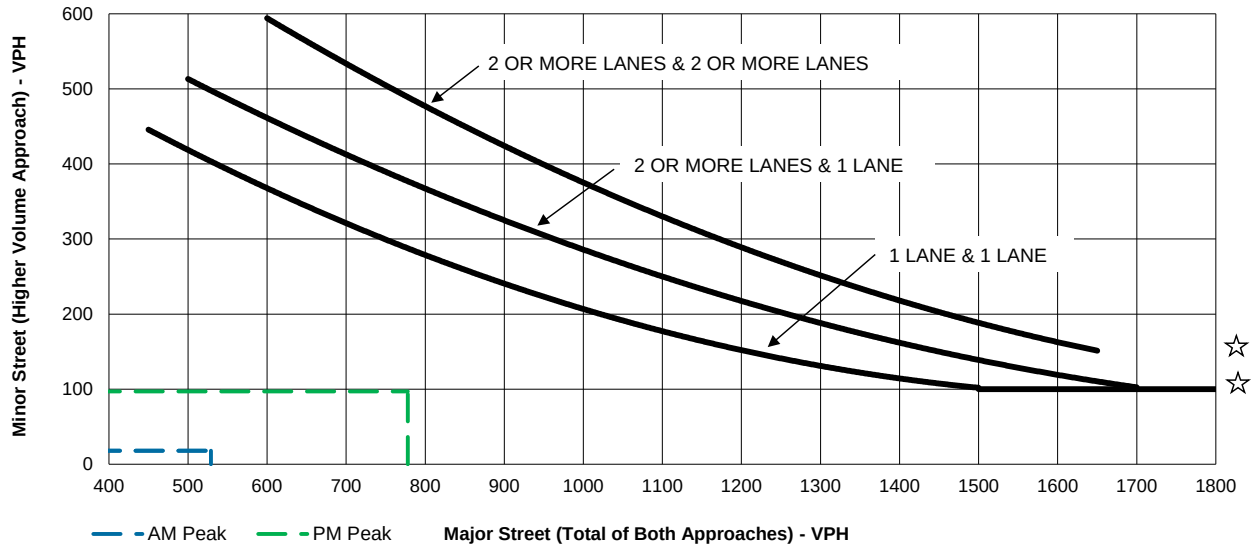
Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
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800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

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Warrant 3 | **Peak Hour Volume in Urban Areas**



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SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse Dr.	1	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	529	778	
Minor St. Volume (higher volume approach):	18	97	
Warrant Met?:	**NO**	**NO**	

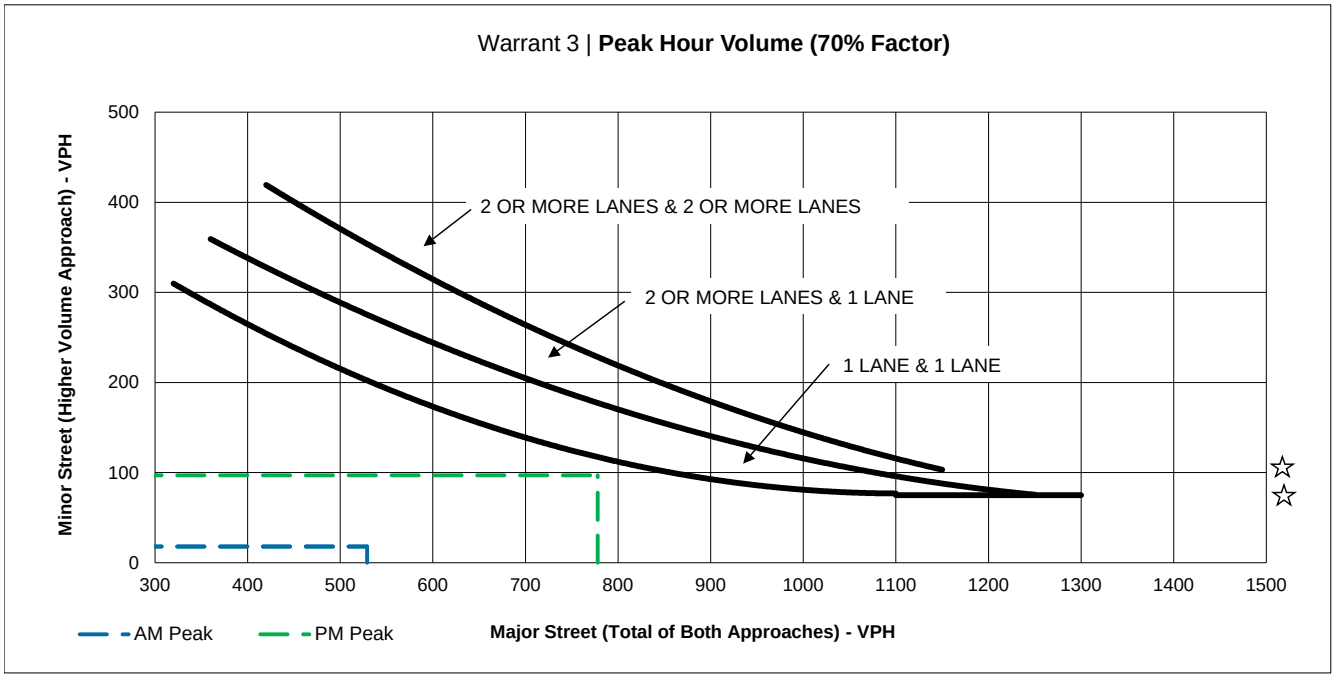
Fig 4C-3 (100% Option)

Cumulative Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
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700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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SCENARIO (AM/PM)			
		Number of Lanes	
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Fig 4C-4 (70% Option)

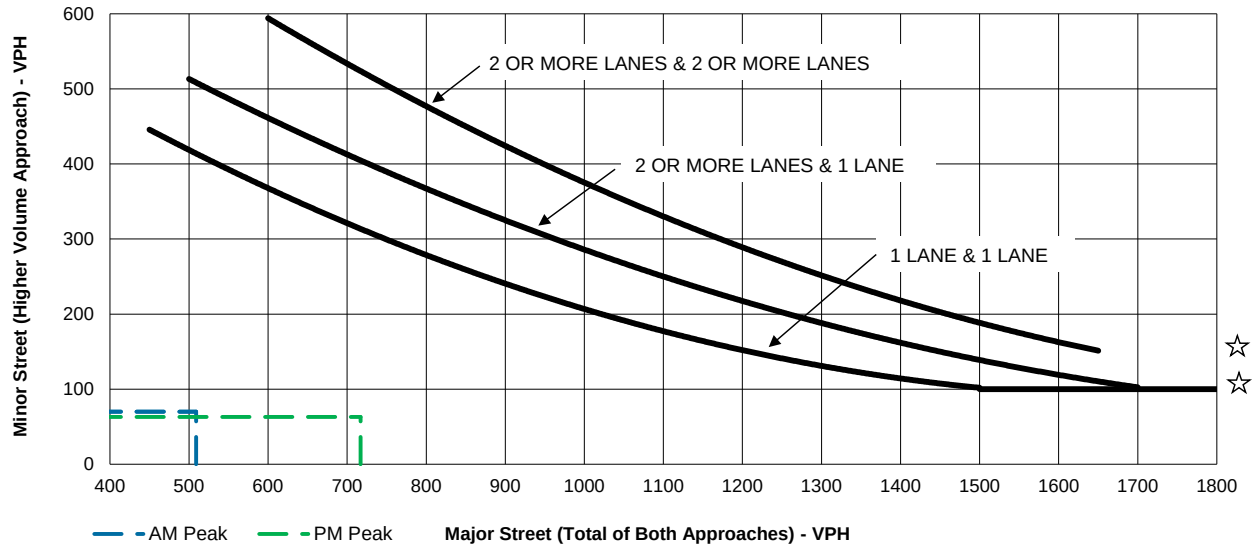
Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

Warrant 3 | **Peak Hour Volume in Urban Areas**



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse-Prj. Dr,	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	509	717	
Minor St. Volume (higher volume approach):	70	63	
Warrant Met?:	**NO**	**NO**	

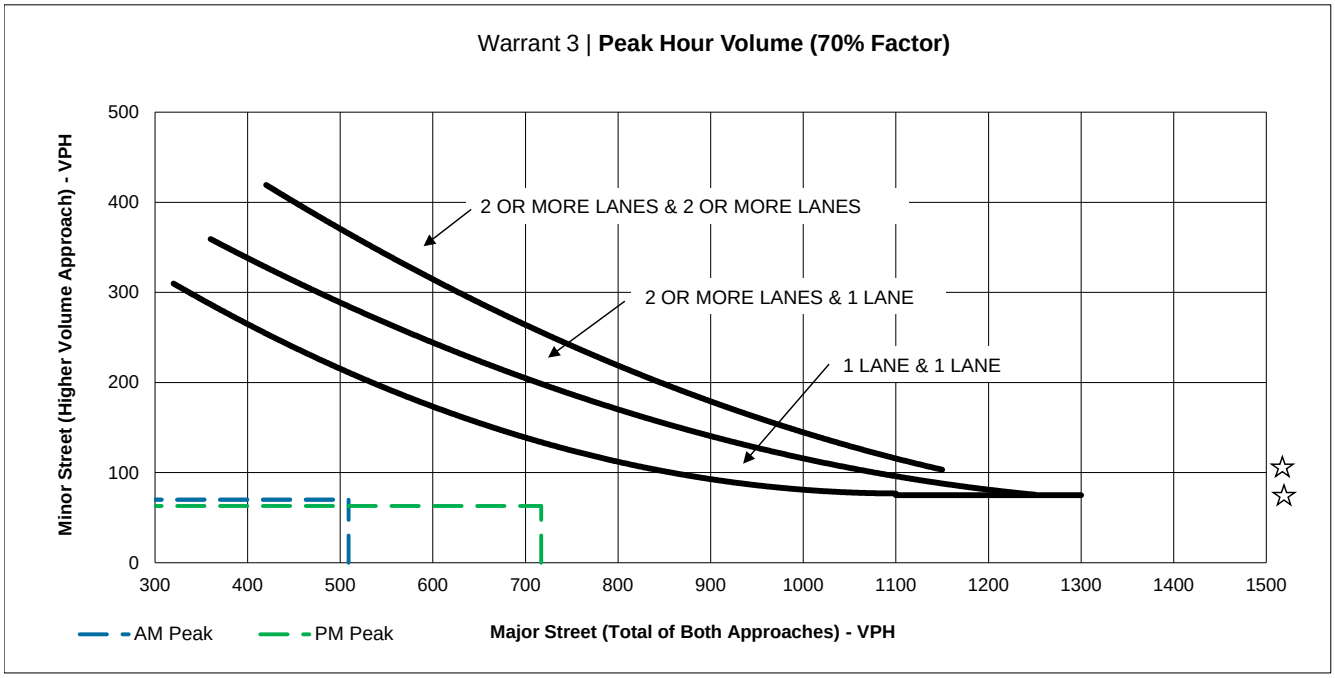
Fig 4C-3 (100% Option)

Existing Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse-Prj. Dr,	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	509	717	
Minor St. Volume (higher volume approach):	70	63	
Warrant Met?:	**NO**	**NO**	

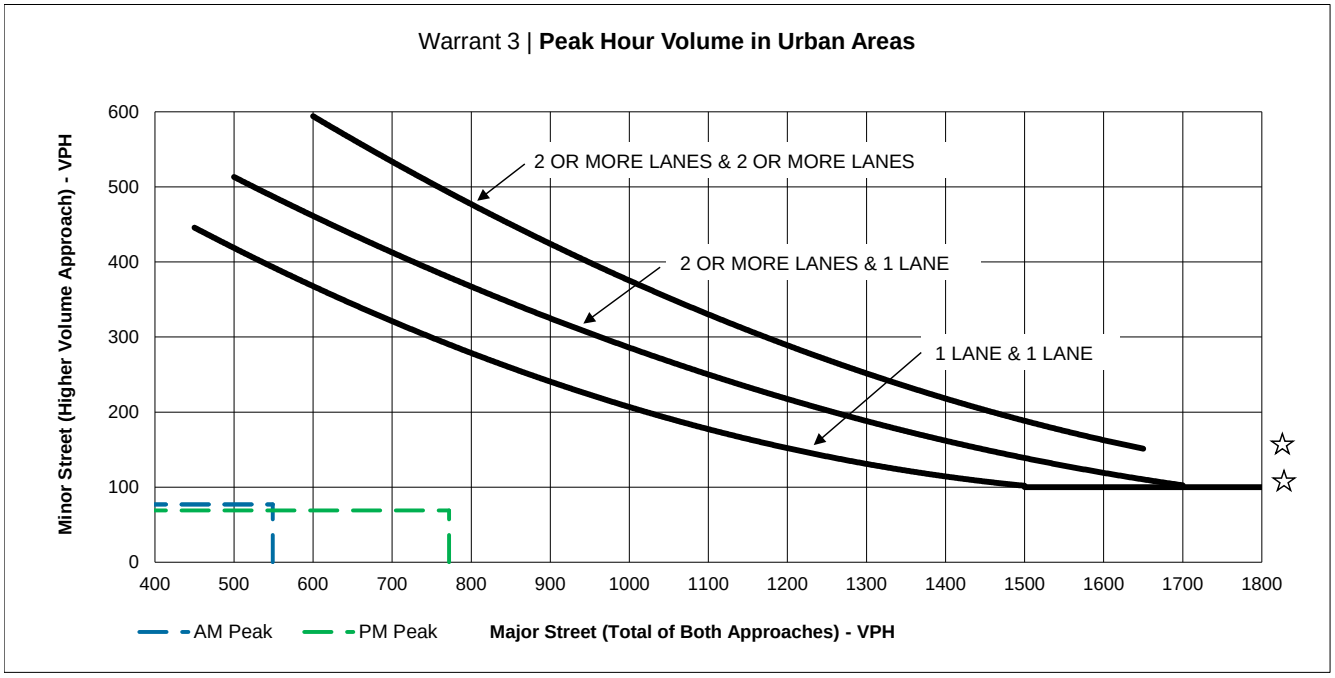
Fig 4C-4 (70% Option)

Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse-Prj. Dr.	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	549	772	
Minor St. Volume (higher volume approach):	77	69	
Warrant Met?:	**NO**	**NO**	

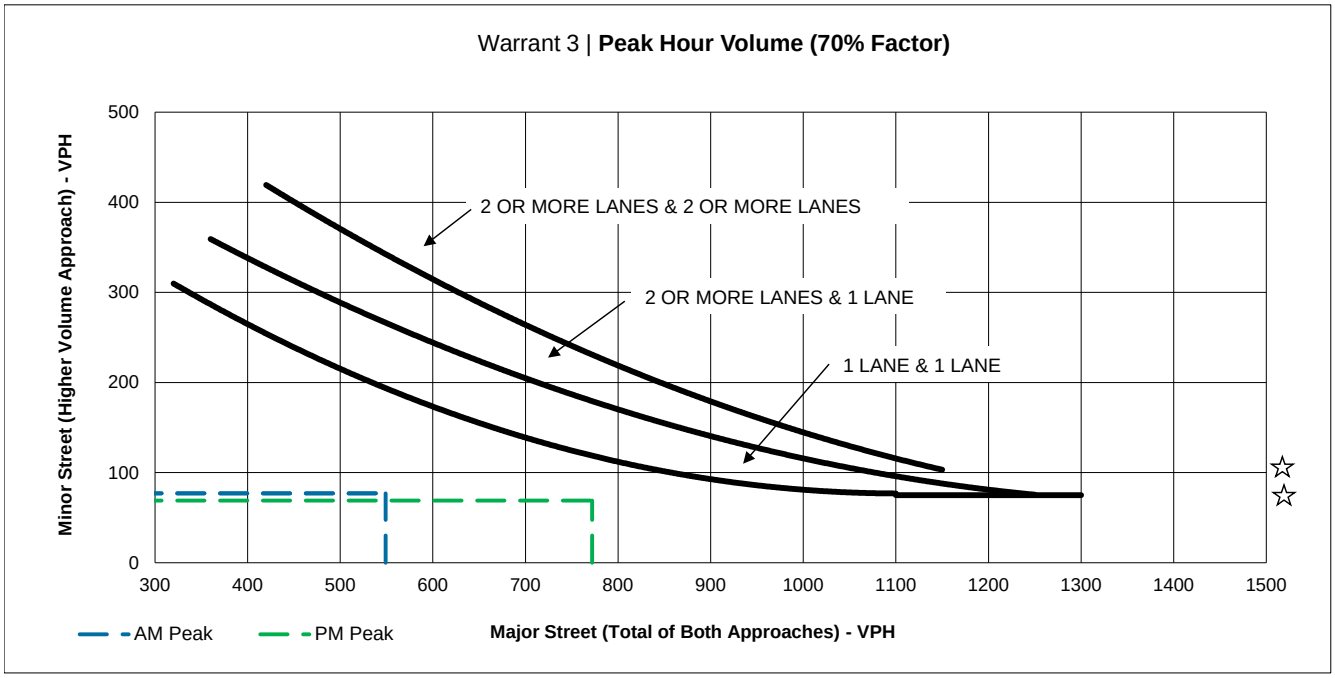
Fig 4C-3 (100% Option)

Near Term Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse-Prj. Dr.	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	549	772	
Minor St. Volume (higher volume approach):	77	69	
Warrant Met?:	**NO**	**NO**	

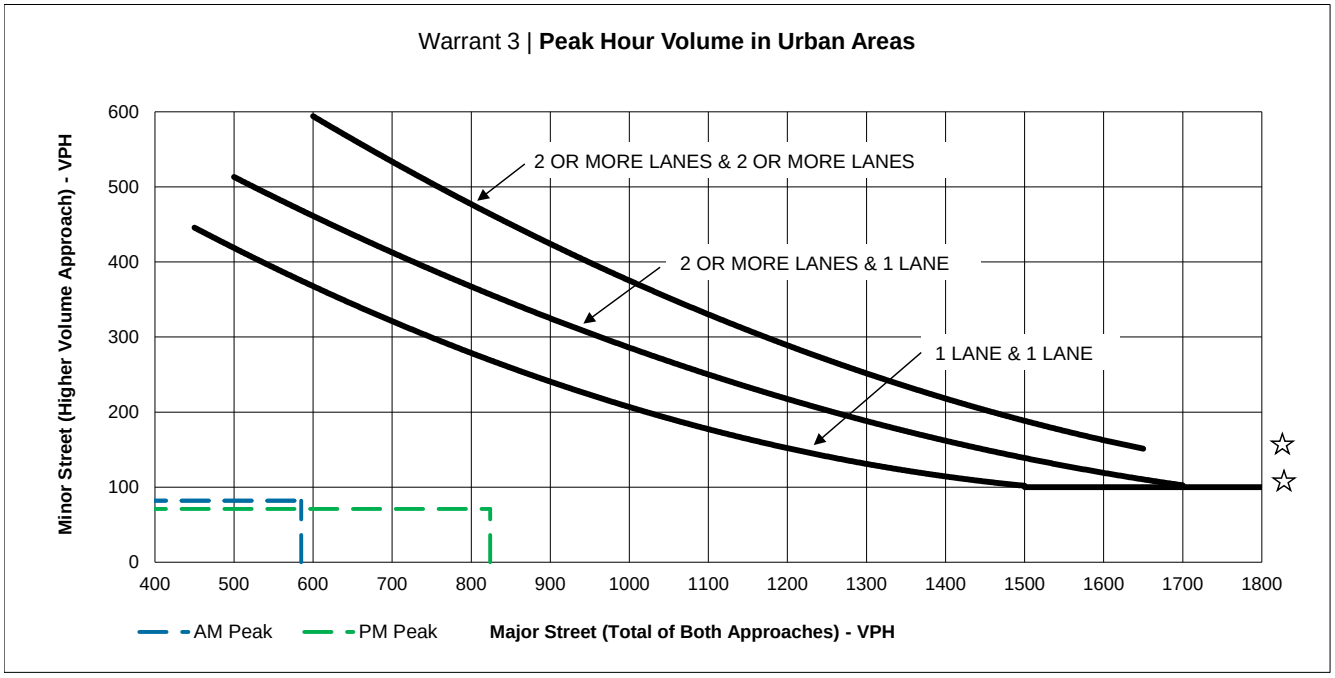
Fig 4C-4 (70% Option)

Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse-Prj. Dr.	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	585	824	
Minor St. Volume (higher volume approach):	82	71	
Warrant Met?:	**NO**	**NO**	

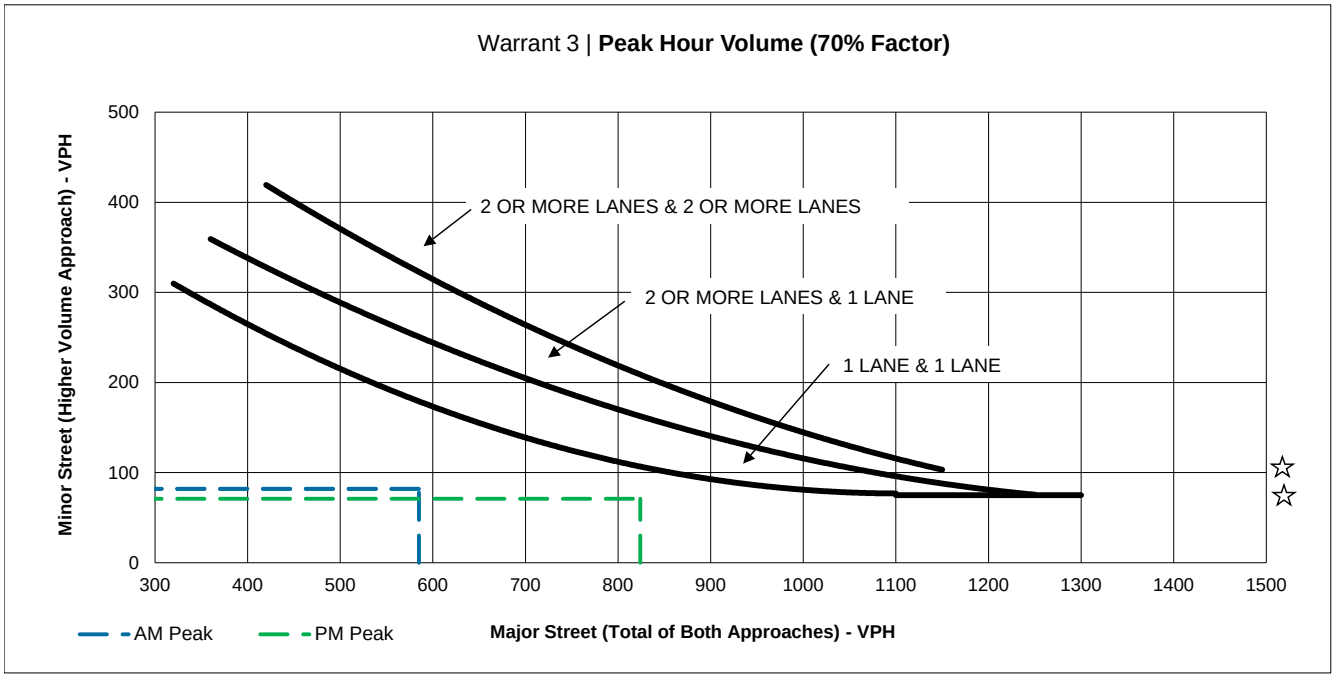
Fig 4C-3 (100% Option)

Cumulative Plus Project Conditions

Signal Warrant 3: Peak Hour

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)			
		Number of Lanes	
Major Approach	SR 193	2	
Minor Approach	Ellinghouse-Prj. Dr.	2	
	AM Peak	PM Peak	**Volumes for higher minor street**
Major St. Volume (both approaches):	585	824	
Minor St. Volume (higher volume approach):	82	71	
Warrant Met?:	**NO**	**NO**	

Fig 4C-4 (70% Option)

Attachment C: Synchro LOS Results

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	7	397	16	3	171
Future Vol, veh/h	10	7	397	16	3	171
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	11	8	432	17	3	186

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	633	441	0	0	449	0
Stage 1	441	-	-	-	-	-
Stage 2	192	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	419	584	-	-	1060	-
Stage 1	616	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	418	584	-	-	1060	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	802	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	532	1060	-
HCM Lane V/C Ratio	-	-	0.035	0.003	-
HCM Control Delay (s)	-	-	12	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	12	0	0	0	17	388	0	0	179	3
Future Vol, veh/h	25	0	12	0	0	0	17	388	0	0	179	3
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	50	-	-	50	-	-
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, %	2	2	2	2	2	2	4	4	2	2	13	13
Mvmt Flow	27	0	13	0	0	0	18	422	0	0	195	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	655	655	197	661	656	422	198	0	0	422	0	0
Stage 1	197	197	-	458	458	-	-	-	-	-	-	-
Stage 2	458	458	-	203	198	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver	379	386	844	376	385	632	1363	-	-	1137	-	-
Stage 1	805	738	-	583	567	-	-	-	-	-	-	-
Stage 2	583	567	-	799	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	375	381	844	367	380	632	1363	-	-	1137	-	-
Mov Cap-2 Maneuver	375	381	-	367	380	-	-	-	-	-	-	-
Stage 1	795	738	-	575	560	-	-	-	-	-	-	-
Stage 2	575	560	-	787	737	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	0	0.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1363	-	-	457	-	-	1137	-	-
HCM Lane V/C Ratio	0.014	-	-	0.088	-	-	-	-	-
HCM Control Delay (s)	7.7	-	-	13.6	0	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	-	-	0	-	-

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	7	5	61	30	255	16	148	22	98	100	7
Future Vol, veh/h	8	7	5	61	30	255	16	148	22	98	100	7
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	8	7	5	64	31	266	17	154	23	102	104	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	9.7	10.9	11	10.8
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	40%	67%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	35%	33%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	25%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	148	22	20	91	255	98	100	7
LT Vol	16	0	0	8	61	0	98	0	0
Through Vol	0	148	0	7	30	0	0	100	0
RT Vol	0	0	22	5	0	255	0	0	7
Lane Flow Rate	17	154	23	21	95	266	102	104	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.032	0.272	0.036	0.039	0.164	0.385	0.194	0.184	0.011
Departure Headway (Hd)	6.858	6.351	5.641	6.702	6.247	5.213	6.852	6.345	5.635
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	566	634	534	575	691	524	566	635
Service Time	4.596	4.088	3.378	4.448	3.977	2.943	4.588	4.081	3.371
HCM Lane V/C Ratio	0.033	0.272	0.036	0.039	0.165	0.385	0.195	0.184	0.011
HCM Control Delay	9.8	11.5	8.6	9.7	10.2	11.2	11.2	10.5	8.4
HCM Lane LOS	A	B	A	A	B	B	B	B	A
HCM 95th-tile Q	0.1	1.1	0.1	0.1	0.6	1.8	0.7	0.7	0

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	111	15	21	336	0	6	0	10	0	0	0
Future Vol, veh/h	0	111	15	21	336	0	6	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	95	92	95	92	95	92	92	92
Heavy Vehicles, %	2	13	13	2	2	2	6	2	6	2	2	2
Mvmt Flow	0	117	16	22	354	0	6	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	354	0	-	117	0	0	515	515	117	521	515	354
Stage 1	-	-	-	-	-	-	117	117	-	398	398	-
Stage 2	-	-	-	-	-	-	398	398	-	123	117	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.16	6.52	6.26	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.554	4.018	3.354	3.518	4.018	3.318
Pot Cap-1 Maneuver	1205	-	0	1471	-	-	464	464	924	466	464	690
Stage 1	-	-	0	-	-	-	878	799	-	628	603	-
Stage 2	-	-	0	-	-	-	620	603	-	881	799	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1205	-	-	1471	-	-	459	457	924	455	457	690
Mov Cap-2 Maneuver	-	-	-	-	-	-	459	457	-	455	457	-
Stage 1	-	-	-	-	-	-	878	799	-	628	594	-
Stage 2	-	-	-	-	-	-	611	594	-	871	799	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	10.5	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	670	1205	-	1471	-	-	-
HCM Lane V/C Ratio	0.025	-	-	0.015	-	-	-
HCM Control Delay (s)	10.5	0	-	7.5	-	-	0
HCM Lane LOS	B	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	5	283	25	10	537
Future Vol, veh/h	37	5	283	25	10	537
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	6	325	29	11	617

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	979	340	0	0	354	0
Stage 1	340	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	277	702	-	-	1205	-
Stage 1	721	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	275	702	-	-	1205	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	521	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	418	1205	-
HCM Lane V/C Ratio	-	-	0.115	0.01	-
HCM Control Delay (s)	-	-	14.7	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	23	0	0	0	33	298	0	0	521	41
Future Vol, veh/h	10	0	23	0	0	0	33	298	0	0	521	41
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	92	87	92	92	92	87	87	92	92	87	87
Heavy Vehicles, %	6	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	26	0	0	0	38	343	0	0	599	47

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1042	1042	623	1055	1065	343	646	0	0	343	0	0
Stage 1	623	623	-	419	419	-	-	-	-	-	-	-
Stage 2	419	419	-	636	646	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	204	230	479	204	223	700	939	-	-	1216	-	-
Stage 1	467	478	-	612	590	-	-	-	-	-	-	-
Stage 2	604	590	-	466	467	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	198	221	479	187	214	700	939	-	-	1216	-	-
Mov Cap-2 Maneuver	198	221	-	187	214	-	-	-	-	-	-	-
Stage 1	448	478	-	588	566	-	-	-	-	-	-	-
Stage 2	580	566	-	440	467	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.1	0	0.9	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	939	-	-	335	-	-	1216	-	-
HCM Lane V/C Ratio	0.04	-	-	0.113	-	-	-	-	-
HCM Control Delay (s)	9	-	-	17.1	0	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-	-	0	-	-

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	16	5	35	18	163	12	129	40	355	232	5
Future Vol, veh/h	7	16	5	35	18	163	12	129	40	355	232	5
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	7	16	5	35	18	165	12	130	40	359	234	5
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.6	11.3	11.1	17
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	25%	66%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	57%	34%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	18%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	129	40	28	53	163	355	232	5
LT Vol	12	0	0	7	35	0	355	0	0
Through Vol	0	129	0	16	18	0	0	232	0
RT Vol	0	0	40	5	0	163	0	0	5
Lane Flow Rate	12	130	40	28	54	165	359	234	5
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.025	0.247	0.069	0.058	0.108	0.284	0.642	0.387	0.007
Departure Headway (Hd)	7.325	6.818	6.108	7.343	7.229	6.199	6.444	5.938	5.23
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	488	525	584	486	495	578	559	605	683
Service Time	5.088	4.58	3.87	5.12	4.99	3.96	4.188	3.683	2.975
HCM Lane V/C Ratio	0.025	0.248	0.068	0.058	0.109	0.285	0.642	0.387	0.007
HCM Control Delay	10.3	11.8	9.3	10.6	10.9	11.4	20.1	12.4	8
HCM Lane LOS	B	B	A	B	B	B	C	B	A
HCM 95th-tile Q	0.1	1	0.2	0.2	0.4	1.2	4.5	1.8	0

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	397	42	50	205	0	11	0	78	0	0	0
Future Vol, veh/h	0	397	42	50	205	0	11	0	78	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	86	86	86	86	92	86	92	86	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	462	49	58	238	0	13	0	91	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	-	462	0	0	816	816	462	862	816	238
Stage 1	-	-	-	-	-	-	462	462	-	354	354	-
Stage 2	-	-	-	-	-	-	354	354	-	508	462	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	0	1099	-	-	296	311	600	275	311	801
Stage 1	-	-	0	-	-	-	580	565	-	663	630	-
Stage 2	-	-	0	-	-	-	663	630	-	547	565	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1329	-	-	1099	-	-	284	295	600	224	295	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	284	295	-	224	295	-
Stage 1	-	-	-	-	-	-	580	565	-	663	597	-
Stage 2	-	-	-	-	-	-	628	597	-	464	565	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	13.5	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	527	1329	-	1099	-	-	-
HCM Lane V/C Ratio	0.196	-	-	0.053	-	-	-
HCM Control Delay (s)	13.5	0	-	8.5	-	-	0
HCM Lane LOS	B	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.7	0	-	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	7	419	16	3	193
Future Vol, veh/h	11	7	419	16	3	193
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	12	8	455	17	3	210

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	680	464	0	0	472	0
Stage 1	464	-	-	-	-	-
Stage 2	216	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	393	566	-	-	1040	-
Stage 1	601	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	392	566	-	-	1040	-
Mov Cap-2 Maneuver	482	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	781	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	512	1040	-
HCM Lane V/C Ratio	-	-	0.038	0.003	-
HCM Control Delay (s)	-	-	12.3	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	1	12	26	1	67	17	340	53	44	159	3
Future Vol, veh/h	25	1	12	26	1	67	17	340	53	44	159	3
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	50	-	-	50	-	-
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	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1	13	28	1	73	18	370	58	48	173	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	743	735	175	713	707	399	176	0	0	428	0	0
Stage 1	271	271	-	435	435	-	-	-	-	-	-	-
Stage 2	472	464	-	278	272	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	326	347	858	347	360	651	1400	-	-	1131	-	-
Stage 1	726	685	-	600	580	-	-	-	-	-	-	-
Stage 2	565	564	-	728	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	277	328	858	327	341	651	1400	-	-	1131	-	-
Mov Cap-2 Maneuver	277	328	-	327	341	-	-	-	-	-	-	-
Stage 1	717	656	-	592	572	-	-	-	-	-	-	-
Stage 2	494	557	-	685	656	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.5	12.9	0.3	1.8
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1400	-	-	354	327	651	1131	-	-
HCM Lane V/C Ratio	0.013	-	-	0.117	0.09	0.112	0.042	-	-
HCM Control Delay (s)	7.6	-	-	16.5	17.1	11.2	8.3	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.3	0.4	0.1	-	-

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	8	5	69	31	255	16	154	31	98	106	7
Future Vol, veh/h	8	8	5	69	31	255	16	154	31	98	106	7
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	8	8	5	72	32	266	17	160	32	102	110	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	9.8	11.1	11.1	11
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	38%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	38%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	24%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	154	31	21	100	255	98	106	7
LT Vol	16	0	0	8	69	0	98	0	0
Through Vol	0	154	0	8	31	0	0	106	0
RT Vol	0	0	31	5	0	255	0	0	7
Lane Flow Rate	17	160	32	22	104	266	102	110	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.032	0.286	0.051	0.041	0.183	0.39	0.197	0.197	0.012
Departure Headway (Hd)	6.924	6.417	5.706	6.804	6.33	5.286	6.936	6.428	5.718
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	560	627	525	567	680	518	559	626
Service Time	4.663	4.156	3.445	4.555	4.065	3.021	4.673	4.166	3.455
HCM Lane V/C Ratio	0.033	0.286	0.051	0.042	0.183	0.391	0.197	0.197	0.011
HCM Control Delay	9.9	11.7	8.8	9.8	10.5	11.4	11.4	10.7	8.5
HCM Lane LOS	A	B	A	A	B	B	B	B	A
HCM 95th-tile Q	0.1	1.2	0.2	0.1	0.7	1.9	0.7	0.7	0

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	100	15	21	302	51	6	1	10	28	1	41
Future Vol, veh/h	20	100	15	21	302	51	6	1	10	28	1	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	105	16	22	318	54	6	1	11	29	1	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	-	105	0	0	558	563	105	542	536	345
Stage 1	-	-	-	-	-	-	147	147	-	389	389	-
Stage 2	-	-	-	-	-	-	411	416	-	153	147	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1186	-	0	1486	-	-	440	435	949	451	451	698
Stage 1	-	-	0	-	-	-	856	775	-	635	608	-
Stage 2	-	-	0	-	-	-	618	592	-	849	775	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1186	-	-	1486	-	-	401	420	949	434	436	698
Mov Cap-2 Maneuver	-	-	-	-	-	-	401	420	-	434	436	-
Stage 1	-	-	-	-	-	-	840	760	-	623	599	-
Stage 2	-	-	-	-	-	-	570	583	-	822	760	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.4	11.1	12.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	610	1186	-	1486	-	-	558
HCM Lane V/C Ratio	0.029	0.018	-	0.015	-	-	0.132
HCM Control Delay (s)	11.1	8.1	0	7.5	-	-	12.4
HCM Lane LOS	B	A	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	5	304	25	10	558
Future Vol, veh/h	38	5	304	25	10	558
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	6	349	29	11	641

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1027	364	0	0	378	0
Stage 1	364	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	260	681	-	-	1180	-
Stage 1	703	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	258	681	-	-	1180	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	507	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	402	1180	-
HCM Lane V/C Ratio	-	-	0.123	0.01	-
HCM Control Delay (s)	-	-	15.2	8.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1	23	43	1	41	33	277	28	58	483	41
Future Vol, veh/h	10	1	23	43	1	41	33	277	28	58	483	41
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	6	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	1	26	49	1	47	38	318	32	67	555	47

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1147	1139	579	1136	1146	334	602	0	0	350	0	0
Stage 1	713	713	-	410	410	-	-	-	-	-	-	-
Stage 2	434	426	-	726	736	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	173	201	507	179	199	708	975	-	-	1209	-	-
Stage 1	417	435	-	619	595	-	-	-	-	-	-	-
Stage 2	593	586	-	416	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	149	183	507	157	181	708	975	-	-	1209	-	-
Mov Cap-2 Maneuver	149	183	-	157	181	-	-	-	-	-	-	-
Stage 1	401	411	-	595	572	-	-	-	-	-	-	-
Stage 2	531	563	-	371	402	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.5	24.9	0.9	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	975	-	-	288	157	708	1209	-	-
HCM Lane V/C Ratio	0.039	-	-	0.136	0.322	0.067	0.055	-	-
HCM Control Delay (s)	8.8	-	-	19.5	38.5	10.4	8.2	-	-
HCM Lane LOS	A	-	-	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	1.3	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	17	5	43	19	163	12	134	48	355	237	5
Future Vol, veh/h	7	17	5	43	19	163	12	134	48	355	237	5
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	7	17	5	43	19	165	12	135	48	359	239	5
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.7	11.4	11.3	17.4
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	24%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	59%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	17%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	134	48	29	62	163	355	237	5
LT Vol	12	0	0	7	43	0	355	0	0
Through Vol	0	134	0	17	19	0	0	237	0
RT Vol	0	0	48	5	0	163	0	0	5
Lane Flow Rate	12	135	48	29	63	165	359	239	5
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.025	0.259	0.083	0.061	0.127	0.286	0.649	0.4	0.007
Departure Headway (Hd)	7.389	6.881	6.171	7.436	7.311	6.263	6.52	6.014	5.306
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	483	520	578	480	489	571	552	598	672
Service Time	5.155	4.647	3.936	5.215	5.076	4.028	4.268	3.762	3.054
HCM Lane V/C Ratio	0.025	0.26	0.083	0.06	0.129	0.289	0.65	0.4	0.007
HCM Control Delay	10.3	12.1	9.5	10.7	11.1	11.5	20.6	12.7	8.1
HCM Lane LOS	B	B	A	B	B	B	C	B	A
HCM 95th-tile Q	0.1	1	0.3	0.2	0.4	1.2	4.6	1.9	0

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	372	42	50	191	30	11	1	78	39	1	23
Future Vol, veh/h	32	372	42	50	191	30	11	1	78	39	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	433	49	58	222	35	13	1	91	45	1	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	-	433	0	0	877	880	433	909	863	240
Stage 1	-	-	-	-	-	-	507	507	-	356	356	-
Stage 2	-	-	-	-	-	-	370	373	-	553	507	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1308	-	0	1127	-	-	269	286	623	256	292	799
Stage 1	-	-	0	-	-	-	548	539	-	661	629	-
Stage 2	-	-	0	-	-	-	650	618	-	517	539	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1308	-	-	1127	-	-	242	261	623	204	267	799
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	261	-	204	267	-
Stage 1	-	-	-	-	-	-	528	519	-	637	597	-
Stage 2	-	-	-	-	-	-	595	586	-	424	519	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.5	13.7	22.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	516	1308	-	1127	-	-	282
HCM Lane V/C Ratio	0.203	0.028	-	0.052	-	-	0.26
HCM Control Delay (s)	13.7	7.8	0	8.4	-	-	22.2
HCM Lane LOS	B	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0.8	0.1	-	0.2	-	-	1

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	8	426	18	4	184
Future Vol, veh/h	11	8	426	18	4	184
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	12	9	463	20	4	200

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	681	473	0	0	483	0
Stage 1	473	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	392	560	-	-	1030	-
Stage 1	595	-	-	-	-	-
Stage 2	790	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	390	560	-	-	1030	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	787	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	510	1030	-
HCM Lane V/C Ratio	-	-	0.04	0.004	-
HCM Control Delay (s)	-	-	12.4	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	0	13	0	0	0	19	416	0	0	192	4
Future Vol, veh/h	27	0	13	0	0	0	19	416	0	0	192	4
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	50	-	-	50	-	-
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, %	2	2	2	2	2	2	4	4	2	2	13	13
Mvmt Flow	29	0	14	0	0	0	21	452	0	0	209	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	705	705	211	712	707	452	213	0	0	452	0	0
Stage 1	211	211	-	494	494	-	-	-	-	-	-	-
Stage 2	494	494	-	218	213	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver	351	361	829	347	360	608	1345	-	-	1109	-	-
Stage 1	791	728	-	557	546	-	-	-	-	-	-	-
Stage 2	557	546	-	784	726	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	347	355	829	337	354	608	1345	-	-	1109	-	-
Mov Cap-2 Maneuver	347	355	-	337	354	-	-	-	-	-	-	-
Stage 1	778	728	-	548	537	-	-	-	-	-	-	-
Stage 2	548	537	-	771	726	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	0	0.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1345	-	-	428	-	-	1109	-	-
HCM Lane V/C Ratio	0.015	-	-	0.102	-	-	-	-	-
HCM Control Delay (s)	7.7	-	-	14.4	0	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	-	-	0	-	-

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	8	6	66	33	274	18	159	24	106	108	8
Future Vol, veh/h	9	8	6	66	33	274	18	159	24	106	108	8
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	10	9	7	72	36	298	20	173	26	115	117	9
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.1	12.1	11.8	11.5
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	39%	67%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	35%	33%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	26%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	159	24	23	99	274	106	108	8
LT Vol	18	0	0	9	66	0	106	0	0
Through Vol	0	159	0	8	33	0	0	108	0
RT Vol	0	0	24	6	0	274	0	0	8
Lane Flow Rate	20	173	26	25	108	298	115	117	9
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.039	0.318	0.043	0.049	0.193	0.449	0.228	0.215	0.014
Departure Headway (Hd)	7.128	6.619	5.908	7.015	6.457	5.424	7.113	6.605	5.893
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	502	543	605	509	555	661	505	542	606
Service Time	4.879	4.37	3.658	4.781	4.202	3.17	4.865	4.357	3.645
HCM Lane V/C Ratio	0.04	0.319	0.043	0.049	0.195	0.451	0.228	0.216	0.015
HCM Control Delay	10.2	12.4	8.9	10.1	10.8	12.6	12	11.2	8.7
HCM Lane LOS	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1.4	0.1	0.2	0.7	2.3	0.9	0.8	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	119	17	23	361	0	7	0	11	0	0	0
Future Vol, veh/h	0	119	17	23	361	0	7	0	11	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	13	13	2	2	2	6	2	6	2	2	2
Mvmt Flow	0	129	18	25	392	0	8	0	12	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	392	0	-	129	0	0	571	571	129	577	571	392
Stage 1	-	-	-	-	-	-	129	129	-	442	442	-
Stage 2	-	-	-	-	-	-	442	442	-	135	129	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.16	6.52	6.26	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.554	4.018	3.354	3.518	4.018	3.318
Pot Cap-1 Maneuver	1167	-	0	1457	-	-	426	431	910	428	431	657
Stage 1	-	-	0	-	-	-	865	789	-	594	576	-
Stage 2	-	-	0	-	-	-	587	576	-	868	789	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1167	-	-	1457	-	-	420	424	910	417	424	657
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	424	-	417	424	-
Stage 1	-	-	-	-	-	-	865	789	-	594	566	-
Stage 2	-	-	-	-	-	-	577	566	-	857	789	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	10.9	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	626	1167	-	1457	-	-	-
HCM Lane V/C Ratio	0.031	-	-	0.017	-	-	-
HCM Control Delay (s)	10.9	0	-	7.5	-	-	0
HCM Lane LOS	B	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	6	304	27	11	576
Future Vol, veh/h	40	6	304	27	11	576
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	7	330	29	12	626

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	995	345	0	0	359	0
Stage 1	345	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	271	698	-	-	1200	-
Stage 1	717	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	268	698	-	-	1200	-
Mov Cap-2 Maneuver	390	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	515	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	414	1200	-
HCM Lane V/C Ratio	-	-	0.121	0.01	-
HCM Control Delay (s)	-	-	14.9	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	0	25	0	0	0	36	320	0	0	559	44
Future Vol, veh/h	11	0	25	0	0	0	36	320	0	0	559	44
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	50	-	-	50	-	-
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	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	27	0	0	0	39	348	0	0	608	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1058	1058	632	1072	1082	348	656	0	0	348	0	0
Stage 1	632	632	-	426	426	-	-	-	-	-	-	-
Stage 2	426	426	-	646	656	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	199	225	473	198	217	695	931	-	-	1211	-	-
Stage 1	462	474	-	606	586	-	-	-	-	-	-	-
Stage 2	599	586	-	460	462	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	193	216	473	181	208	695	931	-	-	1211	-	-
Mov Cap-2 Maneuver	193	216	-	181	208	-	-	-	-	-	-	-
Stage 1	443	474	-	581	561	-	-	-	-	-	-	-
Stage 2	574	561	-	434	462	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	0	0.9	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	931	-	-	328	-	-	1211	-	-
HCM Lane V/C Ratio	0.042	-	-	0.119	-	-	-	-	-
HCM Control Delay (s)	9	-	-	17.5	0	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-	-	0	-	-

Intersection	
Intersection Delay, s/veh	18.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	18	6	38	20	175	13	139	43	381	249	6
Future Vol, veh/h	8	18	6	38	20	175	13	139	43	381	249	6
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
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	9	20	7	41	22	190	14	151	47	414	271	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.3	12.6	12.3	23.2
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	25%	66%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	56%	34%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	19%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	139	43	32	58	175	381	249	6
LT Vol	13	0	0	8	38	0	381	0	0
Through Vol	0	139	0	18	20	0	0	249	0
RT Vol	0	0	43	6	0	175	0	0	6
Lane Flow Rate	14	151	47	35	63	190	414	271	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.03	0.304	0.085	0.077	0.133	0.348	0.776	0.469	0.01
Departure Headway (Hd)	7.753	7.244	6.531	7.949	7.621	6.591	6.744	6.237	5.527
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	459	493	544	454	468	542	534	576	644
Service Time	5.547	5.037	4.324	5.649	5.41	4.379	4.511	4.003	3.293
HCM Lane V/C Ratio	0.031	0.306	0.086	0.077	0.135	0.351	0.775	0.47	0.011
HCM Control Delay	10.8	13.2	9.9	11.3	11.6	12.9	29.2	14.4	8.3
HCM Lane LOS	B	B	A	B	B	B	D	B	A
HCM 95th-tile Q	0.1	1.3	0.3	0.2	0.5	1.5	7	2.5	0

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	426	46	54	220	0	12	0	84	0	0	0
Future Vol, veh/h	0	426	46	54	220	0	12	0	84	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	463	50	59	239	0	13	0	91	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	-	463	0	0	820	820	463	866	820	239
Stage 1	-	-	-	-	-	-	463	463	-	357	357	-
Stage 2	-	-	-	-	-	-	357	357	-	509	463	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1328	-	0	1098	-	-	294	310	599	274	310	800
Stage 1	-	-	0	-	-	-	579	564	-	661	628	-
Stage 2	-	-	0	-	-	-	661	628	-	547	564	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1328	-	-	1098	-	-	282	293	599	223	293	800
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	293	-	223	293	-
Stage 1	-	-	-	-	-	-	579	564	-	661	594	-
Stage 2	-	-	-	-	-	-	625	594	-	464	564	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	13.6	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	525	1328	-	1098	-	-	-
HCM Lane V/C Ratio	0.199	-	-	0.053	-	-	-
HCM Control Delay (s)	13.6	0	-	8.5	-	-	0
HCM Lane LOS	B	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.7	0	-	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	8	450	18	4	207
Future Vol, veh/h	12	8	450	18	4	207
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	13	9	489	20	4	225

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	732	499	0	0	509	0
Stage 1	499	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	366	541	-	-	1007	-
Stage 1	578	-	-	-	-	-
Stage 2	769	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	541	-	-	1007	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	489	1007	-
HCM Lane V/C Ratio	-	-	0.044	0.004	-
HCM Control Delay (s)	-	-	12.7	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	2	13	28	2	72	19	365	57	48	171	4
Future Vol, veh/h	27	2	13	28	2	72	19	365	57	48	171	4
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	50	-	-	50	-	-
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	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	2	14	30	2	78	21	397	62	52	186	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	802	793	188	770	764	428	190	0	0	459	0	0
Stage 1	292	292	-	470	470	-	-	-	-	-	-	-
Stage 2	510	501	-	300	294	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	298	321	844	318	334	627	1384	-	-	1102	-	-
Stage 1	707	671	-	574	560	-	-	-	-	-	-	-
Stage 2	539	543	-	709	670	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	247	301	844	296	314	627	1384	-	-	1102	-	-
Mov Cap-2 Maneuver	247	301	-	296	314	-	-	-	-	-	-	-
Stage 1	696	639	-	565	552	-	-	-	-	-	-	-
Stage 2	463	535	-	662	639	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	13.7	0.3	1.8
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1384	-	-	320	297	627	1102	-	-
HCM Lane V/C Ratio	0.015	-	-	0.143	0.11	0.125	0.047	-	-
HCM Control Delay (s)	7.6	-	-	18.1	18.6	11.6	8.4	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.4	0.4	0.1	-	-

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	9	6	74	34	274	18	166	34	106	114	8
Future Vol, veh/h	9	9	6	74	34	274	18	166	34	106	114	8
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	10	10	7	80	37	298	20	180	37	115	124	9
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.3	12.3	12	11.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	38%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	38%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	25%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	166	34	24	108	274	106	114	8
LT Vol	18	0	0	9	74	0	106	0	0
Through Vol	0	166	0	9	34	0	0	114	0
RT Vol	0	0	34	6	0	274	0	0	8
Lane Flow Rate	20	180	37	26	117	298	115	124	9
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.039	0.335	0.061	0.052	0.214	0.456	0.231	0.231	0.014
Departure Headway (Hd)	7.196	6.687	5.975	7.13	6.553	5.511	7.206	6.697	5.985
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	496	536	597	500	547	652	498	535	596
Service Time	4.956	4.447	3.734	4.904	4.302	3.259	4.964	4.455	3.743
HCM Lane V/C Ratio	0.04	0.336	0.062	0.052	0.214	0.457	0.231	0.232	0.015
HCM Control Delay	10.3	12.8	9.1	10.3	11.1	12.8	12.1	11.5	8.8
HCM Lane LOS	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1.5	0.2	0.2	0.8	2.4	0.9	0.9	0

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	108	17	23	324	55	7	2	11	31	2	44
Future Vol, veh/h	22	108	17	23	324	55	7	2	11	31	2	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	117	18	25	352	60	8	2	12	34	2	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	412	0	-	117	0	0	622	627	117	604	597	382
Stage 1	-	-	-	-	-	-	165	165	-	432	432	-
Stage 2	-	-	-	-	-	-	457	462	-	172	165	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1147	-	0	1471	-	-	399	400	935	410	416	665
Stage 1	-	-	0	-	-	-	837	762	-	602	582	-
Stage 2	-	-	0	-	-	-	583	565	-	830	762	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1147	-	-	1471	-	-	358	384	935	391	400	665
Mov Cap-2 Maneuver	-	-	-	-	-	-	358	384	-	391	400	-
Stage 1	-	-	-	-	-	-	819	745	-	589	572	-
Stage 2	-	-	-	-	-	-	530	555	-	799	745	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.4	11.8	13.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	548	1147	-	1471	-	-	512
HCM Lane V/C Ratio	0.04	0.021	-	0.017	-	-	0.163
HCM Control Delay (s)	11.8	8.2	0	7.5	-	-	13.4
HCM Lane LOS	B	A	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0.1	-	-	0.6

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	6	326	27	11	599
Future Vol, veh/h	41	6	326	27	11	599
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	7	354	29	12	651

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1044	369	0	0	383	0
Stage 1	369	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	254	677	-	-	1175	-
Stage 1	699	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	251	677	-	-	1175	-
Mov Cap-2 Maneuver	376	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	399	1175	-
HCM Lane V/C Ratio	-	-	0.128	0.01	-
HCM Control Delay (s)	-	-	15.3	8.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	2	25	47	2	44	36	297	31	63	518	44
Future Vol, veh/h	11	2	25	47	2	44	36	297	31	63	518	44
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	50	-	-	50	-	-
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	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	2	27	51	2	48	39	323	34	68	563	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1166	1158	587	1156	1165	340	611	0	0	357	0	0
Stage 1	723	723	-	418	418	-	-	-	-	-	-	-
Stage 2	443	435	-	738	747	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	168	196	502	174	194	702	968	-	-	1202	-	-
Stage 1	411	431	-	612	591	-	-	-	-	-	-	-
Stage 2	586	580	-	410	420	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	177	502	151	176	702	968	-	-	1202	-	-
Mov Cap-2 Maneuver	144	177	-	151	176	-	-	-	-	-	-	-
Stage 1	395	406	-	588	567	-	-	-	-	-	-	-
Stage 2	522	557	-	364	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.3	26.5	0.9	0.8
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	968	-	-	276	152	702	1202	-	-
HCM Lane V/C Ratio	0.04	-	-	0.15	0.35	0.068	0.057	-	-
HCM Control Delay (s)	8.9	-	-	20.3	40.9	10.5	8.2	-	-
HCM Lane LOS	A	-	-	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	1.4	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	19.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	19	6	47	21	175	13	144	52	381	255	6
Future Vol, veh/h	8	19	6	47	21	175	13	144	52	381	255	6
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
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	9	21	7	51	23	190	14	157	57	414	277	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.5	12.9	12.7	24.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	24%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	58%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	18%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	144	52	33	68	175	381	255	6
LT Vol	13	0	0	8	47	0	381	0	0
Through Vol	0	144	0	19	21	0	0	255	0
RT Vol	0	0	52	6	0	175	0	0	6
Lane Flow Rate	14	157	57	36	74	190	414	277	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.031	0.323	0.105	0.081	0.161	0.358	0.787	0.488	0.01
Departure Headway (Hd)	7.94	7.426	6.716	8.08	7.824	6.775	6.842	6.334	5.624
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	453	487	536	445	461	535	526	563	629
Service Time	5.653	5.143	4.429	5.799	5.526	4.476	4.64	4.132	3.421
HCM Lane V/C Ratio	0.031	0.322	0.106	0.081	0.161	0.355	0.787	0.492	0.011
HCM Control Delay	10.9	13.7	10.2	11.5	12	13.2	30.7	15.1	8.5
HCM Lane LOS	B	B	B	B	B	B	D	C	A
HCM 95th-tile Q	0.1	1.4	0.3	0.3	0.6	1.6	7.3	2.7	0

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	399	46	54	205	33	12	2	84	42	2	25
Future Vol, veh/h	35	399	46	54	205	33	12	2	84	42	2	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	434	50	59	223	36	13	2	91	46	2	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	259	0	-	434	0	0	884	887	434	916	869	241
Stage 1	-	-	-	-	-	-	510	510	-	359	359	-
Stage 2	-	-	-	-	-	-	374	377	-	557	510	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1306	-	0	1126	-	-	266	283	622	253	290	798
Stage 1	-	-	0	-	-	-	546	538	-	659	627	-
Stage 2	-	-	0	-	-	-	647	616	-	515	538	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1306	-	-	1126	-	-	238	258	622	200	264	798
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	258	-	200	264	-
Stage 1	-	-	-	-	-	-	525	518	-	634	594	-
Stage 2	-	-	-	-	-	-	590	584	-	421	518	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.5	14	22.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	507	1306	-	1126	-	-	277
HCM Lane V/C Ratio	0.21	0.029	-	0.052	-	-	0.271
HCM Control Delay (s)	14	7.8	0	8.4	-	-	22.8
HCM Lane LOS	B	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0.8	0.1	-	0.2	-	-	1.1

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	9	455	19	4	196
Future Vol, veh/h	12	9	455	19	4	196
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	13	10	495	21	4	213

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	727	506	0	0	516	0
Stage 1	506	-	-	-	-	-
Stage 2	221	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	368	536	-	-	1001	-
Stage 1	574	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	367	536	-	-	1001	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	776	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	490	1001	-
HCM Lane V/C Ratio	-	-	0.047	0.004	-
HCM Control Delay (s)	-	-	12.7	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	0	14	0	0	0	20	444	0	0	205	4
Future Vol, veh/h	29	0	14	0	0	0	20	444	0	0	205	4
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	50	-	-	50	-	-
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, %	2	2	2	2	2	2	4	4	2	2	13	13
Mvmt Flow	32	0	15	0	0	0	22	483	0	0	223	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	752	752	225	760	754	483	227	0	0	483	0	0
Stage 1	225	225	-	527	527	-	-	-	-	-	-	-
Stage 2	527	527	-	233	227	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver	327	339	814	323	338	584	1330	-	-	1080	-	-
Stage 1	778	718	-	535	528	-	-	-	-	-	-	-
Stage 2	535	528	-	770	716	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	323	333	814	313	332	584	1330	-	-	1080	-	-
Mov Cap-2 Maneuver	323	333	-	313	332	-	-	-	-	-	-	-
Stage 1	765	718	-	526	519	-	-	-	-	-	-	-
Stage 2	526	519	-	756	716	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	0	0.3	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1330	-	-	402	-	-	1080	-	-
HCM Lane V/C Ratio	0.016	-	-	0.116	-	-	-	-	-
HCM Control Delay (s)	7.8	-	-	15.1	0	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-	-	0	-	-

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	9	6	70	35	292	19	170	26	113	115	9
Future Vol, veh/h	10	9	6	70	35	292	19	170	26	113	115	9
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	11	10	7	76	38	317	21	185	28	123	125	10
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.4	12.9	12.4	11.9
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	40%	67%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	36%	33%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	24%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	170	26	25	105	292	113	115	9
LT Vol	19	0	0	10	70	0	113	0	0
Through Vol	0	170	0	9	35	0	0	115	0
RT Vol	0	0	26	6	0	292	0	0	9
Lane Flow Rate	21	185	28	27	114	317	123	125	10
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.042	0.348	0.048	0.055	0.209	0.49	0.248	0.235	0.016
Departure Headway (Hd)	7.287	6.778	6.065	7.23	6.587	5.553	7.27	6.761	6.048
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	528	588	493	543	647	493	529	589
Service Time	5.05	4.541	3.827	5.012	4.341	3.308	5.034	4.525	3.812
HCM Lane V/C Ratio	0.043	0.35	0.048	0.055	0.21	0.49	0.249	0.236	0.017
HCM Control Delay	10.4	13.1	9.1	10.4	11.1	13.6	12.4	11.6	8.9
HCM Lane LOS	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1.5	0.2	0.2	0.8	2.7	1	0.9	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	127	18	25	385	0	7	0	12	0	0	0
Future Vol, veh/h	0	127	18	25	385	0	7	0	12	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	13	13	2	2	2	6	2	6	2	2	2
Mvmt Flow	0	138	20	27	418	0	8	0	13	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	418	0	-	138	0	0	610	610	138	617	610	418
Stage 1	-	-	-	-	-	-	138	138	-	472	472	-
Stage 2	-	-	-	-	-	-	472	472	-	145	138	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.16	6.52	6.26	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.554	4.018	3.354	3.518	4.018	3.318
Pot Cap-1 Maneuver	1141	-	0	1446	-	-	401	409	900	402	409	635
Stage 1	-	-	0	-	-	-	856	782	-	573	559	-
Stage 2	-	-	0	-	-	-	565	559	-	858	782	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1141	-	-	1446	-	-	395	401	900	390	401	635
Mov Cap-2 Maneuver	-	-	-	-	-	-	395	401	-	390	401	-
Stage 1	-	-	-	-	-	-	856	782	-	573	548	-
Stage 2	-	-	-	-	-	-	554	548	-	846	782	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	11.1	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	612	1141	-	1446	-	-	-
HCM Lane V/C Ratio	0.034	-	-	0.019	-	-	-
HCM Control Delay (s)	11.1	0	-	7.5	-	-	0
HCM Lane LOS	B	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	6	324	29	12	615
Future Vol, veh/h	43	6	324	29	12	615
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	7	352	32	13	668

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1062	368	0	0	384	0
Stage 1	368	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	247	677	-	-	1174	-
Stage 1	700	-	-	-	-	-
Stage 2	496	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	244	677	-	-	1174	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	491	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	391	1174	-
HCM Lane V/C Ratio	-	-	0.136	0.011	-
HCM Control Delay (s)	-	-	15.7	8.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	27	0	0	0	38	341	0	0	597	47
Future Vol, veh/h	12	0	27	0	0	0	38	341	0	0	597	47
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	50	-	-	50	-	-
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	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	29	0	0	0	41	371	0	0	649	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1128	1128	675	1142	1153	371	700	0	0	371	0	0
Stage 1	675	675	-	453	453	-	-	-	-	-	-	-
Stage 2	453	453	-	689	700	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	178	204	447	177	197	675	897	-	-	1188	-	-
Stage 1	437	453	-	586	570	-	-	-	-	-	-	-
Stage 2	579	570	-	436	441	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	172	195	447	160	188	675	897	-	-	1188	-	-
Mov Cap-2 Maneuver	172	195	-	160	188	-	-	-	-	-	-	-
Stage 1	417	453	-	559	544	-	-	-	-	-	-	-
Stage 2	553	544	-	407	441	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19	0	0.9	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	897	-	-	300	-	-	1188	-	-
HCM Lane V/C Ratio	0.046	-	-	0.141	-	-	-	-	-
HCM Control Delay (s)	9.2	-	-	19	0	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	-	-	0	-	-

Intersection	
Intersection Delay, s/veh	22.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	19	6	41	21	187	14	148	46	407	266	6
Future Vol, veh/h	9	19	6	41	21	187	14	148	46	407	266	6
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
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	10	21	7	45	23	203	15	161	50	442	289	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.7	13.4	13.1	28.7
HCM LOS	B	B	B	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	26%	66%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	56%	34%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	18%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	148	46	34	62	187	407	266	6
LT Vol	14	0	0	9	41	0	407	0	0
Through Vol	0	148	0	19	21	0	0	266	0
RT Vol	0	0	46	6	0	187	0	0	6
Lane Flow Rate	15	161	50	37	67	203	442	289	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.034	0.338	0.095	0.085	0.148	0.389	0.847	0.513	0.01
Departure Headway (Hd)	8.073	7.562	6.847	8.239	7.917	6.895	7.001	6.492	5.781
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	445	478	525	436	455	524	522	558	623
Service Time	5.793	5.282	4.567	5.961	5.63	4.595	4.701	4.192	3.481
HCM Lane V/C Ratio	0.034	0.337	0.095	0.085	0.147	0.387	0.847	0.518	0.011
HCM Control Delay	11.1	14.1	10.3	11.7	12	13.9	37.4	15.8	8.5
HCM Lane LOS	B	B	B	B	B	B	E	C	A
HCM 95th-tile Q	0.1	1.5	0.3	0.3	0.5	1.8	8.8	2.9	0

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	455	49	58	235	0	13	0	90	0	0	0
Future Vol, veh/h	0	455	49	58	235	0	13	0	90	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	495	53	63	255	0	14	0	98	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	255	0	-	495	0	0	876	876	495	925	876	255
Stage 1	-	-	-	-	-	-	495	495	-	381	381	-
Stage 2	-	-	-	-	-	-	381	381	-	544	495	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1310	-	0	1069	-	-	269	287	575	250	287	784
Stage 1	-	-	0	-	-	-	556	546	-	641	613	-
Stage 2	-	-	0	-	-	-	641	613	-	523	546	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1310	-	-	1069	-	-	257	270	575	198	270	784
Mov Cap-2 Maneuver	-	-	-	-	-	-	257	270	-	198	270	-
Stage 1	-	-	-	-	-	-	556	546	-	641	577	-
Stage 2	-	-	-	-	-	-	603	577	-	434	546	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	14.3	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	497	1310	-	1069	-	-	-
HCM Lane V/C Ratio	0.225	-	-	0.059	-	-	-
HCM Control Delay (s)	14.3	0	-	8.6	-	-	0
HCM Lane LOS	B	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.9	0	-	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	9	480	19	4	221
Future Vol, veh/h	13	9	480	19	4	221
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	14	10	522	21	4	240

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	781	533	0	0	543	0
Stage 1	533	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	342	517	-	-	977	-
Stage 1	557	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	341	517	-	-	977	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	469	977	-
HCM Lane V/C Ratio	-	-	0.051	0.004	-
HCM Control Delay (s)	-	-	13.1	8.7	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	2	14	30	2	77	20	389	61	51	182	4
Future Vol, veh/h	29	2	14	30	2	77	20	389	61	51	182	4
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	50	-	-	50	-	-
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	2	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	2	15	33	2	84	22	423	66	55	198	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	853	843	200	819	812	456	202	0	0	489	0	0
Stage 1	310	310	-	500	500	-	-	-	-	-	-	-
Stage 2	543	533	-	319	312	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	275	300	831	294	313	604	1370	-	-	1074	-	-
Stage 1	692	659	-	553	543	-	-	-	-	-	-	-
Stage 2	517	525	-	693	658	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	224	280	831	272	292	604	1370	-	-	1074	-	-
Mov Cap-2 Maneuver	224	280	-	272	292	-	-	-	-	-	-	-
Stage 1	681	625	-	544	534	-	-	-	-	-	-	-
Stage 2	436	517	-	643	624	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.7	14.3	0.3	1.8
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1370	-	-	293	273	604	1074	-	-
HCM Lane V/C Ratio	0.016	-	-	0.167	0.127	0.139	0.052	-	-
HCM Control Delay (s)	7.7	-	-	19.7	20.1	11.9	8.5	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.4	0.5	0.2	-	-

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	10	6	79	36	292	19	177	36	113	122	9
Future Vol, veh/h	10	10	6	79	36	292	19	177	36	113	122	9
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	11	11	7	86	39	317	21	192	39	123	133	10
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.6	13.2	12.7	12.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	38%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	38%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	23%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	177	36	26	115	292	113	122	9
LT Vol	19	0	0	10	79	0	113	0	0
Through Vol	0	177	0	10	36	0	0	122	0
RT Vol	0	0	36	6	0	292	0	0	9
Lane Flow Rate	21	192	39	28	125	317	123	133	10
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.042	0.366	0.067	0.058	0.232	0.498	0.251	0.253	0.017
Departure Headway (Hd)	7.363	6.854	6.14	7.356	6.687	5.644	7.368	6.859	6.146
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	485	523	580	484	535	635	486	521	579
Service Time	5.134	4.624	3.91	5.145	4.448	3.404	5.139	4.629	3.915
HCM Lane V/C Ratio	0.043	0.367	0.067	0.058	0.234	0.499	0.253	0.255	0.017
HCM Control Delay	10.5	13.6	9.4	10.6	11.5	13.9	12.6	12	9
HCM Lane LOS	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1.7	0.2	0.2	0.9	2.8	1	1	0.1

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	115	18	25	346	59	7	2	12	33	2	47
Future Vol, veh/h	23	115	18	25	346	59	7	2	12	33	2	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	125	20	27	376	64	8	2	13	36	2	51

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	440	0	-	125	0	0	664	669	125	645	637	408
Stage 1	-	-	-	-	-	-	175	175	-	462	462	-
Stage 2	-	-	-	-	-	-	489	494	-	183	175	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1120	-	0	1462	-	-	374	379	926	385	395	643
Stage 1	-	-	0	-	-	-	827	754	-	580	565	-
Stage 2	-	-	0	-	-	-	561	546	-	819	754	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1120	-	-	1462	-	-	332	363	926	366	378	643
Mov Cap-2 Maneuver	-	-	-	-	-	-	332	363	-	366	378	-
Stage 1	-	-	-	-	-	-	807	736	-	566	555	-
Stage 2	-	-	-	-	-	-	505	536	-	786	736	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.4	12.1	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	531	1120	-	1462	-	-	487
HCM Lane V/C Ratio	0.043	0.022	-	0.019	-	-	0.183
HCM Control Delay (s)	12.1	8.3	0	7.5	-	-	14
HCM Lane LOS	B	A	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0.1	-	-	0.7

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	6	348	29	12	639
Future Vol, veh/h	44	6	348	29	12	639
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	7	378	32	13	695

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1115	394	0	0	410	0
Stage 1	394	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	230	655	-	-	1149	-
Stage 1	681	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	227	655	-	-	1149	-
Mov Cap-2 Maneuver	354	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	477	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	375	1149	-
HCM Lane V/C Ratio	-	-	0.145	0.011	-
HCM Control Delay (s)	-	-	16.2	8.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	2	27	50	2	47	38	317	33	67	553	47
Future Vol, veh/h	12	2	27	50	2	47	38	317	33	67	553	47
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	50	-	-	50	-	-
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	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	2	29	54	2	51	41	345	36	73	601	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1245	1236	627	1233	1243	363	652	0	0	381	0	0
Stage 1	773	773	-	445	445	-	-	-	-	-	-	-
Stage 2	472	463	-	788	798	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	148	173	476	154	174	682	935	-	-	1177	-	-
Stage 1	386	403	-	592	575	-	-	-	-	-	-	-
Stage 2	565	557	-	384	398	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	125	155	476	132	156	682	935	-	-	1177	-	-
Mov Cap-2 Maneuver	125	155	-	132	156	-	-	-	-	-	-	-
Stage 1	369	378	-	566	550	-	-	-	-	-	-	-
Stage 2	498	532	-	336	373	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.7	31.7	0.9	0.8
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	248	133	682	1177	-	-
HCM Lane V/C Ratio	0.044	-	-	0.18	0.425	0.075	0.062	-	-
HCM Control Delay (s)	9	-	-	22.7	50.7	10.7	8.3	-	-
HCM Lane LOS	A	-	-	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	1.9	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	20	6	50	22	187	14	154	55	407	272	6
Future Vol, veh/h	9	20	6	50	22	187	14	154	55	407	272	6
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
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	10	22	7	54	24	203	15	167	60	442	296	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.9	13.7	13.4	31.4
HCM LOS	B	B	B	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	26%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	57%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	17%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	154	55	35	72	187	407	272	6
LT Vol	14	0	0	9	50	0	407	0	0
Through Vol	0	154	0	20	22	0	0	272	0
RT Vol	0	0	55	6	0	187	0	0	6
Lane Flow Rate	15	167	60	38	78	203	442	296	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.035	0.356	0.115	0.088	0.174	0.394	0.874	0.542	0.011
Departure Headway (Hd)	8.166	7.655	6.94	8.374	8.027	6.975	7.111	6.602	5.89
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	439	470	517	428	448	516	513	550	611
Service Time	5.908	5.396	4.681	6.126	5.766	4.713	4.811	4.302	3.59
HCM Lane V/C Ratio	0.034	0.355	0.116	0.089	0.174	0.393	0.862	0.538	0.011
HCM Control Delay	11.2	14.6	10.6	11.9	12.5	14.2	41.5	16.8	8.7
HCM Lane LOS	B	B	B	B	B	B	E	C	A
HCM 95th-tile Q	0.1	1.6	0.4	0.3	0.6	1.9	9.5	3.2	0

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	426	49	58	219	35	13	2	90	45	2	27
Future Vol, veh/h	37	426	49	58	219	35	13	2	90	45	2	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	220	220	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	463	53	63	238	38	14	2	98	49	2	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	276	0	-	463	0	0	942	945	463	976	926	257
Stage 1	-	-	-	-	-	-	543	543	-	383	383	-
Stage 2	-	-	-	-	-	-	399	402	-	593	543	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1287	-	0	1098	-	-	243	262	599	230	269	782
Stage 1	-	-	0	-	-	-	524	520	-	640	612	-
Stage 2	-	-	0	-	-	-	627	600	-	492	520	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1287	-	-	1098	-	-	215	237	599	177	243	782
Mov Cap-2 Maneuver	-	-	-	-	-	-	215	237	-	177	243	-
Stage 1	-	-	-	-	-	-	502	498	-	613	577	-
Stage 2	-	-	-	-	-	-	567	566	-	393	498	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.6	14.9	26.2
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	479	1287	-	1098	-	-	249
HCM Lane V/C Ratio	0.238	0.031	-	0.057	-	-	0.323
HCM Control Delay (s)	14.9	7.9	0	8.5	-	-	26.2
HCM Lane LOS	B	A	A	A	-	-	D
HCM 95th %tile Q(veh)	0.9	0.1	-	0.2	-	-	1.3

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	7	419	16	3	193
Future Vol, veh/h	11	7	419	16	3	193
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	12	8	455	17	3	210

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	680	464	0	0	472	0
Stage 1	464	-	-	-	-	-
Stage 2	216	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	393	566	-	-	1040	-
Stage 1	601	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	392	566	-	-	1040	-
Mov Cap-2 Maneuver	482	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	781	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	512	1040	-
HCM Lane V/C Ratio	-	-	0.038	0.003	-
HCM Control Delay (s)	-	-	12.3	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	1	12	26	1	67	17	340	53	44	159	3
Future Vol, veh/h	25	1	12	26	1	67	17	340	53	44	159	3
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	4	4	4	13	13	13
Mvmt Flow	27	1	13	28	1	73	18	370	58	48	173	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	743	735	175	713	707	399	176	0	0	428	0	0
Stage 1	271	271	-	435	435	-	-	-	-	-	-	-
Stage 2	472	464	-	278	272	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.14	-	-	4.23	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.236	-	-	2.317	-	-
Pot Cap-1 Maneuver	331	347	868	347	360	651	1388	-	-	1075	-	-
Stage 1	735	685	-	600	580	-	-	-	-	-	-	-
Stage 2	573	564	-	728	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	281	327	868	326	339	651	1388	-	-	1075	-	-
Mov Cap-2 Maneuver	281	327	-	434	429	-	-	-	-	-	-	-
Stage 1	725	654	-	592	572	-	-	-	-	-	-	-
Stage 2	501	557	-	684	654	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	12	0.3	1.8
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1388	-	-	359	434	651	1075	-	-
HCM Lane V/C Ratio	0.013	-	-	0.115	0.068	0.112	0.044	-	-
HCM Control Delay (s)	7.6	-	-	16.3	13.9	11.2	8.5	-	-
HCM Lane LOS	A	-	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0.4	0.1	-	-

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	8	5	69	31	255	16	154	31	98	106	7
Future Vol, veh/h	8	8	5	69	31	255	16	154	31	98	106	7
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	8	8	5	72	32	266	17	160	32	102	110	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	9.8	11.1	11.1	11
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	38%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	38%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	24%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	154	31	21	100	255	98	106	7
LT Vol	16	0	0	8	69	0	98	0	0
Through Vol	0	154	0	8	31	0	0	106	0
RT Vol	0	0	31	5	0	255	0	0	7
Lane Flow Rate	17	160	32	22	104	266	102	110	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.032	0.286	0.051	0.041	0.183	0.39	0.197	0.197	0.012
Departure Headway (Hd)	6.924	6.417	5.706	6.804	6.33	5.286	6.936	6.428	5.718
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	560	627	525	567	680	518	559	626
Service Time	4.663	4.156	3.445	4.555	4.065	3.021	4.673	4.166	3.455
HCM Lane V/C Ratio	0.033	0.286	0.051	0.042	0.183	0.391	0.197	0.197	0.011
HCM Control Delay	9.9	11.7	8.8	9.8	10.5	11.4	11.4	10.7	8.5
HCM Lane LOS	A	B	A	A	B	B	B	B	A
HCM 95th-tile Q	0.1	1.2	0.2	0.1	0.7	1.9	0.7	0.7	0

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	100	15	21	302	51	6	1	10	28	1	41
Future Vol, veh/h	20	100	15	21	302	51	6	1	10	28	1	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	75	-	220	220	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	13	13	13	2	2	2	6	6	6	2	2	2
Mvmt Flow	21	105	16	22	318	54	6	1	11	29	1	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	-	105	0	0	558	563	105	542	536	345
Stage 1	-	-	-	-	-	-	147	147	-	389	389	-
Stage 2	-	-	-	-	-	-	411	416	-	153	147	-
Critical Hdwy	4.23	-	-	4.12	-	-	7.16	6.56	6.26	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.12	5.52	-
Follow-up Hdwy	2.317	-	-	2.218	-	-	3.554	4.054	3.354	3.518	4.018	3.318
Pot Cap-1 Maneuver	1128	-	0	1486	-	-	434	430	939	451	451	698
Stage 1	-	-	0	-	-	-	846	768	-	635	608	-
Stage 2	-	-	0	-	-	-	610	585	-	849	775	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1128	-	-	1486	-	-	396	415	939	434	436	698
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	415	-	434	436	-
Stage 1	-	-	-	-	-	-	830	753	-	623	599	-
Stage 2	-	-	-	-	-	-	563	576	-	823	760	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.4	11.2	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	603	1128	-	1486	-	-	434	698
HCM Lane V/C Ratio	0.03	0.019	-	0.015	-	-	0.07	0.062
HCM Control Delay (s)	11.2	8.3	-	7.5	-	-	13.9	10.5
HCM Lane LOS	B	A	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0	-	-	0.2	0.2

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	5	304	25	10	558
Future Vol, veh/h	38	5	304	25	10	558
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	6	349	29	11	641

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1027	364	0	0	378	0
Stage 1	364	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	260	681	-	-	1180	-
Stage 1	703	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	258	681	-	-	1180	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	507	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	402	1180	-
HCM Lane V/C Ratio	-	-	0.123	0.01	-
HCM Control Delay (s)	-	-	15.2	8.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1	23	43	1	41	33	277	28	58	483	41
Future Vol, veh/h	10	1	23	43	1	41	33	277	28	58	483	41
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	1	26	49	1	47	38	318	32	67	555	47

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1147	1139	579	1136	1146	334	602	0	0	350	0	0
Stage 1	713	713	-	410	410	-	-	-	-	-	-	-
Stage 2	434	426	-	726	736	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	173	198	507	179	199	708	975	-	-	1209	-	-
Stage 1	417	429	-	619	595	-	-	-	-	-	-	-
Stage 2	593	579	-	416	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	180	507	157	181	708	975	-	-	1209	-	-
Mov Cap-2 Maneuver	150	180	-	258	279	-	-	-	-	-	-	-
Stage 1	401	405	-	595	572	-	-	-	-	-	-	-
Stage 2	531	556	-	371	402	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.4	16.6	0.9	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	975	-	-	289	258	708	1209	-	-
HCM Lane V/C Ratio	0.039	-	-	0.135	0.196	0.067	0.055	-	-
HCM Control Delay (s)	8.8	-	-	19.4	22.3	10.4	8.2	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.7	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	17	5	43	19	163	12	134	48	355	237	5
Future Vol, veh/h	7	17	5	43	19	163	12	134	48	355	237	5
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	7	17	5	43	19	165	12	135	48	359	239	5
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.7	11.4	11.3	17.4
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	24%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	59%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	17%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	134	48	29	62	163	355	237	5
LT Vol	12	0	0	7	43	0	355	0	0
Through Vol	0	134	0	17	19	0	0	237	0
RT Vol	0	0	48	5	0	163	0	0	5
Lane Flow Rate	12	135	48	29	63	165	359	239	5
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.025	0.259	0.083	0.061	0.127	0.286	0.649	0.4	0.007
Departure Headway (Hd)	7.389	6.881	6.171	7.436	7.311	6.263	6.52	6.014	5.306
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	483	520	578	480	489	571	552	598	672
Service Time	5.155	4.647	3.936	5.215	5.076	4.028	4.268	3.762	3.054
HCM Lane V/C Ratio	0.025	0.26	0.083	0.06	0.129	0.289	0.65	0.4	0.007
HCM Control Delay	10.3	12.1	9.5	10.7	11.1	11.5	20.6	12.7	8.1
HCM Lane LOS	B	B	A	B	B	B	C	B	A
HCM 95th-tile Q	0.1	1	0.3	0.2	0.4	1.2	4.6	1.9	0

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	372	42	50	191	30	11	1	78	39	1	23
Future Vol, veh/h	32	372	42	50	191	30	11	1	78	39	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	75	-	220	220	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	433	49	58	222	35	13	1	91	45	1	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	-	433	0	0	877	880	433	909	863	240
Stage 1	-	-	-	-	-	-	507	507	-	356	356	-
Stage 2	-	-	-	-	-	-	370	373	-	553	507	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1308	-	0	1127	-	-	269	286	623	256	292	799
Stage 1	-	-	0	-	-	-	548	539	-	661	629	-
Stage 2	-	-	0	-	-	-	650	618	-	517	539	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1308	-	-	1127	-	-	244	264	623	205	269	799
Mov Cap-2 Maneuver	-	-	-	-	-	-	244	264	-	205	269	-
Stage 1	-	-	-	-	-	-	533	524	-	642	597	-
Stage 2	-	-	-	-	-	-	595	586	-	428	524	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.5	13.7	21
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	517	1308	-	1127	-	-	206	799
HCM Lane V/C Ratio	0.202	0.028	-	0.052	-	-	0.226	0.033
HCM Control Delay (s)	13.7	7.8	-	8.4	-	-	27.5	9.7
HCM Lane LOS	B	A	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0.8	0.1	-	0.2	-	-	0.8	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	8	450	18	4	207
Future Vol, veh/h	12	8	450	18	4	207
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	13	9	489	20	4	225

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	732	499	0	0	509	0
Stage 1	499	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	366	541	-	-	1007	-
Stage 1	578	-	-	-	-	-
Stage 2	769	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	541	-	-	1007	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	489	1007	-
HCM Lane V/C Ratio	-	-	0.044	0.004	-
HCM Control Delay (s)	-	-	12.7	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	2	13	28	2	72	19	365	57	48	171	4
Future Vol, veh/h	27	2	13	28	2	72	19	365	57	48	171	4
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	4	4	4	13	13	13
Mvmt Flow	29	2	14	30	2	78	21	397	62	52	186	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	802	793	188	770	764	428	190	0	0	459	0	0
Stage 1	292	292	-	470	470	-	-	-	-	-	-	-
Stage 2	510	501	-	300	294	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.14	-	-	4.23	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.236	-	-	2.317	-	-
Pot Cap-1 Maneuver	302	321	854	318	334	627	1372	-	-	1046	-	-
Stage 1	716	671	-	574	560	-	-	-	-	-	-	-
Stage 2	546	543	-	709	670	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	250	300	854	296	313	627	1372	-	-	1046	-	-
Mov Cap-2 Maneuver	250	300	-	408	408	-	-	-	-	-	-	-
Stage 1	705	637	-	565	552	-	-	-	-	-	-	-
Stage 2	469	535	-	660	637	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18	12.5	0.3	1.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	323	408	627	1046	-	-
HCM Lane V/C Ratio	0.015	-	-	0.141	0.08	0.125	0.05	-	-
HCM Control Delay (s)	7.7	-	-	18	14.6	11.6	8.6	-	-
HCM Lane LOS	A	-	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0.4	0.2	-	-

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	9	6	74	34	274	18	166	34	106	114	8
Future Vol, veh/h	9	9	6	74	34	274	18	166	34	106	114	8
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	10	10	7	80	37	298	20	180	37	115	124	9
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.3	12.3	12	11.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	38%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	38%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	25%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	166	34	24	108	274	106	114	8
LT Vol	18	0	0	9	74	0	106	0	0
Through Vol	0	166	0	9	34	0	0	114	0
RT Vol	0	0	34	6	0	274	0	0	8
Lane Flow Rate	20	180	37	26	117	298	115	124	9
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.039	0.335	0.061	0.052	0.214	0.456	0.231	0.231	0.014
Departure Headway (Hd)	7.196	6.687	5.975	7.13	6.553	5.511	7.206	6.697	5.985
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	496	536	597	500	547	652	498	535	596
Service Time	4.956	4.447	3.734	4.904	4.302	3.259	4.964	4.455	3.743
HCM Lane V/C Ratio	0.04	0.336	0.062	0.052	0.214	0.457	0.231	0.232	0.015
HCM Control Delay	10.3	12.8	9.1	10.3	11.1	12.8	12.1	11.5	8.8
HCM Lane LOS	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1.5	0.2	0.2	0.8	2.4	0.9	0.9	0

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	108	17	23	324	55	7	2	11	31	2	44
Future Vol, veh/h	22	108	17	23	324	55	7	2	11	31	2	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	75	-	220	220	-	-	-	-	-	-	-	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, %	13	13	13	2	2	2	6	6	6	2	2	2
Mvmt Flow	24	117	18	25	352	60	8	2	12	34	2	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	412	0	-	117	0	0	622	627	117	604	597	382
Stage 1	-	-	-	-	-	-	165	165	-	432	432	-
Stage 2	-	-	-	-	-	-	457	462	-	172	165	-
Critical Hdwy	4.23	-	-	4.12	-	-	7.16	6.56	6.26	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.12	5.52	-
Follow-up Hdwy	2.317	-	-	2.218	-	-	3.554	4.054	3.354	3.518	4.018	3.318
Pot Cap-1 Maneuver	1090	-	0	1471	-	-	393	395	924	410	416	665
Stage 1	-	-	0	-	-	-	828	754	-	602	582	-
Stage 2	-	-	0	-	-	-	576	558	-	830	762	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1090	-	-	1471	-	-	353	380	924	391	400	665
Mov Cap-2 Maneuver	-	-	-	-	-	-	353	380	-	391	400	-
Stage 1	-	-	-	-	-	-	810	737	-	589	572	-
Stage 2	-	-	-	-	-	-	523	549	-	799	745	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.4	11.9	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	541	1090	-	1471	-	-	392	665
HCM Lane V/C Ratio	0.04	0.022	-	0.017	-	-	0.092	0.072
HCM Control Delay (s)	11.9	8.4	-	7.5	-	-	15.1	10.8
HCM Lane LOS	B	A	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0.1	-	-	0.3	0.2

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	6	326	27	11	599
Future Vol, veh/h	41	6	326	27	11	599
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	7	354	29	12	651

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1044	369	0	0	383	0
Stage 1	369	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	254	677	-	-	1175	-
Stage 1	699	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	251	677	-	-	1175	-
Mov Cap-2 Maneuver	376	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	399	1175	-
HCM Lane V/C Ratio	-	-	0.128	0.01	-
HCM Control Delay (s)	-	-	15.3	8.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	2	25	47	2	44	36	297	31	63	518	44
Future Vol, veh/h	11	2	25	47	2	44	36	297	31	63	518	44
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	2	27	51	2	48	39	323	34	68	563	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1166	1158	587	1156	1165	340	611	0	0	357	0	0
Stage 1	723	723	-	418	418	-	-	-	-	-	-	-
Stage 2	443	435	-	738	747	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	168	193	502	174	194	702	968	-	-	1202	-	-
Stage 1	411	425	-	612	591	-	-	-	-	-	-	-
Stage 2	586	574	-	410	420	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	175	502	151	176	702	968	-	-	1202	-	-
Mov Cap-2 Maneuver	144	175	-	251	274	-	-	-	-	-	-	-
Stage 1	395	401	-	588	567	-	-	-	-	-	-	-
Stage 2	522	551	-	364	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.3	17.1	0.9	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	968	-	-	276	252	702	1202	-	-
HCM Lane V/C Ratio	0.04	-	-	0.15	0.211	0.068	0.057	-	-
HCM Control Delay (s)	8.9	-	-	20.3	23.1	10.5	8.2	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.8	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	19.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	19	6	47	21	175	13	144	52	381	255	6
Future Vol, veh/h	8	19	6	47	21	175	13	144	52	381	255	6
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
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	9	21	7	51	23	190	14	157	57	414	277	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.5	12.9	12.7	24.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	24%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	58%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	18%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	144	52	33	68	175	381	255	6
LT Vol	13	0	0	8	47	0	381	0	0
Through Vol	0	144	0	19	21	0	0	255	0
RT Vol	0	0	52	6	0	175	0	0	6
Lane Flow Rate	14	157	57	36	74	190	414	277	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.031	0.323	0.105	0.081	0.161	0.358	0.787	0.488	0.01
Departure Headway (Hd)	7.94	7.426	6.716	8.08	7.824	6.775	6.842	6.334	5.624
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	453	487	536	445	461	535	526	563	629
Service Time	5.653	5.143	4.429	5.799	5.526	4.476	4.64	4.132	3.421
HCM Lane V/C Ratio	0.031	0.322	0.106	0.081	0.161	0.355	0.787	0.492	0.011
HCM Control Delay	10.9	13.7	10.2	11.5	12	13.2	30.7	15.1	8.5
HCM Lane LOS	B	B	B	B	B	B	D	C	A
HCM 95th-tile Q	0.1	1.4	0.3	0.3	0.6	1.6	7.3	2.7	0

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	399	46	54	205	33	12	2	84	42	2	25
Future Vol, veh/h	35	399	46	54	205	33	12	2	84	42	2	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	75	-	220	220	-	-	-	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	434	50	59	223	36	13	2	91	46	2	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	259	0	-	434	0	0	884	887	434	916	869	241
Stage 1	-	-	-	-	-	-	510	510	-	359	359	-
Stage 2	-	-	-	-	-	-	374	377	-	557	510	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1306	-	0	1126	-	-	266	283	622	253	290	798
Stage 1	-	-	0	-	-	-	546	538	-	659	627	-
Stage 2	-	-	0	-	-	-	647	616	-	515	538	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1306	-	-	1126	-	-	240	261	622	201	267	798
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	261	-	201	267	-
Stage 1	-	-	-	-	-	-	530	522	-	640	594	-
Stage 2	-	-	-	-	-	-	590	584	-	425	522	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.5	13.9	21.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	509	1306	-	1126	-	-	203	798
HCM Lane V/C Ratio	0.209	0.029	-	0.052	-	-	0.236	0.034
HCM Control Delay (s)	13.9	7.8	-	8.4	-	-	28.1	9.7
HCM Lane LOS	B	A	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0.8	0.1	-	0.2	-	-	0.9	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	9	480	19	4	221
Future Vol, veh/h	13	9	480	19	4	221
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	18	18	3	3	12	12
Mvmt Flow	14	10	522	21	4	240

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	781	533	0	0	543	0
Stage 1	533	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Critical Hdwy	6.58	6.38	-	-	4.22	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	-	-	2.308	-
Pot Cap-1 Maneuver	342	517	-	-	977	-
Stage 1	557	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	341	517	-	-	977	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	469	977	-
HCM Lane V/C Ratio	-	-	0.051	0.004	-
HCM Control Delay (s)	-	-	13.1	8.7	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	2	14	30	2	77	20	389	61	51	182	4
Future Vol, veh/h	29	2	14	30	2	77	20	389	61	51	182	4
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	4	4	4	13	13	13
Mvmt Flow	32	2	15	33	2	84	22	423	66	55	198	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	853	843	200	819	812	456	202	0	0	489	0	0
Stage 1	310	310	-	500	500	-	-	-	-	-	-	-
Stage 2	543	533	-	319	312	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.14	-	-	4.23	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.236	-	-	2.317	-	-
Pot Cap-1 Maneuver	279	300	841	294	313	604	1358	-	-	1020	-	-
Stage 1	700	659	-	553	543	-	-	-	-	-	-	-
Stage 2	524	525	-	693	658	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	227	279	841	272	291	604	1358	-	-	1020	-	-
Mov Cap-2 Maneuver	227	279	-	388	390	-	-	-	-	-	-	-
Stage 1	689	623	-	544	534	-	-	-	-	-	-	-
Stage 2	442	517	-	642	622	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.5	12.9	0.3	1.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1358	-	-	297	388	604	1020	-	-
HCM Lane V/C Ratio	0.016	-	-	0.165	0.09	0.139	0.054	-	-
HCM Control Delay (s)	7.7	-	-	19.5	15.2	11.9	8.7	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.3	0.5	0.2	-	-

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	10	6	79	36	292	19	177	36	113	122	9
Future Vol, veh/h	10	10	6	79	36	292	19	177	36	113	122	9
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
Heavy Vehicles, %	5	5	5	3	3	3	8	8	8	11	11	11
Mvmt Flow	11	11	7	86	39	317	21	192	39	123	133	10
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	10.6	13.2	12.7	12.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	38%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	38%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	23%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	177	36	26	115	292	113	122	9
LT Vol	19	0	0	10	79	0	113	0	0
Through Vol	0	177	0	10	36	0	0	122	0
RT Vol	0	0	36	6	0	292	0	0	9
Lane Flow Rate	21	192	39	28	125	317	123	133	10
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.042	0.366	0.067	0.058	0.232	0.498	0.251	0.253	0.017
Departure Headway (Hd)	7.363	6.854	6.14	7.356	6.687	5.644	7.368	6.859	6.146
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	485	523	580	484	535	635	486	521	579
Service Time	5.134	4.624	3.91	5.145	4.448	3.404	5.139	4.629	3.915
HCM Lane V/C Ratio	0.043	0.367	0.067	0.058	0.234	0.499	0.253	0.255	0.017
HCM Control Delay	10.5	13.6	9.4	10.6	11.5	13.9	12.6	12	9
HCM Lane LOS	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1.7	0.2	0.2	0.9	2.8	1	1	0.1

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	115	18	25	346	59	7	2	12	33	2	47
Future Vol, veh/h	23	115	18	25	346	59	7	2	12	33	2	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	75	-	220	220	-	-	-	-	-	-	-	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, %	13	13	13	2	2	2	6	6	6	2	2	2
Mvmt Flow	25	125	20	27	376	64	8	2	13	36	2	51

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	440	0	-	125	0	0	664	669	125	645	637	408
Stage 1	-	-	-	-	-	-	175	175	-	462	462	-
Stage 2	-	-	-	-	-	-	489	494	-	183	175	-
Critical Hdwy	4.23	-	-	4.12	-	-	7.16	6.56	6.26	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.12	5.52	-
Follow-up Hdwy	2.317	-	-	2.218	-	-	3.554	4.054	3.354	3.518	4.018	3.318
Pot Cap-1 Maneuver	1064	-	0	1462	-	-	369	374	915	385	395	643
Stage 1	-	-	0	-	-	-	818	747	-	580	565	-
Stage 2	-	-	0	-	-	-	553	540	-	819	754	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1064	-	-	1462	-	-	327	359	915	366	379	643
Mov Cap-2 Maneuver	-	-	-	-	-	-	327	359	-	366	379	-
Stage 1	-	-	-	-	-	-	799	730	-	567	555	-
Stage 2	-	-	-	-	-	-	498	530	-	786	737	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.4	12.2	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	524	1064	-	1462	-	-	367	643
HCM Lane V/C Ratio	0.044	0.023	-	0.019	-	-	0.104	0.079
HCM Control Delay (s)	12.2	8.5	-	7.5	-	-	15.9	11.1
HCM Lane LOS	B	A	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0.1	-	-	0.3	0.3

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	6	348	29	12	639
Future Vol, veh/h	44	6	348	29	12	639
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	-	-	-	75	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	7	378	32	13	695

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1115	394	0	0	410	0
Stage 1	394	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	230	655	-	-	1149	-
Stage 1	681	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	227	655	-	-	1149	-
Mov Cap-2 Maneuver	354	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	477	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	375	1149	-
HCM Lane V/C Ratio	-	-	0.145	0.011	-
HCM Control Delay (s)	-	-	16.2	8.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	2	27	50	2	47	38	317	33	67	553	47
Future Vol, veh/h	12	2	27	50	2	47	38	317	33	67	553	47
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	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	2	29	54	2	51	41	345	36	73	601	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1245	1236	627	1233	1243	363	652	0	0	381	0	0
Stage 1	773	773	-	445	445	-	-	-	-	-	-	-
Stage 2	472	463	-	788	798	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	148	173	476	154	174	682	935	-	-	1177	-	-
Stage 1	386	403	-	592	575	-	-	-	-	-	-	-
Stage 2	565	557	-	384	398	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	125	155	476	132	156	682	935	-	-	1177	-	-
Mov Cap-2 Maneuver	125	155	-	229	253	-	-	-	-	-	-	-
Stage 1	369	378	-	566	550	-	-	-	-	-	-	-
Stage 2	498	532	-	336	373	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.7	18.6	0.9	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	248	230	682	1177	-	-
HCM Lane V/C Ratio	0.044	-	-	0.18	0.246	0.075	0.062	-	-
HCM Control Delay (s)	9	-	-	22.7	25.7	10.7	8.3	-	-
HCM Lane LOS	A	-	-	C	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.9	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	20	6	50	22	187	14	154	55	407	272	6
Future Vol, veh/h	9	20	6	50	22	187	14	154	55	407	272	6
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
Heavy Vehicles, %	2	2	2	5	5	5	4	4	4	3	3	3
Mvmt Flow	10	22	7	54	24	203	15	167	60	442	296	7
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.9	13.7	13.4	31.4
HCM LOS	B	B	B	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	26%	69%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	57%	31%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	17%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	154	55	35	72	187	407	272	6
LT Vol	14	0	0	9	50	0	407	0	0
Through Vol	0	154	0	20	22	0	0	272	0
RT Vol	0	0	55	6	0	187	0	0	6
Lane Flow Rate	15	167	60	38	78	203	442	296	7
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.035	0.356	0.115	0.088	0.174	0.394	0.874	0.542	0.011
Departure Headway (Hd)	8.166	7.655	6.94	8.374	8.027	6.975	7.111	6.602	5.89
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	439	470	517	428	448	516	513	550	611
Service Time	5.908	5.396	4.681	6.126	5.766	4.713	4.811	4.302	3.59
HCM Lane V/C Ratio	0.034	0.355	0.116	0.089	0.174	0.393	0.862	0.538	0.011
HCM Control Delay	11.2	14.6	10.6	11.9	12.5	14.2	41.5	16.8	8.7
HCM Lane LOS	B	B	B	B	B	B	E	C	A
HCM 95th-tile Q	0.1	1.6	0.4	0.3	0.6	1.9	9.5	3.2	0

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	426	49	58	219	35	13	2	90	45	2	27
Future Vol, veh/h	37	426	49	58	219	35	13	2	90	45	2	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	75	-	220	220	-	-	-	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	463	53	63	238	38	14	2	98	49	2	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	276	0	-	463	0	0	942	945	463	976	926	257
Stage 1	-	-	-	-	-	-	543	543	-	383	383	-
Stage 2	-	-	-	-	-	-	399	402	-	593	543	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1287	-	0	1098	-	-	243	262	599	230	269	782
Stage 1	-	-	0	-	-	-	524	520	-	640	612	-
Stage 2	-	-	0	-	-	-	627	600	-	492	520	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1287	-	-	1098	-	-	217	239	599	178	246	782
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	239	-	178	246	-
Stage 1	-	-	-	-	-	-	508	504	-	620	577	-
Stage 2	-	-	-	-	-	-	567	566	-	397	504	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.6	14.8	24.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	480	1287	-	1098	-	-	180	782
HCM Lane V/C Ratio	0.238	0.031	-	0.057	-	-	0.284	0.038
HCM Control Delay (s)	14.8	7.9	-	8.5	-	-	32.7	9.8
HCM Lane LOS	B	A	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0.9	0.1	-	0.2	-	-	1.1	0.1

Attachment D: Intersection Queuing Results

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	54	24
Average Queue (ft)	12	2
95th Queue (ft)	39	12
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	51	34
Average Queue (ft)	22	2
95th Queue (ft)	47	14
Link Distance (ft)	39	
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		50
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	28	56	99	37	96	59	66	65	29
Average Queue (ft)	10	25	39	10	47	16	29	27	3
95th Queue (ft)	30	43	73	32	78	44	52	50	15
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		8	1			
Queuing Penalty (veh)		0	0		3	1			

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	25	58
Average Queue (ft)	2	15
95th Queue (ft)	14	43
Link Distance (ft)		286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	220	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	57	30
Average Queue (ft)	23	4
95th Queue (ft)	49	20
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	NB	SB
Directions Served	LTR	L	TR
Maximum Queue (ft)	63	52	6
Average Queue (ft)	21	12	0
95th Queue (ft)	49	36	4
Link Distance (ft)	39		115
Upstream Blk Time (%)	2		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		1	
Queuing Penalty (veh)		2	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	32	60	86	30	83	54	158	85	14
Average Queue (ft)	14	22	29	9	41	24	64	38	2
95th Queue (ft)	32	46	60	30	69	46	118	69	9
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		6	1	0		
Queuing Penalty (veh)		0	0		3	2	0		

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	29	83
Average Queue (ft)	13	36
95th Queue (ft)	34	63
Link Distance (ft)		286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	220	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 7

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	70	18
Average Queue (ft)	16	1
95th Queue (ft)	49	11
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	L	L	TR
Maximum Queue (ft)	62	39	55	24	48	6
Average Queue (ft)	23	13	17	2	12	0
95th Queue (ft)	52	34	36	14	38	4
Link Distance (ft)	39	194	194			115
Upstream Blk Time (%)	2					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)				50	50	
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	33	60	108	40	83	57	80	80	31
Average Queue (ft)	12	28	37	14	44	19	33	27	4
95th Queue (ft)	32	49	72	38	73	45	64	55	16
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	1		7	1			
Queuing Penalty (veh)		0	1		3	1			

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB
Directions Served	LT	L	LTR	LTR
Maximum Queue (ft)	31	25	40	82
Average Queue (ft)	6	3	16	35
95th Queue (ft)	25	15	41	65
Link Distance (ft)	560		286	142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		220		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 6

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	71	4	30
Average Queue (ft)	24	0	3
95th Queue (ft)	57	3	16
Link Distance (ft)	521	115	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	L	L	TR
Maximum Queue (ft)	56	53	46	41	38	4
Average Queue (ft)	23	20	13	12	12	0
95th Queue (ft)	51	42	31	35	38	3
Link Distance (ft)	39	194	194			115
Upstream Blk Time (%)	3					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)				50	50	
Storage Blk Time (%)				0	0	
Queuing Penalty (veh)				1	0	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	38	59	79	30	81	61	163	84	14
Average Queue (ft)	15	21	29	9	41	23	67	37	2
95th Queue (ft)	36	43	56	31	66	50	119	64	9
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		7	1	0		
Queuing Penalty (veh)		0	0		4	2	0		

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB
Directions Served	LT	L	LTR	LTR
Maximum Queue (ft)	44	41	94	84
Average Queue (ft)	5	12	42	35
95th Queue (ft)	26	35	73	69
Link Distance (ft)	560		286	142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		220		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 8

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	52	30
Average Queue (ft)	14	2
95th Queue (ft)	39	13
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	54	24
Average Queue (ft)	23	3
95th Queue (ft)	48	15
Link Distance (ft)	39	
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		50
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	37	62	106	46	90	51	64	69	34
Average Queue (ft)	13	26	41	13	47	16	31	30	3
95th Queue (ft)	32	46	80	38	74	42	53	56	16
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	1		8	1			
Queuing Penalty (veh)		0	1		3	1			

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	33	64
Average Queue (ft)	3	17
95th Queue (ft)	18	50
Link Distance (ft)		286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	220	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 5

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	62	30
Average Queue (ft)	24	4
95th Queue (ft)	49	21
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	NB	NB
Directions Served	LTR	L	TR
Maximum Queue (ft)	68	61	19
Average Queue (ft)	24	16	1
95th Queue (ft)	57	42	14
Link Distance (ft)	39		320
Upstream Blk Time (%)	3		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		1	
Queuing Penalty (veh)		2	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	55	53	74	33	89	56	161	74	15
Average Queue (ft)	16	21	33	8	41	22	68	38	3
95th Queue (ft)	38	39	62	29	68	47	119	65	11
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		7	1	0		
Queuing Penalty (veh)		0	0		4	2	0		

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	EB	WB	NB
Directions Served	R	L	LTR
Maximum Queue (ft)	11	41	92
Average Queue (ft)	0	16	41
95th Queue (ft)	8	39	70
Link Distance (ft)			286
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	220	220	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 7

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	46	4	30
Average Queue (ft)	16	0	2
95th Queue (ft)	42	3	13
Link Distance (ft)	521	115	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	L	L	TR
Maximum Queue (ft)	60	44	45	23	38	12
Average Queue (ft)	26	16	17	2	14	0
95th Queue (ft)	52	37	36	12	39	6
Link Distance (ft)	39	194	194			115
Upstream Blk Time (%)	2					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)				50	50	
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	52	65	101	52	88	57	77	79	31
Average Queue (ft)	14	29	45	15	49	21	35	33	5
95th Queue (ft)	38	50	81	41	78	49	62	65	20
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	1		9	1			
Queuing Penalty (veh)		0	1		4	2			

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	EB	WB	WB	NB	SB
Directions Served	LT	L	TR	LTR	LTR
Maximum Queue (ft)	43	26	5	45	71
Average Queue (ft)	7	2	0	16	34
95th Queue (ft)	29	13	3	43	60
Link Distance (ft)	560		583	286	142
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		220			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 7

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	70	30
Average Queue (ft)	28	4
95th Queue (ft)	57	20
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	L	L	TR
Maximum Queue (ft)	60	65	51	46	40	12
Average Queue (ft)	26	19	14	14	13	0
95th Queue (ft)	55	44	33	37	39	6
Link Distance (ft)	39	194	194			115
Upstream Blk Time (%)	5					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)				50	50	
Storage Blk Time (%)				0	0	
Queuing Penalty (veh)				1	1	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	46	59	84	54	86	63	173	90	15
Average Queue (ft)	16	23	33	9	42	26	69	40	3
95th Queue (ft)	37	45	65	34	68	49	124	69	12
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		7	1	0		
Queuing Penalty (veh)		0	0		4	2	0		

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB
Directions Served	LT	L	LTR	LTR
Maximum Queue (ft)	52	38	88	66
Average Queue (ft)	8	13	43	32
95th Queue (ft)	33	37	75	56
Link Distance (ft)	560		286	142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		220		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 9

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	60	30
Average Queue (ft)	17	2
95th Queue (ft)	47	15
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	58	24
Average Queue (ft)	25	2
95th Queue (ft)	50	14
Link Distance (ft)	39	
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		50
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	47	62	94	41	101	56	80	62	26
Average Queue (ft)	14	28	41	13	50	18	33	29	4
95th Queue (ft)	35	48	73	38	81	46	60	54	16
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		9	1			
Queuing Penalty (veh)		0	0		4	1			

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	20	54
Average Queue (ft)	3	16
95th Queue (ft)	15	45
Link Distance (ft)		286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	220	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 5

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	102	30
Average Queue (ft)	32	4
95th Queue (ft)	71	22
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	69	46
Average Queue (ft)	25	16
95th Queue (ft)	55	38
Link Distance (ft)	39	
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		50
Storage Blk Time (%)		0
Queuing Penalty (veh)		1

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	42	54	81	49	94	60	162	93	15
Average Queue (ft)	15	21	31	13	46	23	73	44	3
95th Queue (ft)	35	42	60	41	75	49	131	78	12
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		8	1	0		
Queuing Penalty (veh)		0	0		5	2	0		

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	62	86
Average Queue (ft)	19	42
95th Queue (ft)	45	67
Link Distance (ft)		286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	220	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 9

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	70	6	30
Average Queue (ft)	20	0	2
95th Queue (ft)	54	4	15
Link Distance (ft)	521	115	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	60	47	52	19	14	49	12
Average Queue (ft)	25	17	19	2	1	18	0
95th Queue (ft)	52	38	39	14	8	47	6
Link Distance (ft)	39	194	194		320		115
Upstream Blk Time (%)	2						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)				50		50	
Storage Blk Time (%)						0	
Queuing Penalty (veh)						1	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	54	60	113	38	100	62	83	85	43
Average Queue (ft)	14	30	48	12	47	24	35	34	6
95th Queue (ft)	39	51	88	36	77	50	66	64	25
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	1		10	1			
Queuing Penalty (veh)		0	2		5	2			

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB
Directions Served	LT	L	LTR	LTR
Maximum Queue (ft)	39	28	45	64
Average Queue (ft)	6	3	15	36
95th Queue (ft)	27	17	43	58
Link Distance (ft)	560		286	142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		220		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 9

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	97	6	30
Average Queue (ft)	30	0	5
95th Queue (ft)	71	5	22
Link Distance (ft)	521	115	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	63	71	54	51	18	48	4
Average Queue (ft)	24	26	15	17	1	17	0
95th Queue (ft)	53	57	34	41	15	45	3
Link Distance (ft)	39	194	194		320		115
Upstream Blk Time (%)	4						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)				50		50	
Storage Blk Time (%)				1	0	0	
Queuing Penalty (veh)				2	0	1	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	43	65	68	39	100	62	178	98	15
Average Queue (ft)	18	25	31	11	47	23	74	46	3
95th Queue (ft)	38	45	57	36	77	49	133	81	13
Link Distance (ft)	111	560			623			320	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		9	2	0		
Queuing Penalty (veh)		0	0		6	3	0		

Intersection: 4: Ellinghouse Drive & Highway 193 (Georgetown Road)

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	L	LTR	LTR
Maximum Queue (ft)	35	11	50	91	78
Average Queue (ft)	6	0	15	45	32
95th Queue (ft)	26	8	39	76	59
Link Distance (ft)	560			286	142
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		220	220		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 12

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	61	6	18	16
Average Queue (ft)	16	0	1	1
95th Queue (ft)	46	4	9	11
Link Distance (ft)	521	111		260
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			75	
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	55	33	42	38	12	56	36
Average Queue (ft)	23	11	16	3	1	13	1
95th Queue (ft)	49	30	34	19	6	39	22
Link Distance (ft)	41	195	195		310		111
Upstream Blk Time (%)	2						0
Queuing Penalty (veh)	0						0
Storage Bay Dist (ft)				50		50	
Storage Blk Time (%)				0		0	0
Queuing Penalty (veh)				0		1	0

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	27	52	69	41	94	56	76	83	45
Average Queue (ft)	12	23	33	12	43	20	32	28	5
95th Queue (ft)	31	41	59	36	71	46	59	56	24
Link Distance (ft)	112	550			618			310	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)			0		7	1			
Queuing Penalty (veh)			0		3	1			

Intersection: 4: Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	LTR	LT	R
Maximum Queue (ft)	41	15	63	52	60
Average Queue (ft)	6	1	16	20	22
95th Queue (ft)	27	10	47	45	46
Link Distance (ft)			286	212	212
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	75	220			
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 6

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	83	30
Average Queue (ft)	24	2
95th Queue (ft)	59	13
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	L	L
Maximum Queue (ft)	59	46	45	43	41
Average Queue (ft)	25	19	13	10	14
95th Queue (ft)	54	39	31	33	37
Link Distance (ft)	41	195	195		
Upstream Blk Time (%)	3				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)				50	50
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				1	0

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	37	56	82	30	83	64	177	122	67
Average Queue (ft)	15	21	29	10	41	24	68	38	3
95th Queue (ft)	35	43	59	31	68	51	123	82	43
Link Distance (ft)	112	550			618			310	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		6	1	0	0	
Queuing Penalty (veh)		0	0		4	2	1	0	

Intersection: 4: Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	LTR	LT	R
Maximum Queue (ft)	28	37	98	70	50
Average Queue (ft)	3	13	42	25	16
95th Queue (ft)	16	34	73	58	42
Link Distance (ft)			286	212	212
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	75	220			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 8

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	55	30
Average Queue (ft)	16	2
95th Queue (ft)	46	13
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	62	43	54	24	16	60	22
Average Queue (ft)	28	16	17	1	1	19	1
95th Queue (ft)	52	35	39	11	10	48	20
Link Distance (ft)	41	195	195		310		111
Upstream Blk Time (%)	3						0
Queuing Penalty (veh)	0						0
Storage Bay Dist (ft)				50		50	
Storage Blk Time (%)					0	1	0
Queuing Penalty (veh)					0	2	0

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	40	92	107	49	96	61	77	72	42
Average Queue (ft)	14	28	41	14	48	20	33	30	4
95th Queue (ft)	35	59	79	40	82	48	62	57	18
Link Distance (ft)	112	550			618			310	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	1		9	1			
Queuing Penalty (veh)		0	1		5	2			

Intersection: 4: Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	LTR	LT	R
Maximum Queue (ft)	43	18	55	54	58
Average Queue (ft)	6	2	14	18	24
95th Queue (ft)	27	13	42	44	47
Link Distance (ft)			286	212	212
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	75	220			
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 9

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	67	11	30
Average Queue (ft)	28	0	3
95th Queue (ft)	56	6	19
Link Distance (ft)	521	111	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	61	82	50	43	6	51	18
Average Queue (ft)	27	23	13	12	0	14	1
95th Queue (ft)	56	54	33	35	4	41	11
Link Distance (ft)	41	195	195		310		111
Upstream Blk Time (%)	4						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)				50		50	
Storage Blk Time (%)				0		0	0
Queuing Penalty (veh)				2		2	0

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	45	58	93	51	84	60	152	90	14
Average Queue (ft)	16	22	33	9	44	26	71	42	3
95th Queue (ft)	36	44	66	34	71	48	121	75	11
Link Distance (ft)	112	550			618			310	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		7	1	0		
Queuing Penalty (veh)		0	0		5	2	0		

Intersection: 4: Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	R	L	LTR	LT	R
Maximum Queue (ft)	28	9	33	88	60	42
Average Queue (ft)	5	0	13	41	27	14
95th Queue (ft)	22	6	33	73	50	38
Link Distance (ft)				286	212	212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	75	220	220			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 11

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	70	6	30
Average Queue (ft)	21	0	3
95th Queue (ft)	56	5	17
Link Distance (ft)	521	111	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	L	TR	L
Maximum Queue (ft)	60	61	79	31	26	58
Average Queue (ft)	25	16	21	4	2	20
95th Queue (ft)	48	43	51	19	13	50
Link Distance (ft)	41	195	195		310	
Upstream Blk Time (%)	2					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)				50		50
Storage Blk Time (%)				0	0	1
Queuing Penalty (veh)				0	0	2

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	62	72	92	56	102	70	85	74	28
Average Queue (ft)	17	30	44	13	53	22	34	30	3
95th Queue (ft)	44	55	75	41	90	53	63	58	16
Link Distance (ft)	112	550			618			310	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		12	1			
Queuing Penalty (veh)		0	0		6	2			

Intersection: 4: Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	LTR	LT	R
Maximum Queue (ft)	51	26	55	56	57
Average Queue (ft)	8	2	19	21	27
95th Queue (ft)	30	14	48	49	48
Link Distance (ft)			286	212	212
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	75	220			
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 12

Intersection: 1: Highway 49 (Coloma Road) & Northside Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	102	30
Average Queue (ft)	32	5
95th Queue (ft)	72	22
Link Distance (ft)	521	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Highway 49 (Coloma Road) & Retail Driveway/Project Driveway

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	L	L	TR
Maximum Queue (ft)	67	72	53	43	42	2
Average Queue (ft)	28	25	14	15	15	0
95th Queue (ft)	57	57	34	39	39	2
Link Distance (ft)	41	195	195			111
Upstream Blk Time (%)	5					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)				50	50	
Storage Blk Time (%)				1	0	
Queuing Penalty (veh)				2	1	

Intersection: 3: Highway 49 (Coloma Road) & Shopping Center Driveway/Highway 193 (Georgetown Roa

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	42	69	72	38	99	62	180	96	15
Average Queue (ft)	18	23	31	11	46	26	75	43	4
95th Queue (ft)	38	47	58	34	77	49	131	74	13
Link Distance (ft)	112	550			618			310	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			85	150		40	200		200
Storage Blk Time (%)		0	0		9	2	0		
Queuing Penalty (veh)		0	0		6	3	0		

Intersection: 4: Ellinghouse Drive/Project Driveway & Highway 193 (Georgetown Road)

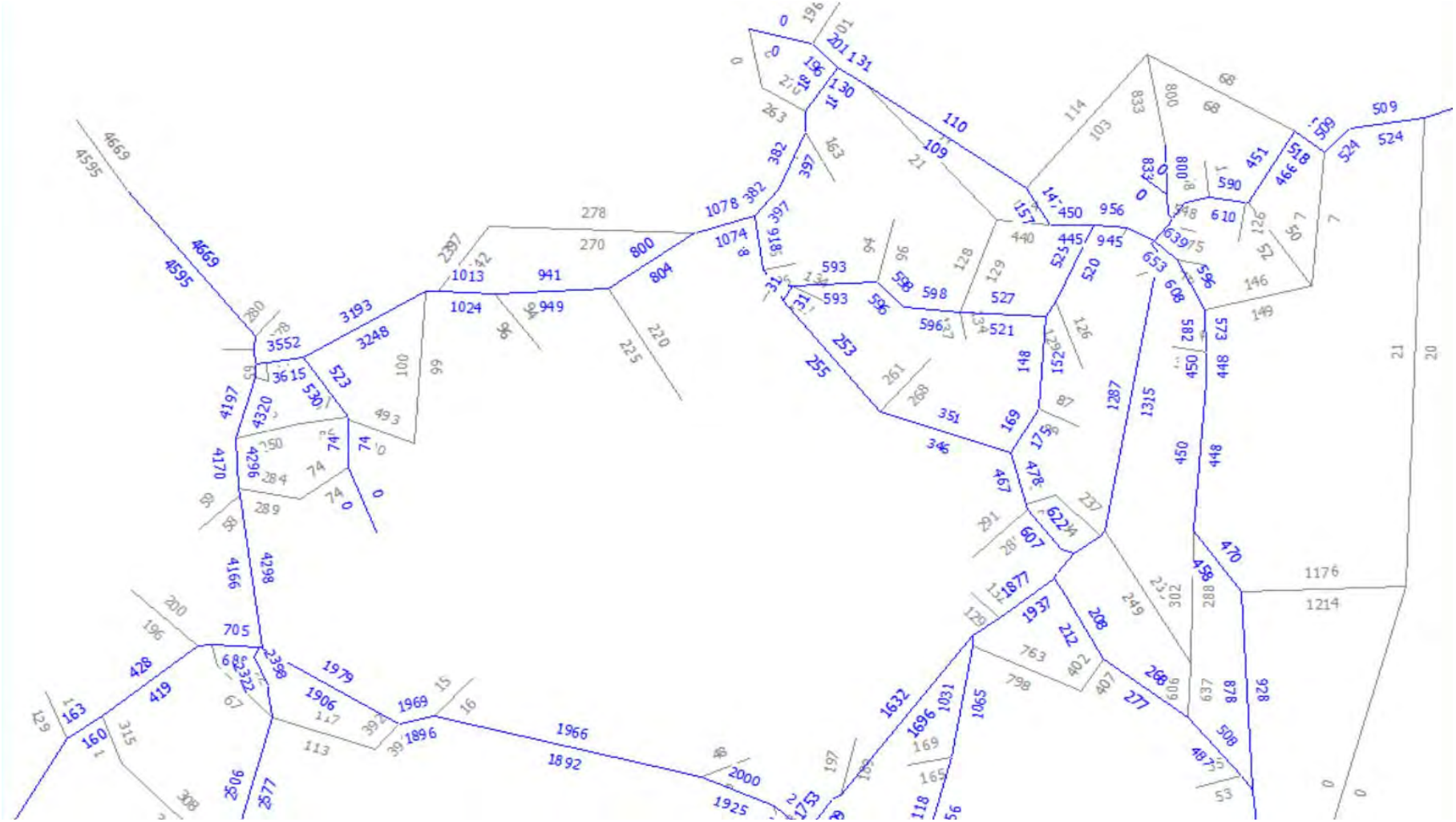
Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	R	L	LTR	LT	R
Maximum Queue (ft)	29	11	46	105	63	51
Average Queue (ft)	5	0	16	45	27	18
95th Queue (ft)	22	8	39	79	55	45
Link Distance (ft)				286	212	212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	75	220	220			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

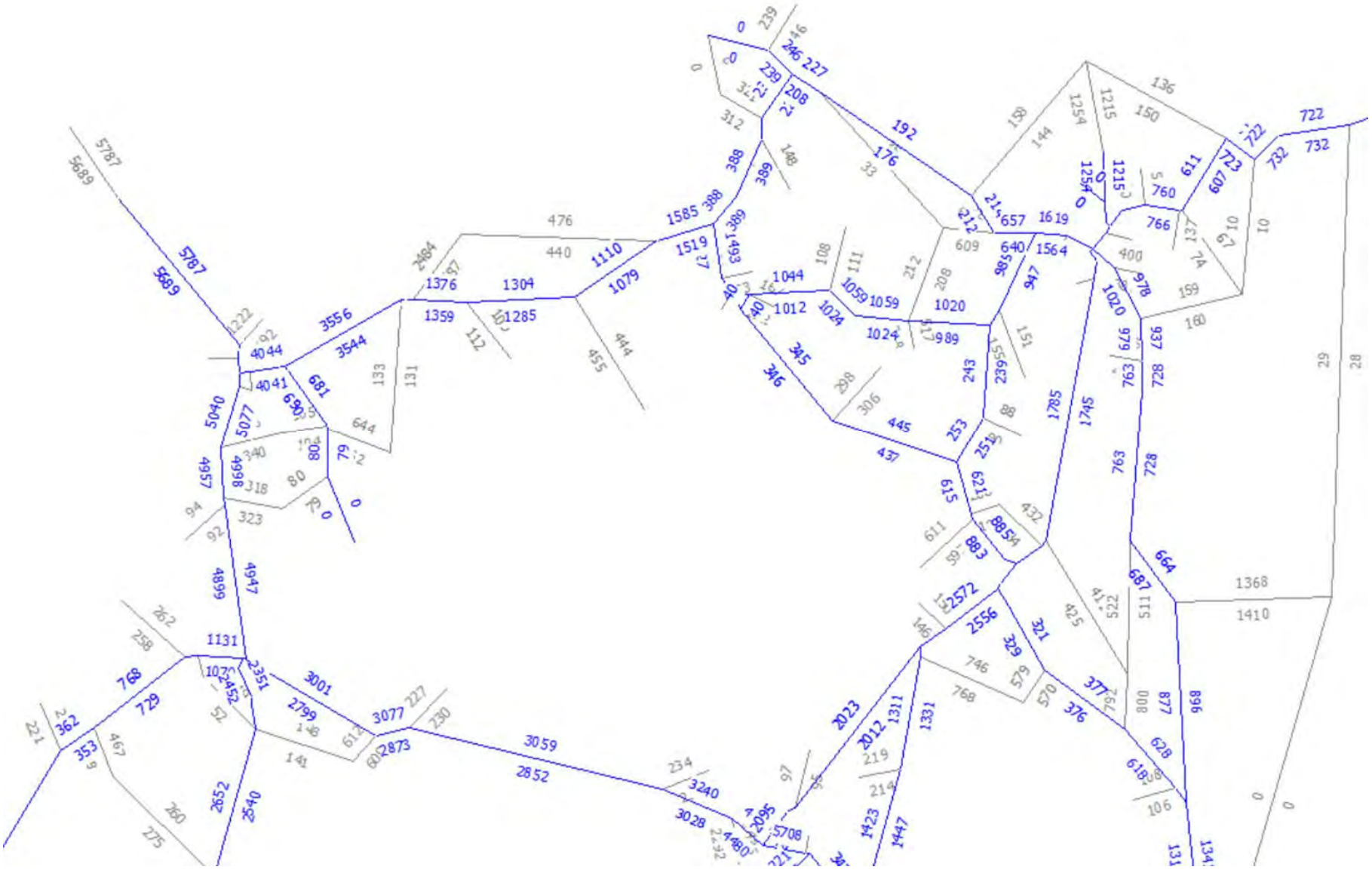
Network wide Queuing Penalty: 12

Attachment E: El Dorado County Demand Model Plots

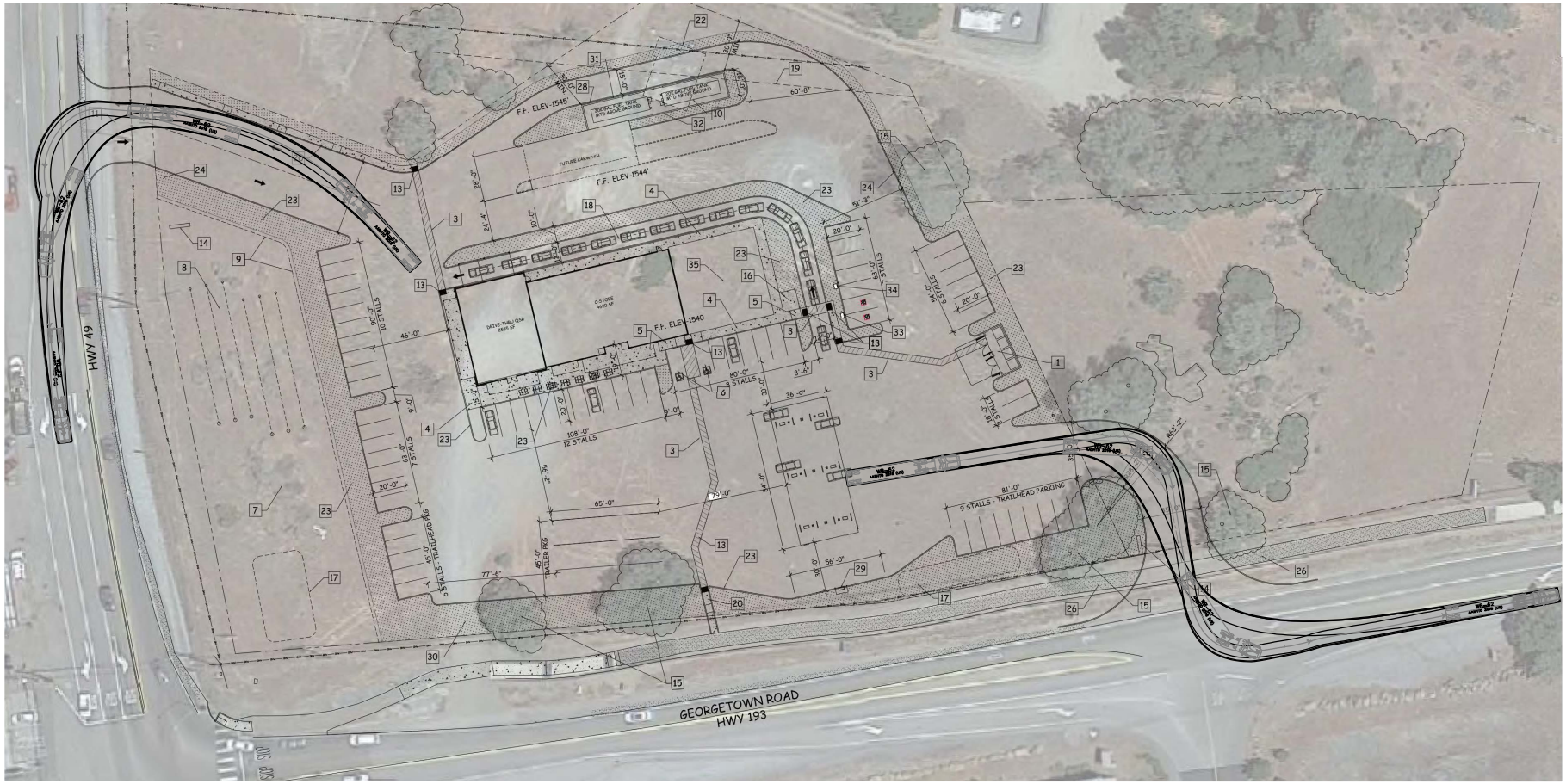
2018 El Dorado County Transportation Demand Model; Daily Volumes

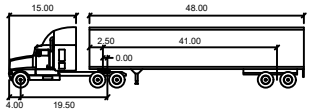


2040 El Dorado County Transportation Demand Model; Daily Volumes



Attachment F: Truck Turning Templates





WB-62

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

N

GHD

MHA DESIGN SERVICES
COOL AUTOMOBILE AND COMMERCIAL CENTER
TRAFFIC IMPACT ANALYSIS MEMORANDUM

EXITING LEFT TRUCK TURNING MOVEMENTS

Project No. **12579129**
Date **7/18/2023**

FIGURE 13.4

Filename: \\Mcc-svr-001\ghd\US\San Luis Obispo\Projects\561\12579129\Digital_Design\ACAD 2020\Figures\12579129TG001.dwg
Plot Date: 18 July 2023 10:05 AM

Attachment G: Drive-Through Vehicle Queue Surveys

TABLE C1: IN-N-OUT RESTAURANT DRIVE-THRU VEHICLE QUEUE SURVEYS

Location		Mid-day Survey		PM Survey	
		Average Queue	95th % Queue	Average Queue	95th % Queue
In-N-Out San Ramon (2270 San Ramon Valley) 2912 sq. ft.					
Survey 1	Drive-Thru Vehicle Queue:	11	14	12	18
Survey 2	Drive-Thru Vehicle Queue:	15	19	13	18
Survey 3	Drive-Thru Vehicle Queue:	12	15	12	16
Combined San Ramon Surveys	Drive-Thru Vehicle Queue:	13	16	12	17
In-N-Out Livermore (1881 N. Livermore Ave.) 3160 sq. ft.					
Survey 1	Drive-Thru Vehicle Queue:	12	17	12	18
Survey 2	Drive-Thru Vehicle Queue:	12	17	11	17
Survey 3	Drive-Thru Vehicle Queue:	12	16	11	14
Combined Livermore Surveys	Drive-Thru Vehicle Queue:	12	17	11	16
In-N-Out Redwood City (949 Veterans Blvd.) 3407 sq. ft.					
Survey 1	Drive-Thru Vehicle Queue:	12	18	10	14
Survey 2	Drive-Thru Vehicle Queue:	9	12	10	13
Survey 3	Drive-Thru Vehicle Queue:	9	12	9	13
Combined Redwood City Surveys	Drive-Thru Vehicle Queue:	10	14	10	13
All Surveys Combined	**Overall Drive Thru Queue:**	**12**	**16**	**11**	**16**

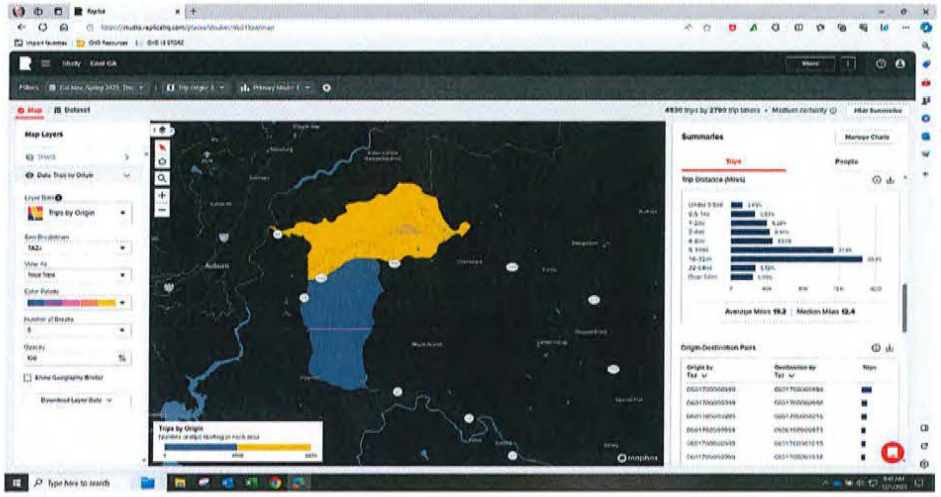
TABLE C2: STARBUCKS DRIVE-THRU VEHICLE QUEUE SURVEYS

Location		AM Survey		PM Survey	
		Average Queue	95th % Queue	Average Queue	95th % Queue
Starbucks Oakley (Hwy. 160/Main) 614 sq. ft.					
Survey 1	Drive-Thru Vehicle Queue:	7	12	1	2
Survey 2	Drive-Thru Vehicle Queue:	6	12	1	4
Survey 3	Drive-Thru Vehicle Queue:	8	13	2	5
Combined Oakley Surveys	Drive-Thru Vehicle Queue:	7	12	1	4
Starbucks Antioch (Lone Tree Way/Deer Valley Rd.) 1400 sq. ft.					
Survey 1	Drive-Thru Vehicle Queue:	6	9	2	4
Survey 2	Drive-Thru Vehicle Queue:	10	12	2	5
Survey 3	Drive-Thru Vehicle Queue:	4	8	1	3
Combined Deer Valley Rd. Surveys	Drive-Thru Vehicle Queue:	7	10	2	4
Starbucks Antioch (Lone Tree Way/Blue Rock) 1844 sq. ft.					
Survey 1	Drive-Thru Vehicle Queue:	6	9	2	3
Survey 2	Drive-Thru Vehicle Queue:	5	11	2	5
Survey 3	Drive-Thru Vehicle Queue:	6	11	2	4
Combined Blue Rock Surveys	Drive-Thru Vehicle Queue:	6	10	2	4
All Surveys Combined	**Drive Thru Vehicle Queue:**	**6**	**11**	**2**	**4**

Attachment H: Replica Data

Trip Purpose	Cool TAZ	El Dorado County
Average trip length (all purposes)	19.2	14.2
Work trips	41.6	22.7
Shopping Trips	13.7	10.6

Cool as origin

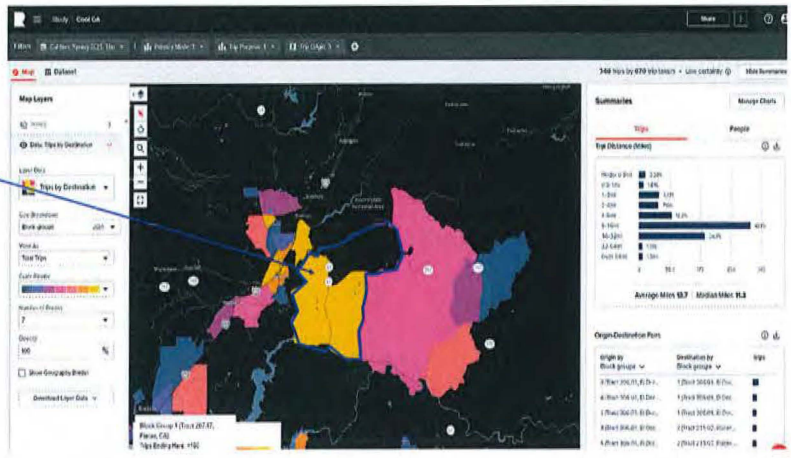


Trip Purpose	Trip Origin			Trip Destination		
	Cool	El Dorado County	Percent Difference	Cool	El Dorado County	Percent Difference
	(A)	(B)	(C)=(A)/(B)-1	(D)	(E)	(F)=(D)/(E)-1
Work trips	39.4	22.7	74%	18.4	18.9	-3%
Shopping Trips	14.2	10.6	34%	9.8	11.3	-13%
Dining Trips	13.7	11.2	22%	7.4	12.2	-39%

Trip Purpose	Trip Origin			Trip Destination		
	Cool	El Dorado County	Percent Difference	Cool	El Dorado County	Percent Difference
	(A)	(B)	(C)=(A)/(B)-1	(D)	(E)	(F)=(D)/(E)-1
Work trips	39.4	22.7	74%	18.4	18.9	-3%
Shopping Trips	14.2	10.6	34%	9.8	11.3	-13%
Dining Trips	13.7	11.2	22%	7.4	12.2	-39%

Cool as Destination

Cool is defined as the Block groups 1, 3, and 4 of El Dorado Census Tract 306.01



Attachment I: Caltrans Appendix J (Figure 205.1)

Appendix J – Road Connections and Driveways

Table of Contents

Design Guidelines for Typical Rural Driveways in State Right of Way. 2

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Design Guidelines for Typical Rural Driveways in State Right of Way.

REFERENCES:

Please always refer to the latest Highway Design Manual (HDM) for most up to date guidelines. The HDM indexes referenced in the guidelines below can be accessed online from the following link:

https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm

Initial Driveway Design Considerations:

1. **Location of the driveway shall be designed to maximize corner sight distance.** For corner sight distance, see HDM Index 405.1 (2) (c). Driveway proposals that do not meet sight distance requirements will not be permitted. The minimum corner sight distance shall be equal to the stopping sight distance as given in HDM Table 201.1. HDM Table 101.2 shows appropriate ranges of design speeds that shall be used for the various types of facilities, place types, and conditions listed. (See HDM Table 101.2 Vehicular Design Speed; Table 201.1 Sight Distance Standards; Index 205.4 Driveways on Frontage roads and in Rural Areas; Index 405.1 (2) Corner Sight Distance)
2. **Driveways connecting to State highways shall be paved a minimum of 20 feet from the edge of shoulder** or to the edge of State right of way, whichever is less to minimize or eliminate gravel from being scattered on the highway and to provide a paved surface for vehicles and bicycles to accelerate and merge. Where larger design vehicles are using the driveway (e.g., dump trucks, flatbed trucks, moving vans, etc.), extend paving so the drive wheels will be on a paved surface when accelerating onto the roadway (See HDM Index 205.4 Driveways on Frontage roads and in Rural Areas).

Driveway Design Details: Once considerations 1 and 2 above are met, driveway shall be designed per the following requirements:

3. Where County or City Regulations differ from the State's, it may be desirable to follow their regulations (See HDM Index 205.4 Driveways on Frontage roads and in Rural Areas).

OR

4. Design details are shown on HDM Figure 205.1. This detail, without the recess, may be used on conventional highways (See HDM Figure 205.1 Access Openings on Expressways, Note 2).
5. Approach and departure tapers should be 50 feet longitudinal and 8 feet from edge of traveled way at the end of the taper. Approach and departure tapers are not required where the existing paved shoulder is at least 8 feet wide (See HDM Figure 205.1 Access Openings on Expressways).

Structural Section Design Details: Driveways structural section has to meet the following requirements:

6. Approach and departure tapers should have structural sections matching the existing State highway shoulders. An alternate shoulder design is allowed. See HDM Figure 613.4B for details. For asphalt driveway the structural section should be equal to or greater than edge of shoulder or approach and departure tapers. Minimum thickness of surface course is 0.35 foot. Aggregate base depth should match State highway shoulders. Details (cross section, etc.) for concrete driveways are shown on Standard Plan A87A. Minimum thickness at driveway shall be 4 inches for residential and 6 inches for commercial. (See HDM 613. 4 (2) Shoulders; Standard Plan A87A Curb and Driveways; Standard Plans are available at:

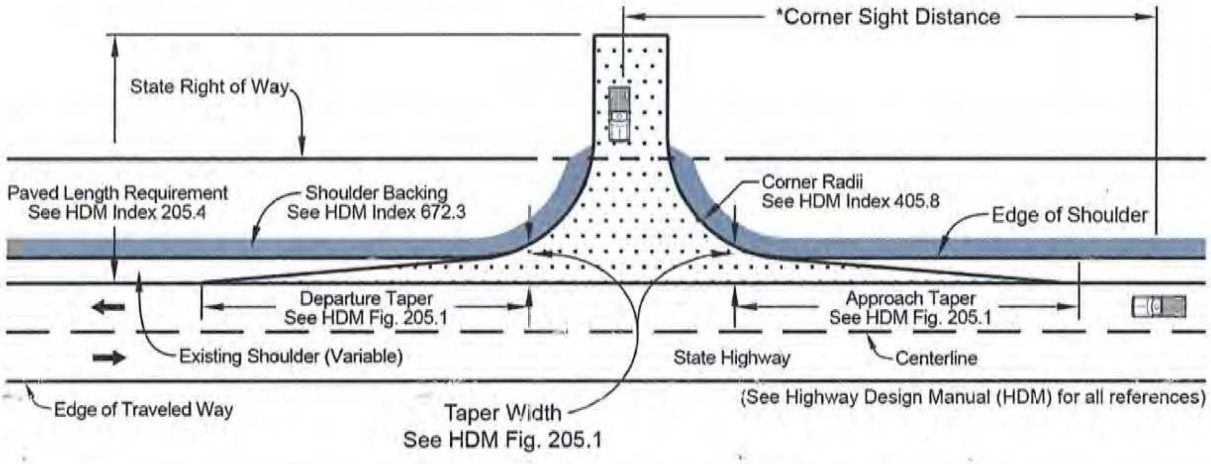
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https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications

7. Place shoulder backing from the edge of pavement (EP) to the hinge point (HP). Shoulder backing should be placed on a width of at least 2 feet from EP. For placement of shoulder backing thickness greater than 0.5 foot for slope repair; shoulder backing behind dikes; and where longitudinal drainage are present; see HDM for details. (see HDM Index 672 Shoulder Backing and HDM Figures 672.3 A through E)

The Figure below is provided to assist driveway design for rural areas and to clarify terminologies used in the above guidance. This figure is provided for general illustration purposes and is not used for design details. It should not be used as a drawing in the encroachment permit application for the driveway.

Driveway Design Requirements for Rural Areas with Unimproved Frontage on Conventional State Highways



*Corner Sight Distance shall be calculated from all directions of approach. See HDM Index 405.1(2) & Figure 405.7 for set back and sight distance calculations.

Purpose: The above excerpts from the Department's HDM are shown for reference. The design standards used for any project should equal or exceed the minimum given in the manual to the maximum extent feasible. They do not replace engineering knowledge, experience, and judgment in the design of driveways.

8. Special situations may call for variation from policies and procedures, subject to the appropriate approval. This is not intended to, nor does it establish a legal standard or any other standard of conduct or duty toward the public.

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