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DRAFT INITIAL STUDY

Quail Hills Residential Development Project

PLN21-0057 (Tentative Parcel Map No. 37692)

Lead Agency:

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1.0 Introduction

The project applicant, Quail Hills, LP (applicant), is seeking approval from the City of Menifee for implementation of the Quail Hills Residential Development Project (proposed project) that includes the development of individual residential lots with park facilities, a detention basin, walking paths, and open space areas.

In compliance with the California Environmental Quality Act (CEQA), the City of Menifee, as lead agency, is preparing the environmental documentation for the proposed project to determine if approval of the requested discretionary actions and subsequent development would have a significant impact on the environment. As defined by Section 15063 of the CEQA Guidelines, an initial study is prepared primarily to provide the lead agency with information to use as the basis for determining whether an environmental impact report (EIR), negative declaration (ND), or mitigated negative declaration (MND) would provide the necessary environmental documentation and clearance for the proposed project. This initial study has been prepared to support the adoption of an MND.

1.1 Project Location

The project site is south of Rancho Drive, west of Goetz Road, and east of Palm Drive in the northwestern portion of the City of Menifee, Riverside County, California (see Figure 1, Regional Location). The City of Menifee is surrounded by the City of Perris to the north, the City of Canyon Lake to the west, the City of Wildomar to the southwest, the City of Murrieta to the south, and unincorporated Riverside County to the east. Regional access to the project site is via Interstate 215 (I-215), the Escondido Freeway, approximately 2.9 miles to the east, and Interstate 15 (I-15), the Temecula Valley Freeway, 4.4 miles to the southwest (see Figure 2, Local Vicinity). The project site is bounded by Goetz Road to the east and south, Ranch Drive to the north, and Palm Drive to the west. The project site is within six Assessor Parcel Numbers (APNs), including APNs 341-060-002, 341-060-007, 341-060-008, 341-060-009, 341-040-049, and 325-245-004 (see Figure 3, Aerial Photograph).

1.2 Environmental Setting

1.2.1 Existing Land Use and Zoning

The project site is 44.7 gross acres and is currently undeveloped and vacant. The project site has a General Plan land use designation of 2.1 to 5 dwelling units per acre (du/ac) Residential (2.1-5 R) and is zoned Low-Density Residential-2 (LDR-2) [7,200 square feet] (City of Menifee 2018, 2019).

1.2.2 Surrounding Land Uses and Zoning

The project site is surrounded by commercial and residential land use designations (see Figure 4, Surrounding Land Uses). The project site is primarily bordered by single-family residences from all directions and is adjacent to the Quail Valley Fire Station No. 5 to the south. Land uses to the east and south of the project site are designated Commercial Retail (CR) 0.20 to 0.35 floor area ratio (FAR); land uses to the west of the project site are designated 2.1 to 5 du/ac Residential (2.1-5 R); and land uses to the north of the project site are designated Rural Mountainous 10 ac min (RM) (City of Menifee 2018). The areas surrounding the project site are zoned Commercial Retail to the east and south, Low-Density Residential-2 (LDR-2) [7,200 square feet] to the west, and Rural Mountainous (RM) to the north.

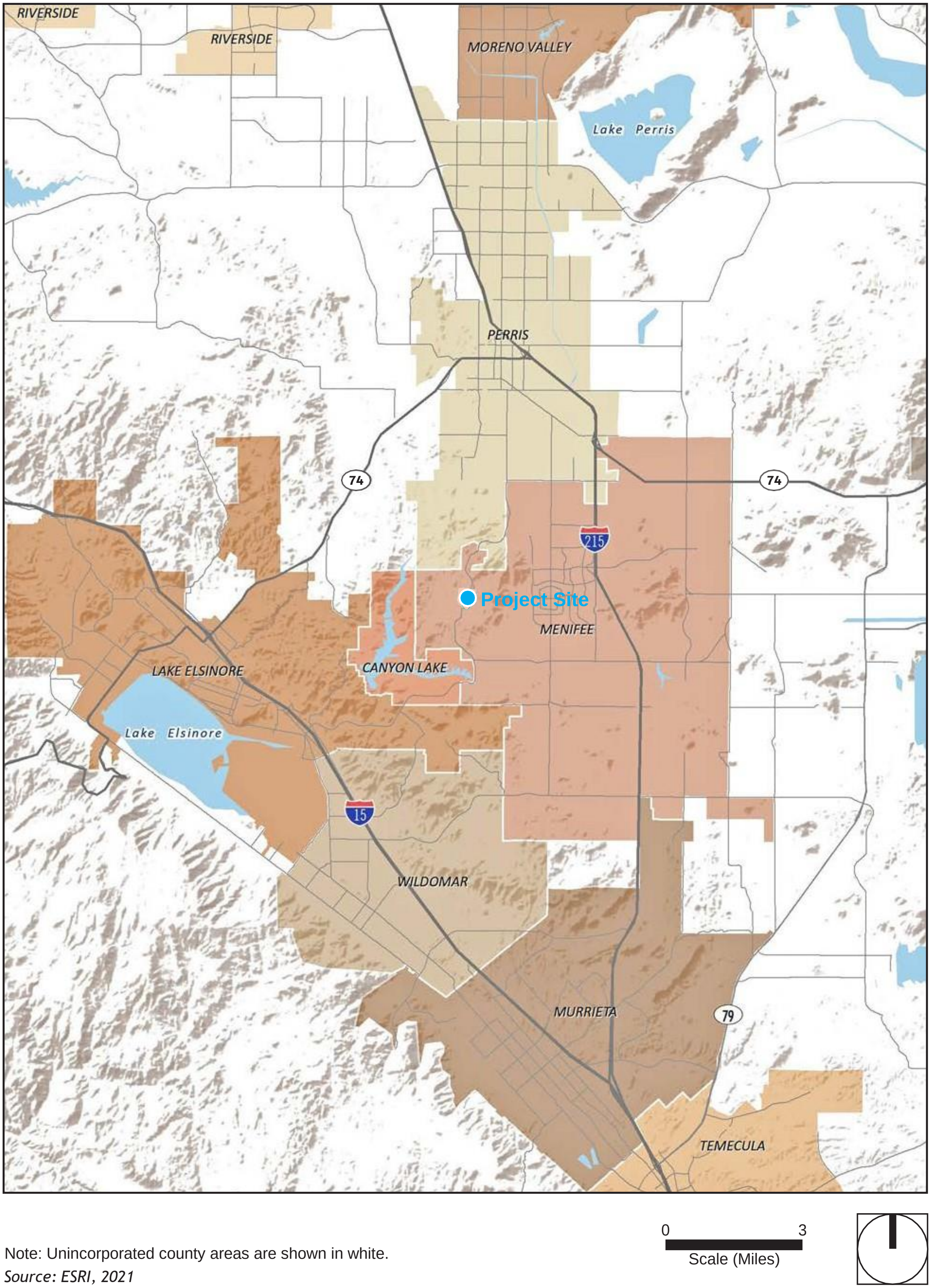
1.2.3 Local and Regional Access

Regional access to the project site is provided by I-215 and I-15, approximately 2.9 miles to the east and 4.4 miles to the southwest, respectively. Ethanac Road to the north and Newport Road to the south also provide regional access to the project site; and Goetz Road provides direct access to the project site.

Public transit near the project site is provided by the Riverside Transportation Agency (RTA), and the nearest bus routes include Routes 61 and 74. There are no local or regional bike paths within or near the project site.

Access into the project site would be from two gated entry points on Goetz Road. All streets within the proposed project would be private. An emergency access road would be included in the western portion of the site into Williams Drive.

Figure 1 - Regional Location



Note: Unincorporated county areas are shown in white.

Source: ESRI, 2021

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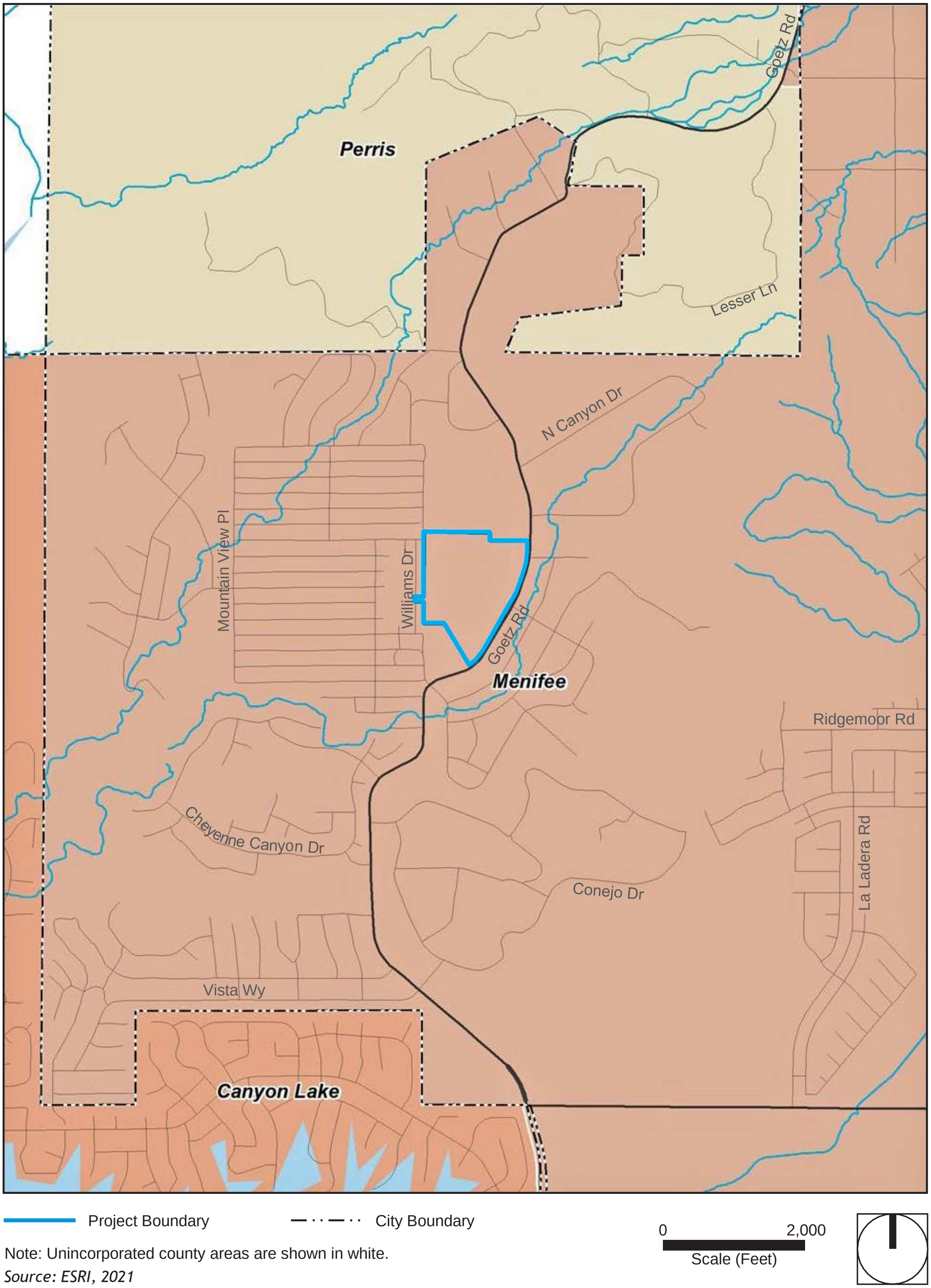
Figure 2 - Local Vicinity Map



Note: Unincorporated county areas are shown in white.

Source: ESRI, 2021

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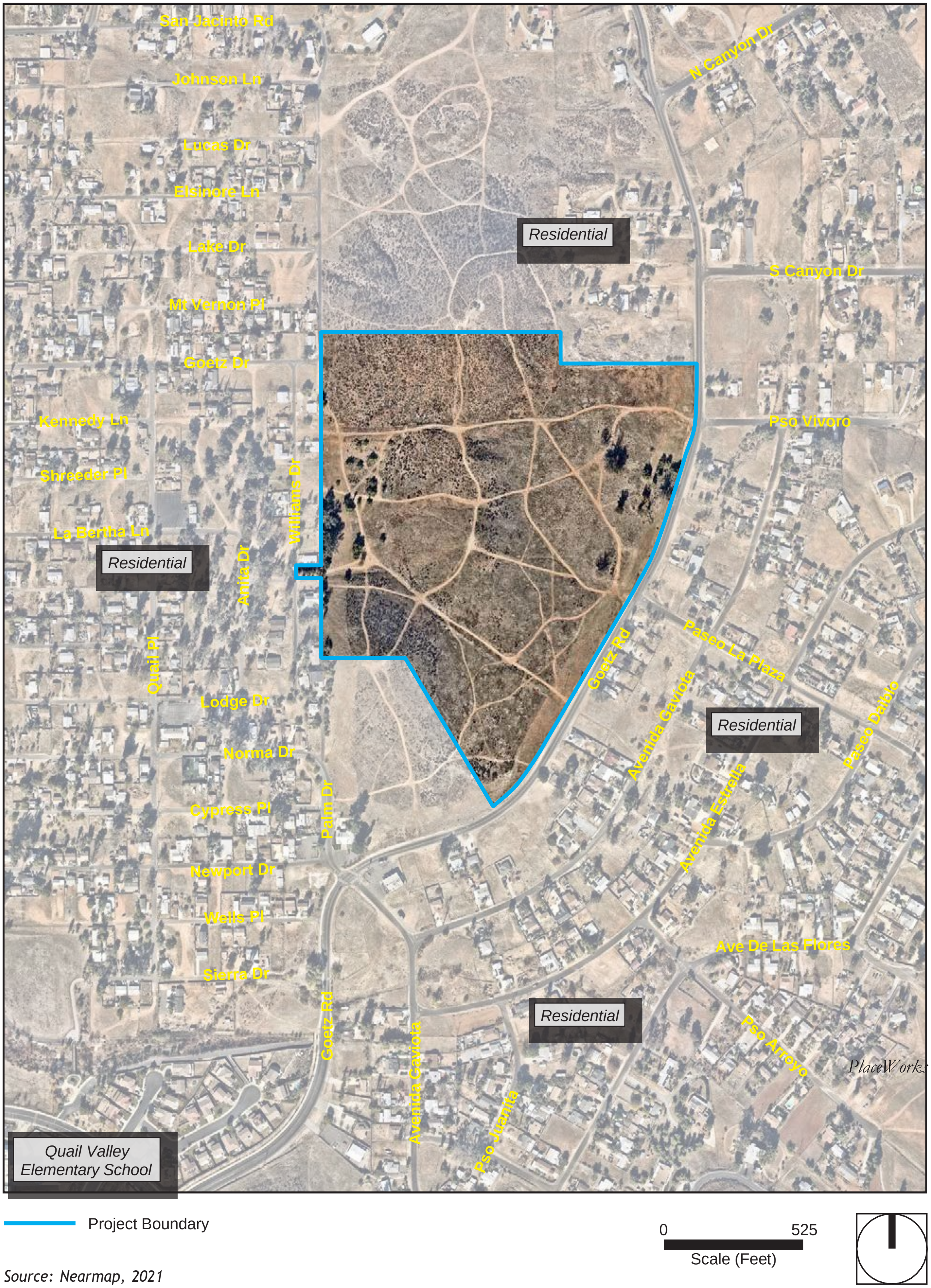
Figure 3 - Aerial Photograph



Source: Nearmap, 2021

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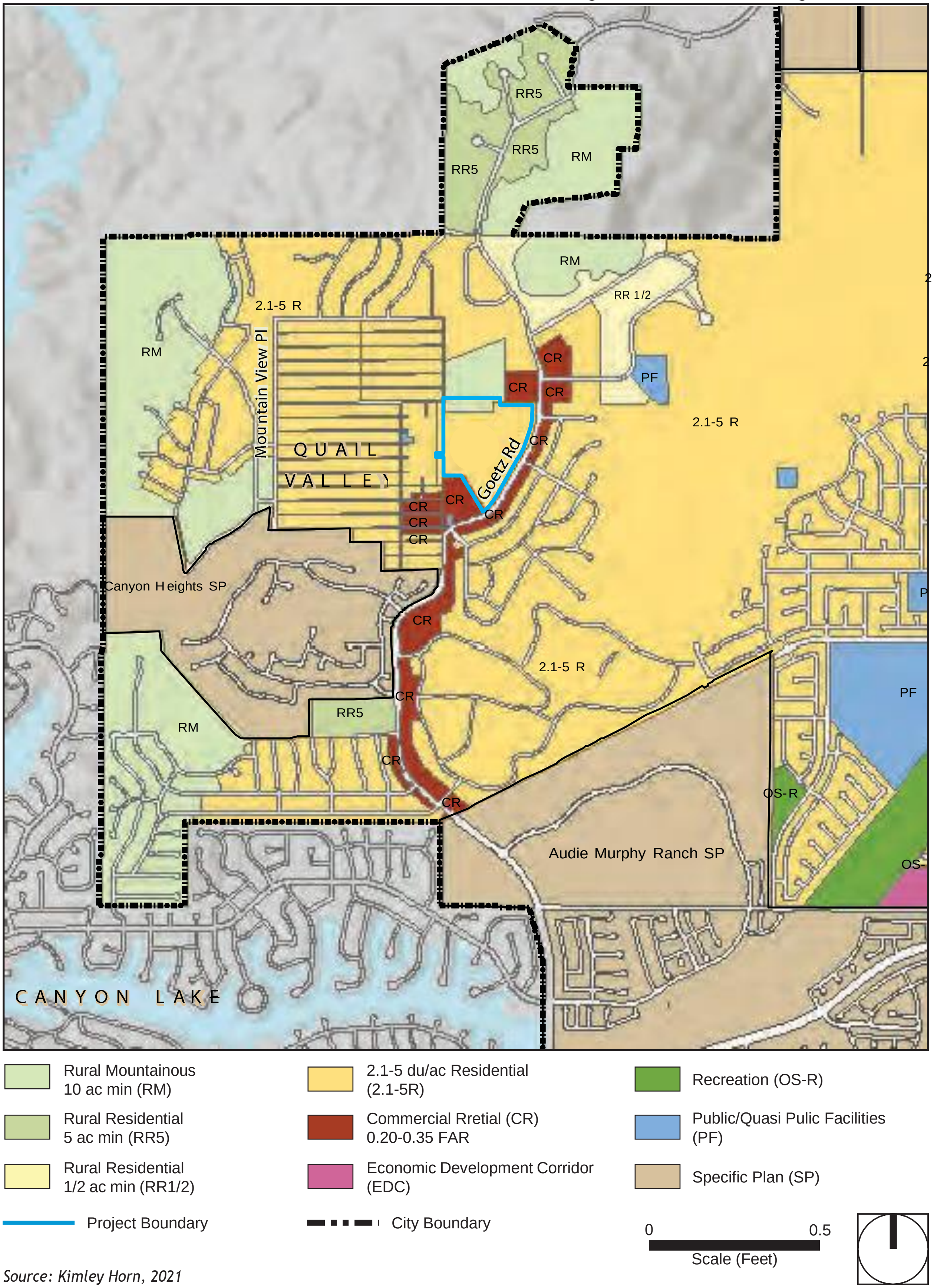
Figure 4 - Surrounding Land Uses



Source: Kimley Horn, 2021

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2.0 Project Description

2.1 Description of the Proposed Project

2.1.1 Proposed Land Uses

The proposed project would divide the land into 130 residential lots and 9 lots for public street right-of-way, a water detention basin, open space, private parkland/tot lot, and private streets (see Figure 5, Proposed Site Plan). Development of the subdivided land would include public trails and walking paths on the northwestern portion of the project site that would connect to existing trails provided by the City.

Residential

The proposed project would include 130 single-family residential lots and would encompass approximately 30 acres on the project site. The proposed lots would have a minimum size of 5,000 square feet, and would range in size from 5,000 to 11,091 square feet. The average lot sizes would be approximately 50 feet by 100 feet and 53 feet by 95 feet, and the proposed project would construct approximately 2.9 dwelling units per acre.

Assuming an average household size of 3.1 residents per unit, consistent with the household size reported in the Menifee General Plan Housing Element (City of Menifee 2021), and assuming that all 130 new dwelling units would generate new residents, the proposed project would house approximately 403 residents.

Recreation and Open Space

Open Space

The proposed project would include approximately 576,017 square feet (13.2 acres) of undisturbed areas that would remain undisturbed as natural open space on Lot C, in the northwestern portion of the project site, which would include one proposed 10-foot-wide dirt trail beginning at Goetz Road in the eastern edge of the project site, that would connect to the existing trail, which traverses the open space lot.

HOA-Maintained Park and Tot Lot

The proposed project would include a 0.9-acre homeowners' association (HOA)-maintained park on the northeastern edge of the project site, near the intersection of D Street and E Street. The park would include several amenities, including a dual half-court basketball court, open turf area, a splash pad with water play amenities, drink fountains, a park monument sign, two picnic shelters with barbecues and tables, bicycle racks, and a tot lot with rubberized surfacing and play equipment for children ages two to five, and additional play equipment for children ages 5 to 12 (see Figures 6a and 6b, Recreation and Open Space Plan). Additionally, the proposed project would include several park trees and planting throughout the park (see Section 2.1.5, Landscape Plan).

HOA-Maintained Dog Park

The proposed project would include a 0.4-acre dog park on the southern edge of the project site, along Street A. The proposed dog park would include a large breed dog park enclosed by a six-foot-high chain-link fence and an open small breed dog park. The proposed dog park would include two shaded pavilions and park benches, dog water fountains, and down waste stations. Additionally, the proposed project would include several park trees and planting throughout the park (see Figures 6a and 6b).

2.1.2 Utilities and Infrastructure

Drainage Facilities

There are no existing drainage facilities within the project site. Existing flow patterns from drainage areas A, B, C, D, and O sheet flow in a southwest direction towards Williams Drive. Existing flow patterns from drainage areas E, G, H, I, and K sheet flow in a southeast direction towards Goetz Road. The proposed storm drain improvements would include the construction of new drainage facilities. The new drainage facilities would consist of storm drain mains, laterals, catch basins, concrete ditches, and a spillway and Detention/Sand Filter Basin.

Sewer System

Two sewer alternatives have been analyzed for the proposed project. Both proposed sewer network options consist of 8-inch PVC sewer lines that would service the project site and ultimately discharge into the existing 15-inch trunk sewer line at the intersection of Goetz Road and Vista Way (see Figures 7a and 7b, Drainage Facilities)

Option 1 proposes an 8-inch PVC line down Goetz Road that connects to the existing 8-inch PVC sewer network at the intersection of Rocky Summit Drive and Turtle Rock Court. Approximately 160 linear feet of existing 8-inch PVC sewer within Rocky Summit Drive would need to be replaced and flattened to properly drain the proposed network into the existing system.

Option 2 proposes an 8-inch PVC line down Goetz Road to Vista Way, extending the sewer line down Goetz Road instead of connecting to the existing residential tract. The service area is consistent for both options and consists of low-density residential developments, an existing fire station, an existing Circle K store, a school site, and a landscape area.

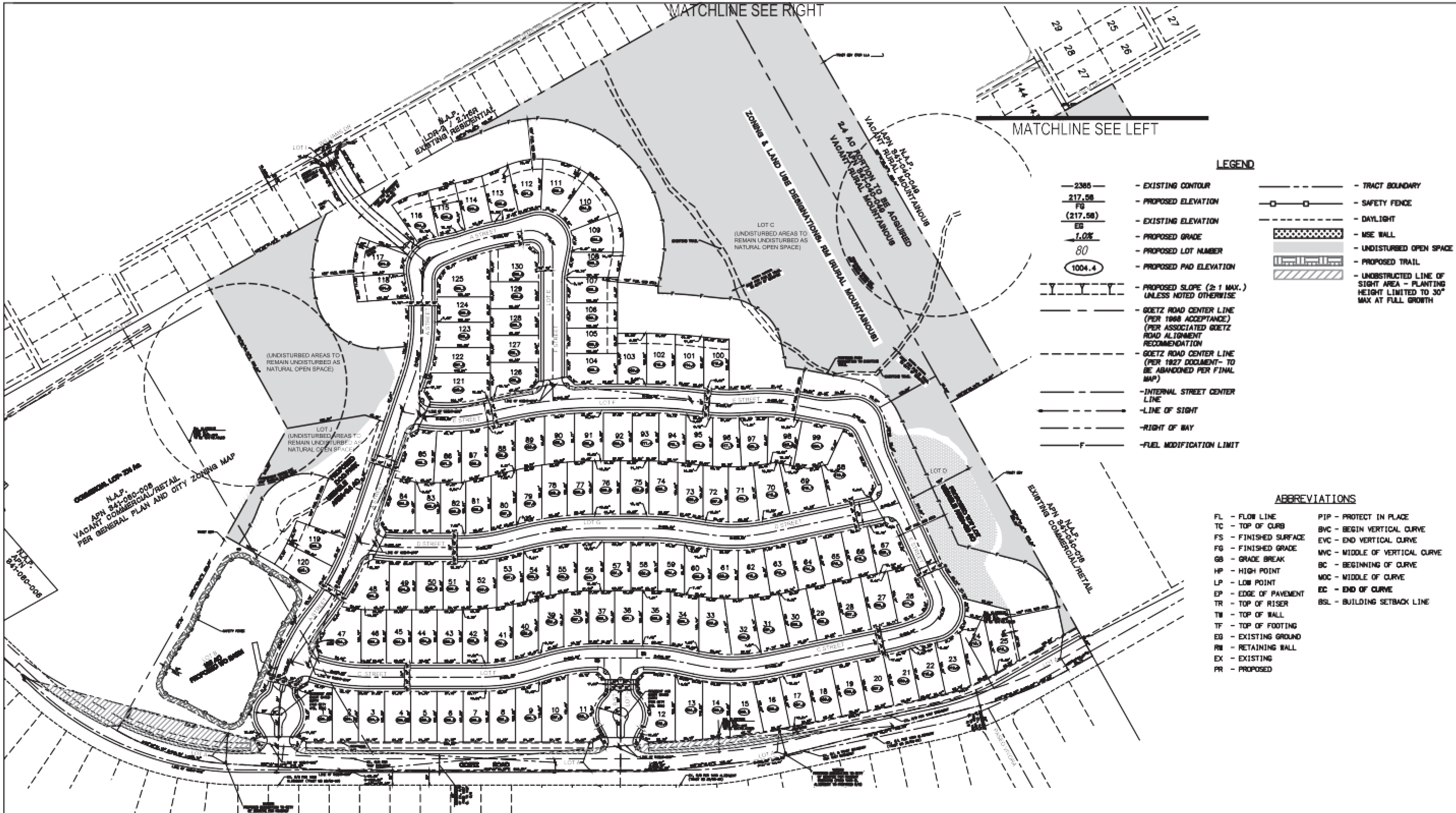
A proposed concrete ditch system would convey runoff from Area C to Williams Drive. The two proposed concrete ditches would include rip rap at their outlets to decrease outlet velocities and prevent erosion. The concrete ditch system would allow flows to sheet flow to Williams Drive simulating the existing condition flows.

Stormwater

The proposed project would include a 75,421-square-foot detention basin on Lot B (1.85 acres), on the southeastern edge of the project site. The proposed water quality detention basin would have an underdrain pipe system and parkway drain outlet. The detention basin would be surrounded by decomposed granite trails, which would connect the basin and the dog park.

A proposed storm drain network would convey in-tract runoff from Drainage Area B to the proposed Detention Basin/Sand Filter Basin. The proposed Detention Basin/Sand Filter Basin would have an outlet structure and underdrain PVC pipe system as part of the Sand Filter Basin configuration. The outlet structure and underdrain PVC pipe system would discharge flows to Goetz Road though a storm drainpipe and parkway culvert.

Figure 5 - Proposed Site Plan



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Scale (Feet)

Source: Proactive Engineering Consultants, 2021

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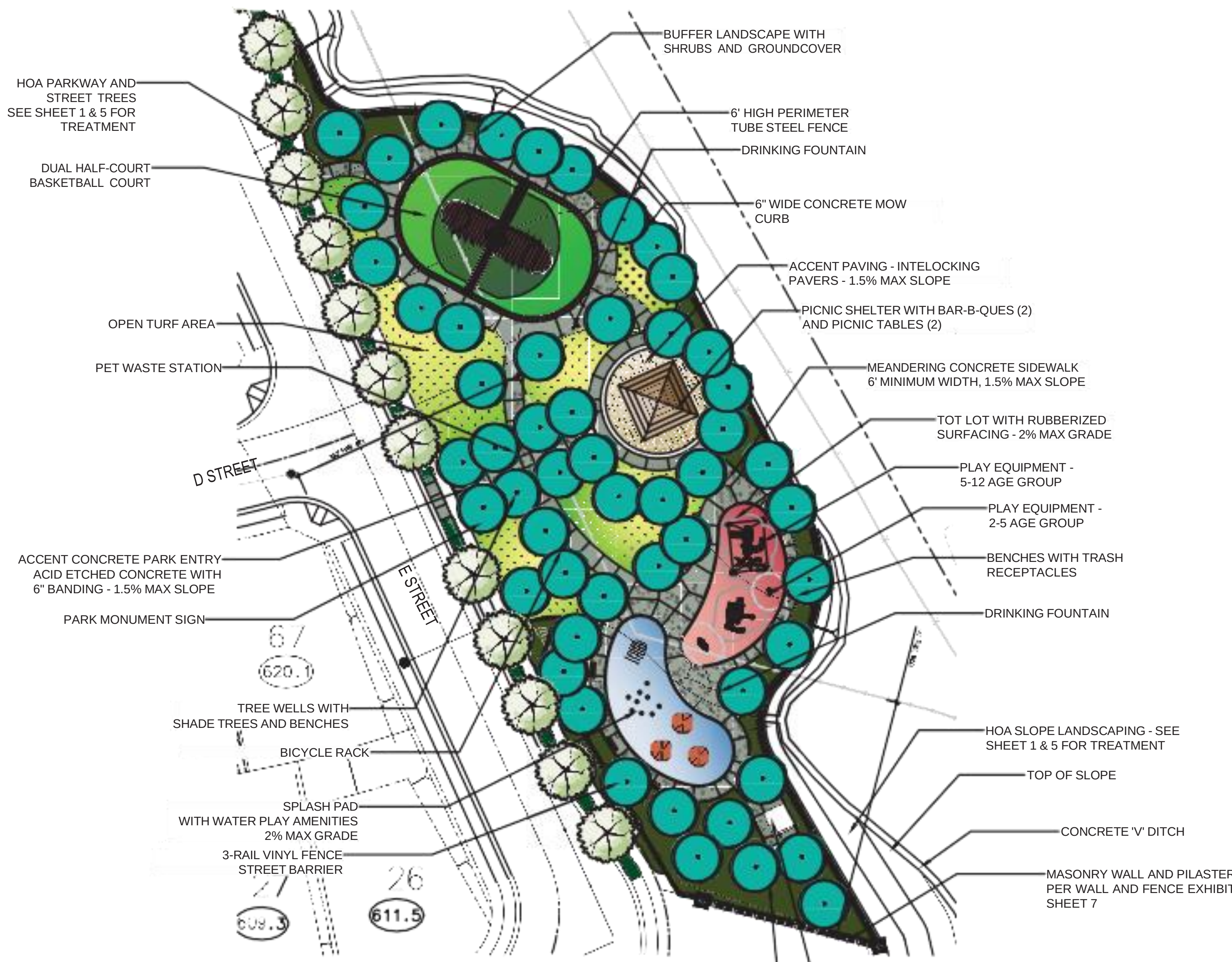
Figure 6a - Recreation and Open Space



HOA MAINTAINED PARK

(IDENTIFIED AS SPECIAL LANDSCAPE AREA FOR RECREATIONAL PURPOSES)

ALL IMPROVEMENTS ARE TO BE MAINTAINED BY THE DEVELOPER UNTIL MAINTENANCE RESPONSIBILITY IS TURNED OVER TO INDIVIDUAL HOMEOWNER.

AN AGRONOMIC SOIL ANALYSIS AND RECOMMENDATIONS REPORT SHALL BE INCLUDED ON PLANS.

ALL PLANTER AREAS ARE TO BE TOP DRESSED WITH 3" THICK LAYER OF LOCALLY COMPOSTED 2" MINUS SHREDDED TREE BARK MULCH OR APPROVED EQUIVALENT UNLESS OTHERWISE SPECIFIED.

ALL HOA PLANTER AREAS ARE TO RECEIVE AN AUTOMATIC IRRIGATION CONSISTING OF LOW VOLUME POINT TO POINT OR DRIP LINE IRRIGATION OR ROTARY NOZZLES, WEATHER BASED SMART IRRIGATION CONTROLLER AND FLOW SENSING.

ALL PARK ELEMENTS SHALL COMPLY WITH ADA ACCESSIBILITY REQUIREMENTS

PARK LIGHTING SHALL BE PROVIDED PER MENIFEE REQUIREMENTS

QUANTITY TAKEOFFS SUMMARY
HOA MAINTAINED PARK

HOA PARK TOTAL AREA - 38,491 S.F. (.88 ACRES)
HOA PARK LANDSCAPE AREA - 19,363 S.F. (.44 ACRES)
HOA PARK TURF AREA - 9,303 S.F. (.21 ACRES)
HOA PARK TURF LANDSCAPE % - 9,303 S.F. (48%)

AMENITIES IMAGERY

PICNIC SHELTER

BASKETBALL COURT

SPLASH PAD

TOT LOT PLAY AREA

CONCEPT_PLANT_SCHEDULE_PARK

PARK TREES	
Arbutus unedo / Strawberry Tree	24" Box, L
Cercis canadensis `Forest Pansy` / Forest Pansy Eastern Redbud	36" Box, M
Lagerstroemia indica x fauriei `Muskogee` / Muskogee Crape Myrtle	36" Box, M
Magnolia grandiflora `Russet` / Southern Magnolia	36" Box, M
Prosopis chilensis `Thornless` / Thornless Chilean Mesquite	24" Box, L
PARK PLANTING	
Encelia californica / California Encelia	5 Gal., L
Grevillea x `Noellii` / Noel Grevillea	5 Gal., L
Hesperaloe parviflora / Red Yucca	1 Gal., L
Lantana camara `Dwarf Pink` / Dwarf Pink Lantana	5 Gal., L
Lantana montevidensis `Spreading White` / White Trailing Lantana	1 Gal., L
Lonicera japonica `Hall`s Prolific` / Hall`s Prolific Honeysuckle	1 Gal., L
Muhlenbergia capillaris `Pink Cloud` / Pink Muhly	5 Gal., L
Rhus ovata / Sugar Bush	5 Gal., L
Salvia clevelandii `Allen Chickering` / Cleveland Sage	5 Gal., L
Salvia mellifera / Black Sage	5 Gal., L
Tecoma stans / Yellow Bells	5 Gal., L
Verbena peruviana / Peruvian Verbena	1 Gal., L
PARK TURF	
Turf Seed Drought Tolerant Dwarf Fescue Blend	HYDROSEED

CITY OF MENIFEE PLANT QUANTIES CHART
HOA MAINTAINED PARK

HOA PARK AREA - 38,491 S.F. (.88 ACRES)
TREE REQUIREMENT - 1 TREE PER 750 S.F.
TOTAL TREES REQUIRED - 51 TREES
TOTAL TREES PROVIDED - 53 TREES

SHRUB REQUIREMENT - 1 SHRUB PER 100 S.F.
TOTAL SHRUBS REQUIRED - 385 SHRUBS
TOTAL SHRUBS PROVIDED - 385 SHRUBS

CITY OF MENIFEE TREE DENSITY CHART
HOA MAINTAINED PARK

HOA PARK LANDSCAPE AREA - 19,363 S.F. (.44 ACRES)
TREE REQUIREMENT - 60 TREE PER ACRE
TOTAL TREES REQUIRED - 27 TREES
TOTAL TREES PROVIDED - 53 TREES

0 75
Scale (Feet)

Source: Steven Sanhamel, 2021

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Figure 6b - Recreation and Open Space

PLANT_SCHEDULE_DOG_PARKS

TREES	BOTANICAL / COMMON NAME	CONT	PF	QTY	REMARKS
	Morus alba 'Fruitless' / Fruitless Mulberry	24" Box	M	5	
	Platanus racemosa / California Sycamore	24" Box	M	6	
	Tristania conferta / Brisbane Box	36" Box	M	5	

GROUND COVERS	BOTANICAL / COMMON NAME	CONT	SPACING	QTY	REMARKS
	ARTIFICIAL TURF ARTIFICIAL TURF / ARTIFICIAL TURF	SYNTHETIC TURF		8,487 sf	

CONCEPT_PLANT_SCHEDULE_HOA_SLOPES

HOA SLOPE TREES			
Arbutus unedo / Strawberry Tree	15 Gal., L		
Platanus racemosa / California Sycamore	15 Gal., M		
Umbellularia californica / Bay Laurel	15 Gal., L		
HOA SLOPE PLANTING			
Baccharis pilularis 'Pigeon Point' / Pigeon Point Coyote Brush	1 Gal., L		
Calliandra eriophylla / Fairy Duster	5 Gal., L		
Ceanothus griseus horizontalis / Carmel Creeper	1 Gal., L	48" oc	
Heteromeles arbutifolia / Toyon	5 Gal., L		
Salvia clevelandii / Cleveland Sage	5 Gal., L		
Salvia greggii / Autumn Sage	5 Gal., L		

HOA MAINTAINED DOG PARKS

ALL IMPROVEMENTS ARE TO BE MAINTAINED BY THE DEVELOPER UNTIL MAINTENANCE RESPONSIBILITY IS TURNED OVER TO INDIVIDUAL HOMEOWNER.

AN AGRONOMIC SOIL ANALYSIS AND RECOMMENDATIONS REPORT SHALL BE INCLUDED ON PLANS.

ALL PLANTER AREAS ARE TO BE TOP DRESSED WITH 3" THICK LAYER OF LOCALLY COMPOSTED 2" MINUS SHREDDED TREE BARK MULCH OR APPROVED EQUIVALENT UNLESS OTHERWISE SPECIFIED.

ALL HOA PLANTER AREAS ARE TO RECEIVE AN AUTOMATIC IRRIGATION CONSISTING OF LOW VOLUME POINT TO POINT OR DRIP LINE IRRIGATION OR ROTARY NOZZLES, WEATHER BASED SMART IRRIGATION CONTROLLER AND FLOW SENSING.

AMENITIES IMAGERY


SHADE PAVILLION


DOG WATER FOUNTAIN


DOG PARK BENCHES


DOG WASTE STATION

CITY OF MENIFEE PLANT QUANTITIES CHART
HOA MAINTAINED DOG PARKS

HOA DOG PARK AREA - 9,343 S.F. (.22 ACRES)
TREE REQUIREMENT - 1 TREE PER 750 S.F.
TOTAL TREES REQUIRED - 12 TREES
TOTAL TREES PROVIDED - 16 TREES

SHRUB REQUIREMENT - 1 SHRUB PER 100 S.F.
TOTAL SHRUBS REQUIRED - 0 (DOG PARK)
TOTAL SHRUBS PROVIDED - 0 (DOG PARK)

CITY OF MENIFEE TREE DENSITY CHART
HOA MAINTAINED DOG PARK

HOA DOG PARK LANDSCAPE AREA - 9,343 S.F. (.22 ACRES)
TREE REQUIREMENT - 60 TREE PER ACRE
TOTAL TREES REQUIRED - 13 TREES
TOTAL TREES PROVIDED - 16 TREES

0 75
Scale (Feet)

Source: Steven Sanhamel, 2021

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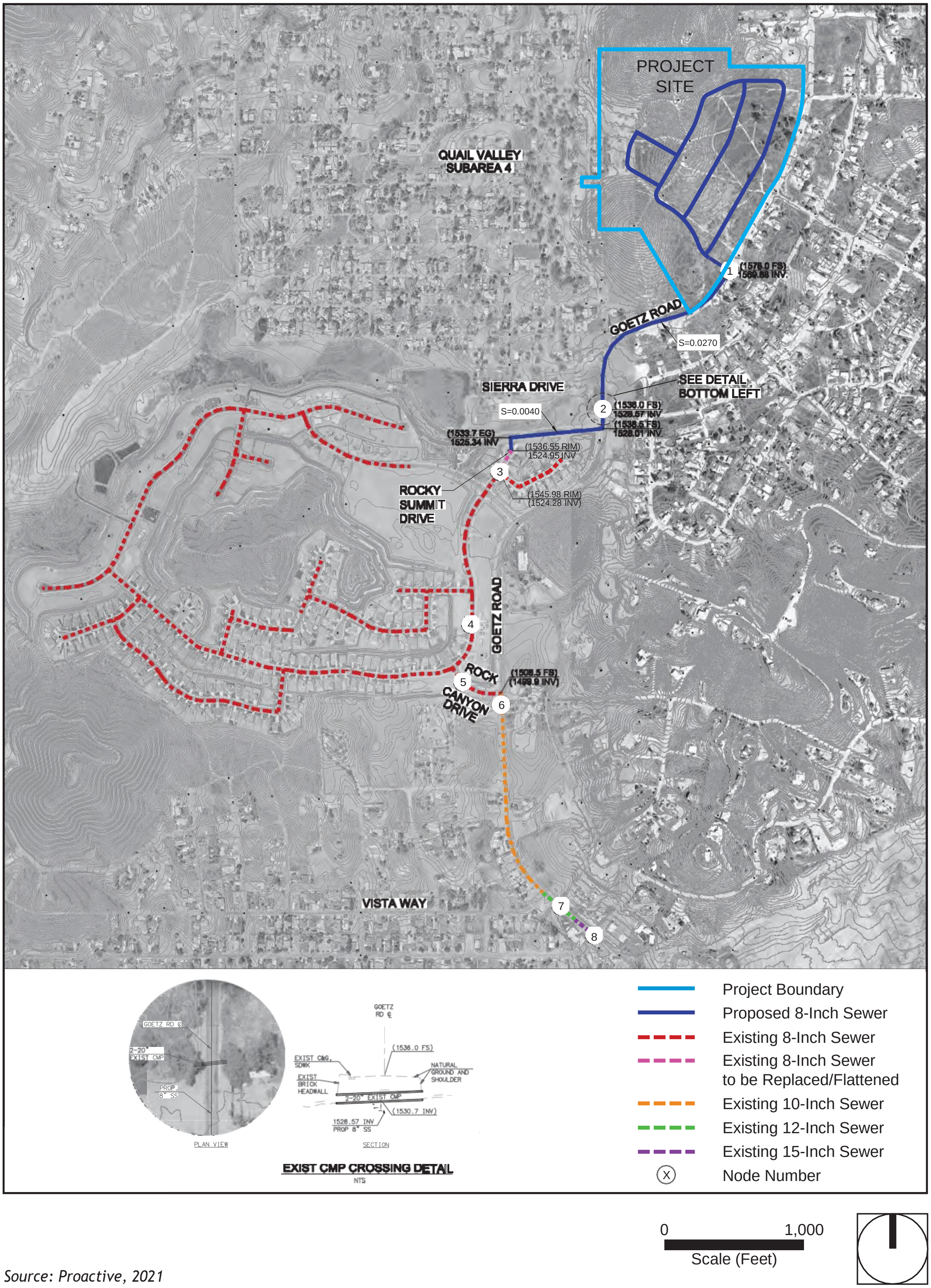
Figure 7a - Drainage Facilities - Option 1



Source: Proactive, 2021

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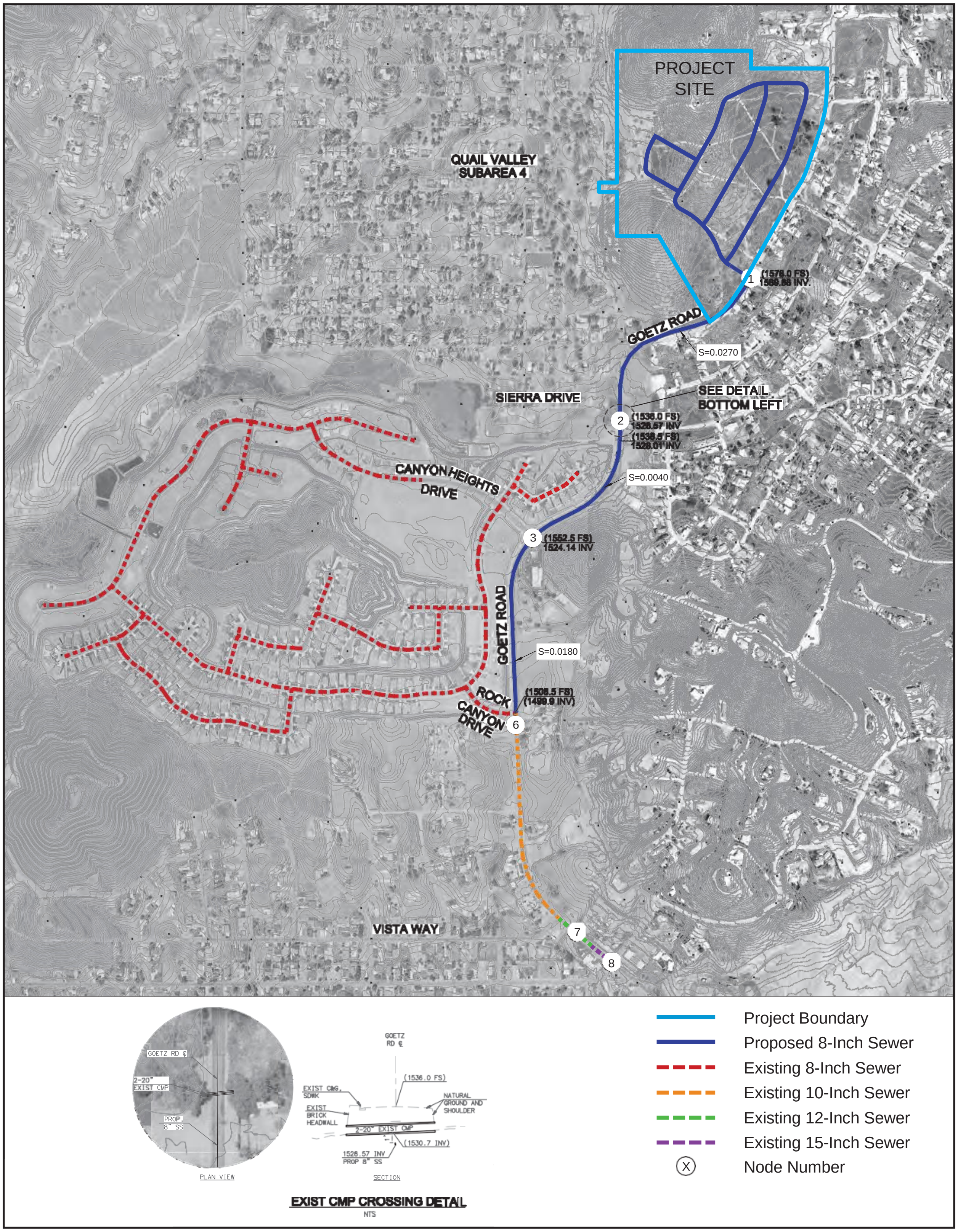
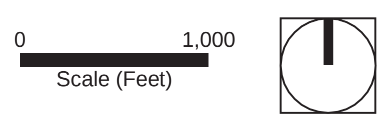
Figure 7b - Drainage Facilities - Option 2





Source: Proactive, 2021

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Runoff from Area B would sheet flow along Goetz Road and small water quality flows would be conveyed to a proposed curb type Modular Wetland System (MWS) Unit adjacent to Goetz Road to treat pollutants. Large storm events would bypass the MWS Unit and would continue to flow along Goetz Road.

Dry Utilities

Utilities for the proposed project would be provided by Southern California Edison (SCE), Southern California Gas (SoCal Gas), and Frontier Communications.

Solid Waste

Solid waste from the proposed project would be collected by Waste Management, Inc. (WMI), which provides service to the City of Menifee. Residences within the proposed project would be provided three bins; one for trash, one for green waste, and one for recyclable materials. Solid waste from Menifee is disposed of in two landfills, El Sobrante Landfill in unincorporated Riverside County south of the City of Corona, and Badlands Sanitary Landfill near the City of Moreno Valley.

2.1.3 Project Access and Parking

Access to the project would be provided through two separate entry points. Both entry points are proposed on the eastern edge of the project site, along Goetz Road; Lot H would provide an entryway that would only be accessible to residents, and the entryway on A Street would provide access to both residents and guests. Additionally, Lot I would provide a third entryway along the western edge of the project site and would lead into Williams Drive. This entryway would include a 24-foot-wide roadway, with 12-foot lanes in each direction; however, this entryway would be for emergency use only through an access gate, and would be blocked by removable bollards, when it is not in use. Parking within the project site would be provided on each dwelling unit.

2.1.4 Roadways and Sidewalks

All proposed internal streets would be classified as Private Local Streets. Streets within the project site would be approximately 36 feet wide, with 18-foot lanes in each direction. Additionally, the proposed project would include 5-foot sidewalks and 5-foot-wide areas adjacent to the sidewalks, designated for street trees, on both sides of the street.

2.1.5 Landscape Plan

Street Trees

Landscaping along the project site would include various types of street trees, including Chinese pistache (*Pistacia chinensis*), carrot wood (*Cupaniopsis anacardioides*), Tuscarora crape myrtle (*Lagerstroemia indica x fauriei Tuscarora*), thornless Chilean mesquite (*Prosopis chilensis 'thornless'*), and Chinese flame tree (*Koelreuteria bipinnata*; as shown in Figures 8a-c, Landscaping Plan).

HOA-Maintained Park and Tot Lot Landscaping

The proposed park on the northeastern portion of the project site would include strawberry trees (*Arbutus unedo*), forest pansy eastern redbud (*Cercis canadensis*), Muskogee crape myrtle *(Lagerstroemia indica x fauriei*

'Muskogee'), southern magnolia (*Magnolia grandiflora*), and thornless Chilean mesquite. Additionally, the proposed park would be surrounded by planting, including California brittlebush (*Encelia californica*), Noel's grevillea (*Grevillea noellii*), red yucca (*Hesperaloe parviflora*), dwarf pink lantana (*Lantana Montevidensis*), white trailing lantana, Hall's prolific honeysuckle (*Lonicera japonica*), pink muhly (*Muhlenbergia capillaris*), sugar bush (*Rhus ovata*), Cleveland sage (*Salvia clevelandii*), black sage (*Salvia mellifera*), yellow bells (*Tecoma stans*), Peruvian verbena (*Glandularia peruviana*).

HOA-Maintained Dog Park

The proposed dog park would include five fruitless mulberry (*Morus alba*), six California sycamore (*Platanus racemosa*), and five Brisbane box (*Lophostemon confertus*) trees. Additionally, planting at the dog park would include pigeon point coyote bush (*Baccharis pilularis* ssp. *pilularis*), fairy duster (*Calliandra eriophylla*), caramel creeper (*Ceanothus thyrsiflorus* var. *griseus*), toyon (*Heteromeles arbutifolia*), Cleveland sage, and autumn sage (*Salvia greggii*).

Detention Basin

The proposed detention basin would include desert willows (*Chilopsis linearis*), London plane trees (*Platanus acerifolia*), and blue elderberry (*Sambucus cerulea*). Additionally, the detention basin would include Pigeon Point coyote bush, Canton Prince giant wild rye (*Leymus condensatus* 'Canyon Prince'), regal mist pink muhly grass (*Muhlenbergia capillaris 'Lenca'*), and wynabbie gem coast rosemary (*Westringia fruticosa*).

2.1.6 Fuel Modification Zones

As shown in Figure 9, Fuel Modification Plan, the proposed project would include areas where vegetation has been removed or planted with vegetation that increases the likelihood that structures would survive a wildfire. These areas, called fuel modification zones, would include the following.

<u>Irrigated Zone 1 - Light Green (Owner Maintained)</u>

All portions of a resident's flat level building pad, plus portions on slopes within 30 feet of any habitable structure, shall be planted with fire-resistant vegetation and maintained to irrigated zone 1 criteria. Maintenance would be ongoing throughout the year, as needed.

<u>Irrigated Zone 1a - Dark Green (HOA Maintained)</u>

The area is in various perimeter areas. Distances may vary. These areas represent manufactured slopes that would be re-planted and irrigated in perpetuity. It shall be planted with fire-resistant vegetation and maintained to irrigated zone 1a criteria. Maintenance would be ongoing throughout the year, as needed.

Figure 8a - Landscaping Plan

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Scale (Feet)

Source: Steven Sanhamel, 2021

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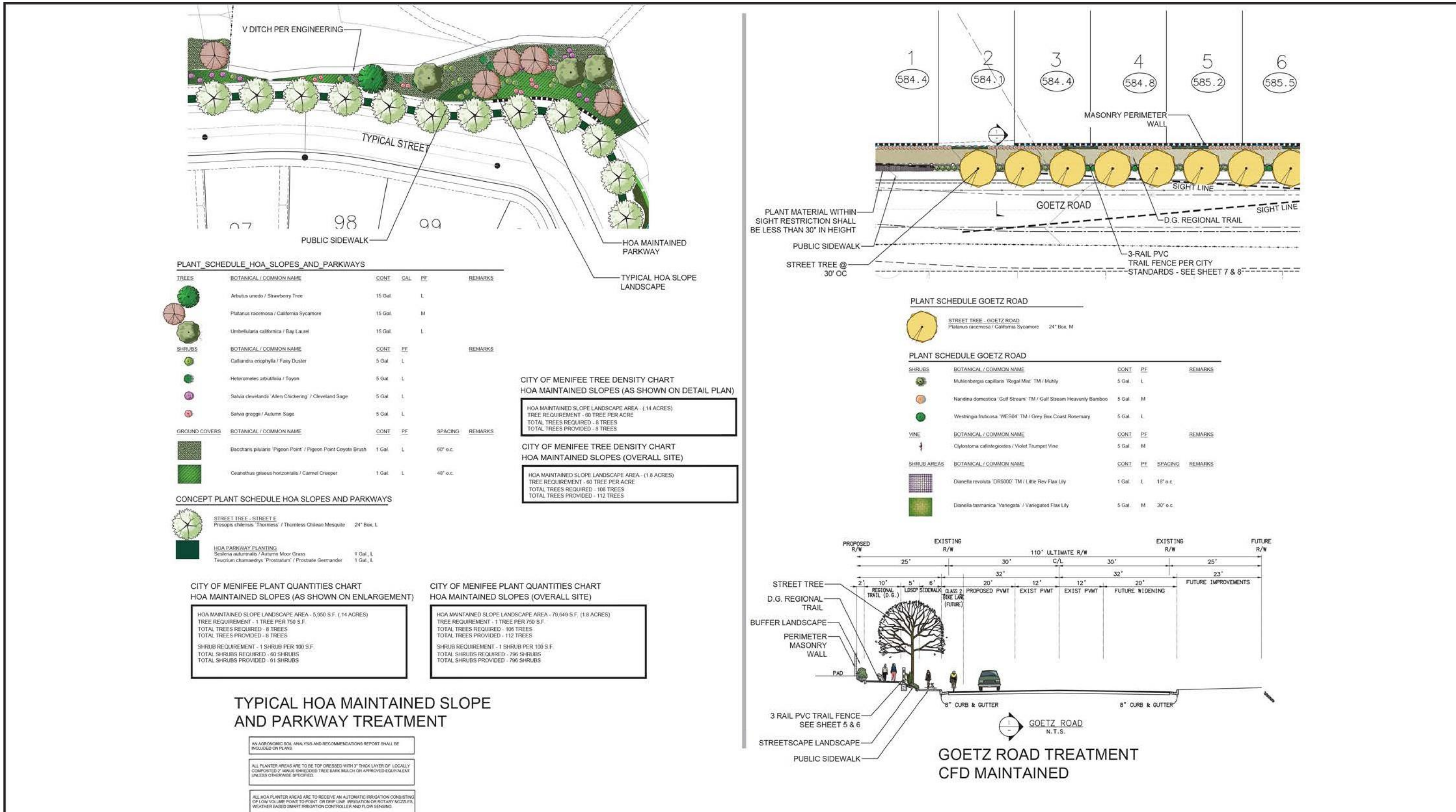
Figure 8b - Landscaping Plan



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Scale (Feet)

Source: Steven Sanhamel, 2021

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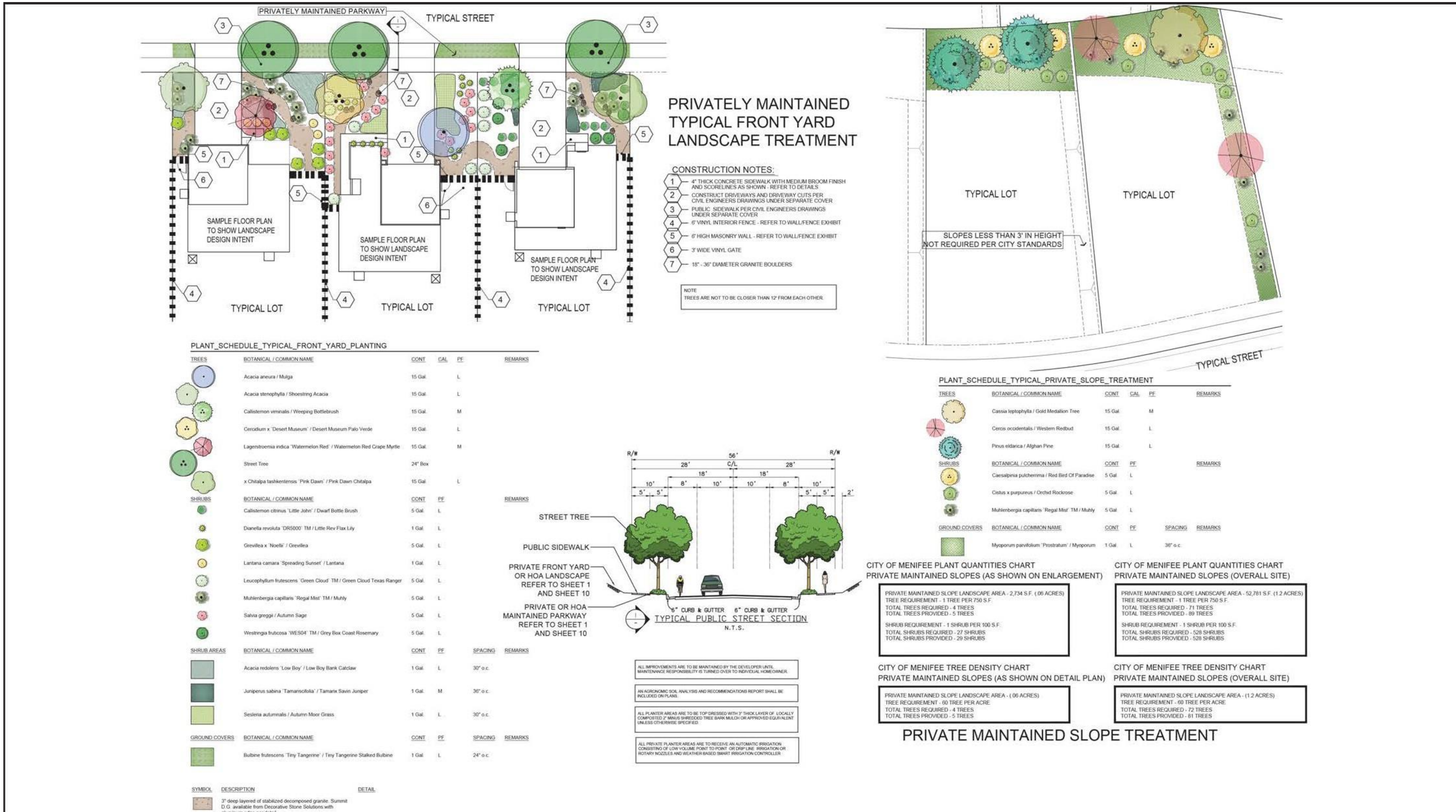
Figure 8c - Landscaping Plan



0 35
Scale (Feet)

Source: Steven Sanhamel, 2021

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Figure 9 - Fuel Modification Plan

Source: Steven Sanhamel, 2021

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Plant material used within this zone include the following.

- Trees: strawberry tree, California sycamore, thornless Chilean mesquite, Brisbane box, and California bay (*Umbellularia californica*)
- Shrubs/Groundcover: Pigeon point coyote bush, fairy duster, Californian lilac (*Ceanothus griseus* var. *horizontalis*), toyon, Cleveland sage, and autumn sage.

Thinning Zone 2 - Brown (Owner and HOA Maintained)

An area between 30 and 100 feet from each structure. This area may include single or small clusters of trimmed fire-resistant native plants up to 18 inches in height where 50 percent of the vegetation is removed. Selected native plant clusters must be separated by at least 1-1/2 times the mature height of the retained plants. The groundcover and grasses shall be weed whipped and maintained to 4 inches or less in stubble height.

2.2 Project Construction

Construction is anticipated to start in February 2024 and finish in October 2027. It is anticipated that the residential uses would be available between the period of February 2024 to December 2027 depending on construction phasing. The construction would occur over approximately 34 months, and include the following activities: grading and excavation, trenching for site utilities and irrigation, building construction, architectural coatings, driveway and walkway construction, landscaping, and street connection improvements. Grading activities would cover the entire 44.7-acre site. Excavation would result in approximately 173,000 cubic yards of soil, and no imported soils would be necessary.

2.3 Project Approvals

Implementation of the proposed project would require the following discretionary and ministerial project approvals from the City of Menifee.

2.3.1 Discretionary Approvals Requested

- Tract Map Subdivision

2.3.2 Other Agency Action Requested

Regional Agencies

- Riverside County Fire Department (for emergency site access review)

Local Agencies

- City of Menifee Public Works/Engineering (for grading permit)
- City of Menifee Building Permit
- City of Menifee Encroachment Permit

3.0 Initial Study Checklist

This section provides an evaluation of the impact categories and questions contained in the checklist and identifies mitigation measures, if applicable.

3.1 Background

1. **Project Title:**
   Quail Hills Residential Development Project

2. **Lead Agency Name and Address:**
   City of Menifee
   29844 Haun Road
   Menifee, CA 92586

3. **Contact Person and Phone Number:**
   City of Menifee – Brandon Cleary (951) 723-3761

4. **Project Location:**
   The project site is south of Rancho Drive, west of Goetz Road, and east of Palm Drive in the northwestern portion of the City of Menifee, Riverside County, California.

5. **Project Sponsor's Name and Address:**
   Quail Hills, LP.
   Paul Onufer
   Ponufer@avpre.com

6. **General Plan Designation:**
   2.1-5 du/ac Residential (2.1-5 R)

7. **Zoning:**
   Low-Density Residential-2 (LDR-2) [7,200 square feet]

8. **Description of Project:**
   Refer to Section 2.1, Description of the Proposed Project.

9. **Surrounding Land Uses and Setting:**
   The project site is surrounded by commercial and residential land use designations. The project site is primarily bordered by single-family residences from all directions and is adjacent to the Quail Valley Fire Station No. 5 to the south. Land uses to the east and south of the project site are designated Commercial Retail (CR) 0.20 - 0.35 FAR; land uses to the west of the project site are designated 2.1-5 du/ac Residential (2.1-5 R); and land uses to the north of the project site are designated Rural Mountainous 10 acres minimum (RM) (City of Menifee 2018) (see Figure 4, Surrounding Land Uses). Similarly, the areas surrounding the project site are zoned Commercial

Retail to the east and south, Low-Density Residential 2 (LDR-2) (7,200 square feet) to the west, and Rural Mountainous (RM) to the north.

10. Other public agencies whose approval is required:

- Eastern Municipal Water District
- Riverside County Department of Environmental Health

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.?

In compliance with Assembly Bill (AB) 52, the City distributed letters notifying each tribe that requested to be on the City's list for the purposes of AB 52 of the opportunity to consult with the City regarding the proposed project. The letters were distributed by certified mail on February 23, 2021. The tribes had 30 days to respond to the City's request for consultation. Refer to Section 4.18, Tribal Cultural Resources, for additional information.

3.2 Environmental Factors Potentially Affected

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

☐	Aesthetics	☐	Agriculture and Forestry	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Energy
☐	Geology and Soils	☐	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials
☐	Hydrology and Water Quality	☐	Land Use and Planning	☐	Mineral Resources
☐	Noise	☐	Population and Housing	☐	Public Services
☐	Recreation	☐	Transportation	☐	Tribal Cultural Resources
☐	Utilities and Service Systems	☐	Wildfire	☐	Mandatory Findings of Significance

The environmental factors checked below (x) would be potentially affected by this project, involving at least one impact that is "Less Than Significant With Mitigation Incorporated," as indicated by the following checklist.

☐	Aesthetics	☐	Agriculture and Forestry	☐	Air Quality
☒	Biological Resources	☐	Cultural Resources	☐	Energy
☐	Geology and Soils	☐	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials
☐	Hydrology and Water Quality	☐	Land Use and Planning	☐	Mineral Resources
☒	Noise	☐	Population and Housing	☐	Public Services
☐	Recreation	☐	Transportation	☒	Tribal Cultural Resources
☐	Utilities and Service Systems	☐	Wildfire	☒	Mandatory Findings of Significance

The environmental factors checked below (x) would be potentially affected by this project, involving at least one impact that is "Less Than Significant," as indicated by the following checklist.

☒	Aesthetics	☐	Agriculture and Forestry	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Energy
☒	Geology and Soils	☒	Greenhouse Gas Emissions	☒	Hazards and Hazardous Materials
☒	Hydrology and Water Quality	☒	Land Use and Planning	☐	Mineral Resources
☒	Noise	☒	Population and Housing	☒	Public Services
☒	Recreation	☒	Transportation	☒	Tribal Cultural Resources
☒	Utilities and Service Systems	☒	Wildfire	☒	Mandatory Findings of Significance

The environmental factors checked below (x) would be potentially affected by this Project, involving at least one impact that is considered "No Impact," as indicated by the following checklist.

☒	Aesthetics	☒	Agriculture and Forestry	☐	Air Quality
☒	Biological Resources	☐	Cultural Resources	☒	Energy
☒	Geology and Soils	☒	Greenhouse Gas Emissions	☒	Hazards and Hazardous Materials
☒	Hydrology and Water Quality	☒	Land Use and Planning	☒	Mineral Resources
☒	Noise	☒	Population and Housing	☐	Public Services
☒	Recreation	☐	Transportation	☐	Tribal Cultural Resources
☒	Utilities and Service Systems	☒	Wildfire	☐	Mandatory Findings of Significance

3.3 Lead Agency Determination

On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described 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 *Date*

______________________________ ____________________

3.4 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), 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.

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4.0 Environmental Analysis

4.1 Aesthetics

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

Would the project:

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

Less-than-Significant Impact. A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape feature (e.g., a mountain range, lake, or coastline) or of a significant historic or architectural feature (e.g., views of a historic structure). The proposed project is on a vacant lot that includes hills and is situated in a developed portion of the City of Menifee. The project site is adjacent to residential developments along the east, south, and west and a vacant lot to the north. Since the project site is located in an elevated area and is currently private property, the proposed project would not remove any scenic vistas within the project site. According to the General Plan's Community Design Element, the project site is not within an area identified as an Enhanced Landscape Corridor or a Scenic Corridor; thus, the hills where the proposed project would be constructed would not be considered a scenic vista. Additionally, the proposed project is also within a residential developed area and would not block or interfere with any scenic vistas from Quail Hill or surrounding residential developments. Therefore, the proposed project would have less-than-significant impacts with scenic vistas.

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

No Impact. According to the California Department of Transportation (Caltrans), there are no designated scenic highways within the City of Menifee. Route 5 and Route 76 are eligible state scenic highways and are 3.5 miles west and 4.5 miles northwest of the project site, respectively (Caltrans 2021). Thus, implementation of the proposed project would not damage scenic resources within or near any state scenic highway. Therefore, no impacts would occur.

c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-Significant Impact. The project site has a General Plan land use designation of 2.1-5 du/ac Residential (2.1-5 R) and is zoned Low-Density Residential 2 (LDR-2)(7,200 square feet)(City of Menifee 2018, 2019). The project site is in a developed area and primarily surrounded by residential developments. Residential lots within the proposed project would be similar in size to residential lots that surround the project site. The proposed project would be compatible with applicable zoning and other regulations governing scenic quality and would be consistent with the existing zoning and General Plan land use designations on the project site. Therefore, impacts to visual character or quality would be less than significant.

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

Less-than-Significant Impact. Nighttime illumination and glare impacts are the effects of a development's exterior lighting on adjoining uses and areas. Light reflecting off passing cars and large expanses of glazing (i.e., glass windows) or other reflective surfaces can generate glare. Excessive light and/or glare can impair vision, cause annoyance, affect sleep patterns, and generate safety hazards for drivers. The proposed project would include lighting typical of residential development, such as outdoor lighting, security lighting, and landscape and accent lighting. All outdoor lighting would comply with City of Menifee lighting requirements. Through implementation of Chapter 9.205, Lighting Standards, of the Menifee Comprehensive Development Code that requires shielded lighting, including specific standards for a rural setting (Section 9.205.060(B)), the proposed project would not significantly increase nighttime lighting in the neighborhood. The proposed project would comply with Section 9.205.050 of the Comprehensive Development Code, which prohibits lighting that is not aimed directly down, or unshielded lighting or any light source that is directly visible from a distance of 25 feet or more; flood lights; neon tubing or band lighting along buildings and/or structures as articulation, except as approved through plot plan approval; search lights, laser source lights, or any similar high-intensity light; lighting fixtures operated in such a manner as to constitute a hazard or danger to persons or to safe vehicular travel; illumination of entire buildings; roof-mounted lighting except for security purposes; and moving, flashing, or animated lighting. Additionally, as stated in Section 9.205.030, the proposed project's lighting plan would require approval by the City, prior to implementation of the proposed project. Therefore, light and glare impacts would be less than significant.

4.2 Agriculture and Forestry Resources

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. 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?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined in Government Code Section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

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?

No Impact. There is no agricultural or farm use on or in the vicinity of the project site; therefore, the proposed project would not convert farmland to nonagricultural uses. The project site is not mapped as important farmland on the California Important Farmland Finder (California Department of Conservation 2016). Therefore, no impact would occur.

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

No Impact. The proposed project would not conflict with agricultural zoning or a Williamson Act contract. The existing zoning for the project site is Low-Density Residential 2 (LDR-2)(7,200 SF). The project site is not zoned for agricultural use, and project development would not conflict with such zoning. Williamson Act contracts restrict the use of privately owned land to agriculture and compatible open-space uses under contract with local governments; in exchange, the land is taxed based on actual use rather than potential market value. There is no Williamson Act contract in effect on-site. Therefore, no impact would occur.

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

No Impact. Project development would not conflict with existing zoning for forest land, timberland, or timberland production. Forest land is defined 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." Timberland is defined as "land…. which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees." The project site is zoned for low-density residential uses and is not zoned for forest land or timberland use. As shown in Figure 3, Aerial Photograph, and described in the Biological Technical Report (Appendix B), the existing project site is vacant with a small number of trees and plants, including California buckwheat, brittlebush, mustard, small-flowered fiddleneck, cheatgrass, foxtail chess, wild oat, and foxtail chess. Therefore, no impact would occur.

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

No Impact. Construction of the proposed project would not result in the loss or conversion of forest land. No vegetation on-site is cultivated for forest resources. There is no vegetation on the existing project site, and no forest land would be affected by the proposed project; therefore, no impact would occur.

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. There is no mapped important farmland or forest land on or near the project site, and project development would not indirectly cause conversion of such land to nonagricultural or nonforest use. No impact would occur.

4.3 Air Quality

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

A background discussion on the air quality regulatory setting, meteorological conditions, existing ambient air quality in the vicinity of the project site, and air quality modeling can be found in Appendix A.

Would the project:

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

Less-than-Significant Impact. The South Coast Air Quality Management District (AQMD) adopted the 2016 Air Quality Management Plan (AQMP) on March 3, 2017. Regional growth projections are used by South Coast AQMD to forecast future emission levels in the South Coast Air Basin (SoCAB). For southern California, these regional growth projections are provided by the Southern California Association of Governments (SCAG) and are partially based on land use designations included in city/county general plans. Typically, only large, regionally significant projects have the potential to affect the regional growth projections.

Changes in population, housing, or employment growth projections have the potential to affect SCAG's demographic projections and therefore the assumptions in South Coast AQMD's AQMP. The project would result in 130 single-family residences. As discussed in Section 4.14, Population and Housing, the proposed project's population growth would be within SCAG's forecast growth projections for the city. Additionally, as demonstrated below in criterion 4.3(b), the regional emissions that would be generated by the operational phase of the proposed project would be less than the South Coast AQMD emissions thresholds, and would therefore not be considered by South Coast AQMD to be a substantial source of air pollutant emissions that would have the potential to affect the attainment designations in the SoCAB. Therefore, the proposed project would not affect the regional emissions inventory or conflict with strategies in the AQMP. 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 Impact. The following describes project-related impacts from regional short-term construction activities and regional long-term operation of the proposed project.

Regional Short-Term Construction Impacts

Construction activities would result in the generation of air pollutants. These emissions would primarily be (1) exhaust from off-road diesel-powered construction equipment, (2) dust generated by construction activities, (3) exhaust from on-road vehicles, and (4) off-gassing of volatile organic compounds (VOCs) from paints and asphalt.

Construction activities for the residential development are anticipated to disturb 33 acres on the 44.7-acre project site. The project would involve asphalt demolition as well as debris haul, site preparation, rough grading, fine grading, utilities trenching, paving, building construction, architectural coating, and finishing and landscaping. Construction is anticipated to start in February 2024 and finish in October 2027. Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod), Version 2020.4 (CAPCOA 2021), and are based on the preliminary construction duration and equipment mix provided by the applicant. Construction emissions modeling are shown in Table 1, Maximum Daily Regional Construction Emissions, and shows maximum daily emissions for VOC, nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter 10 micrometers or less in diameter (PM_{10}), and fine particulate matter 2.5 micrometers or less in diameter ($PM_{2.5}$) from construction-related activities would be less than their respective South Coast AQMD regional significance threshold values. Therefore, impacts to the regional air quality associated with construction of the project would be less than significant.

Table 1 Maximum Daily Regional Construction Emissions

Construction Phase	Pollutants (lb./day)[1, 2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2022						
Asphalt Demolition, Site Preparation, and Rough Grading 2022	6	67	42	<1	13	7
Asphalt Demolition and Rough Grading 2022	4	46	30	<1	6	3
Asphalt Demolition and Debris Haul and Rough Grading 2022	4	49	31	<1	9	4
Rough Grading 2022	3	30	16	<1	5	3
Rough Grading 2022 and Utility Trenching 2022	3	34	23	<1	5	3
Year 2023						
Rough Grading 2023 and Utility Trenching 2023	3	30	22	<1	5	3
Fine Grading and Utility Trenching 2023	3	30	22	<1	5	3
Fine Grading	2	27	15	<1	5	3
Building Construction 2023, Paving, and Finishing/Landscaping	4	25	44	<1	8	3
Building Construction 2023, Paving, Finishing/Landscaping, and Architectural Coating	14	27	49	<1	9	3

Table 1 Maximum Daily Regional Construction Emissions

Construction Phase	Pollutants (lb./day)[1, 2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2023						
Year 2024						
Building Construction 2024 and Architectural Coating 2024	13	16	31	<1	8	2
Architectural Coating 2024	10	1	5	<1	1	<1
Architectural Coating 2024 and Paving (Final Cap)	11	8	14	<1	2	1
Paving (Final Cap)	1	7	9	<1	<1	<1
Maximum Daily Construction Emissions						
Maximum Daily Emissions	14	67	49	<1	13	7
South Coast AQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod Version 2020.4.
[1] Based on the preliminary information provided by the applicant. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment.
[2] Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Long-Term Operation-Related Air Quality Impact

Typical long-term air pollutant emissions are generated by area sources (e.g., landscape fuel use, aerosols, architectural coatings, and asphalt pavement), energy use (natural gas), and mobile sources (i.e., on-road vehicles). The proposed project would result in development of 130 single-family homes on the project site. The City has adopted the 2019 Building Energy Efficiency Standards and the 2019 California Green Building Standards Code (CALGreen) (Sections 8.04 and 8.06 Menifee Municipal Code). As shown in Table 2, Maximum Daily Regional Operation Emissions, it is anticipated that operation of the proposed project would result in overall minimal emissions and would not exceed the South Coast AQMD regional operation-phase significance thresholds. Impacts to the regional air quality associated with operation of the project would be less than significant.

Table 2 Maximum Daily Regional Operation Emissions

Source	Maximum Daily Emissions (lbs./day)					
	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	7	<1	11	<1	<1	<1
Energy	<1	1	<1	<1	<1	<1
Mobile	4	3	44	<1	10	3
Total	12	4	56	<1	10	3

South Coast AQMD Regional Threshold	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2020.4.
Notes: lbs.: Pounds. Highest winter or summer emissions are reported.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. The proposed project could expose sensitive receptors to elevated pollutant concentrations if it causes or significantly contributes to elevated pollutant concentration levels. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects.

Construction LSTs

Localized significance thresholds (LSTs) are based on the California ambient air quality standards (AAQS), which are the most stringent AAQS to provide a margin of safety in the protection of public health and welfare. They are designated to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The screening-level construction LSTs are based on the size of the project site, distance to the nearest sensitive receptor, and Source Receptor Area (SRA). The nearest off-site sensitive receptors are the residences along Palm Drive, approximately 80 feet to the west of the project site.

Air pollutant emissions generated by construction activities would cause temporary increases in air pollutant concentrations. Table 3, Localized Construction Emissions, shows that the maximum daily construction emissions (pounds per day) for NOx, CO, PM_{10}, and $PM_{2.5}$ construction emissions would be less than their respective South Coast AQMD screening-level LSTs. Therefore, air quality impacts from project-related construction activities would be less than significant.

Table 3 Localized Construction Emissions

Construction Activity	Pollutants (lbs./day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
South Coast AQMD ≤1.00 Acre LST	**118**	**602**	**4.00**	**3.00**
Building Construction 2023, Paving, and Finishing/Landscaping	17	25	0.86	0.81
Building Construction 2023, Paving, Finishing/Landscaping, and Architectural Coating 2023	19	27	0.93	0.88
Building Construction 2023 and Architectural Coating 2023	10	16	0.52	0.49
Building Construction 2024 and Architectural Coating 2024	8	11	0.38	0.37
Architectural Coating 2024	1	2	0.06	0.06
Architectural Coating 2024 and Paving (Final Cap)	8	11	0.40	0.38

Table 3 Localized Construction Emissions

Construction Activity	Pollutants (lbs./day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
South Coast AQMD ≤1.00 Acre LST	**118**	**602**	**4.00**	**3.00**
Paving (Final Cap)	7	9	0.34	0.32
Exceeds LST?	No	No	No	No
South Coast AQMD 3.00-Acre LSTs	**203**	**1,114**	**9.00**	**5.33**
Rough Grading 2022	30	16	4.90	2.63
Rough Grading 2022 and Utility Trenching 2022	33	22	5.07	2.79
Rough Grading 2023 and Utility Trenching 2023	29	21	4.88	2.62
Fine Grading and Utility Trenching	29	21	4.88	2.62
Fine Grading	26	15	4.73	2.48
Exceeds LST?	No	No	No	No
South Coast AQMD 3.50-Acre LSTs	**220**	**1,230**	**9.99**	**6.00**
Asphalt Demolition and Rough Grading 2022	45	29	5.64	3.33
Asphalt Demolition and Debris Haul, Rough Grading 2022	45	29	7.87	3.66
Exceeds LST?	No	No	No	No
South Coast AQMD ≥5.00-Acre LSTs	**270**	**1,577**	**12.99**	**8.00**
Asphalt Demolition, Site Preparation, and Rough Grading 2022	66	41	12.26	7.14
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2020.4. South Coast AQMD 2008 and 2011.
Notes: In accordance with South Coast AQMD methodology, only on-site stationary sources and mobile equipment are included in the analysis. Screening-level LSTs are based on an 82 ft receptor in SRA 24.
a Where specific information for project-related construction activities or processes was not available modeling was based on CalEEMod defaults. These defaults are based on construction surveys conducted by the South Coast AQMD.
b Includes fugitive dust control measures required by South Coast AQMD under Rule 403, such as watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing groundcover quickly, and street sweeping with Rule 1186–compliant sweepers.

Construction Health Risk

Emissions from construction equipment primarily consist of diesel particulate matter (DPM). In 2015, the Office of Environmental Health Hazards Assessment (OEHHA) adopted guidance for preparation of health risk assessments, which included the development of a cancer risk factor and non-cancer chronic reference exposure level for DPM over a 30-year time frame (OEHHA 2015). Currently, South Coast AQMD does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. The proposed project is anticipated to be completed in approximately 21 months, which would limit the exposure to on-site and off-site receptors. Furthermore, construction activities would not generate on-site exhaust emissions that would exceed the screening-level construction LSTs. Thus, construction emissions would not pose a health risk to on-site and off-site receptors, and project-related construction health impacts would be less than significant.

Operation LSTs

Operation of the proposed project would not generate substantial emissions from on-site stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions include industrial land uses, such as chemical processing and warehousing operations where truck idling would occur on-site and would require a permit from South Coast AQMD. The proposed project does not fall within these categories of uses. While operation of the new buildings would use standard on-site mechanical equipment such as heating, ventilation, and air conditioning, air pollutant emissions would be nominal. Localized air quality impacts related to operation-related emissions would be less than significant.

Carbon Monoxide Hotspots

Vehicle congestion has the potential to create pockets of CO called hotspots. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles are backed-up and idle for longer periods and are subject to reduced speeds. These pockets could exceed the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations.

The SoCAB has been designated attainment under both the national and California AAQS for CO. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—to generate a significant CO impact (BAAQMD 2017). The project-related 144 PM peak-hour vehicle trips would not exceed the AAQS screening levels. The project would not substantially increase CO hotspots at intersections and 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 Impact. The proposed project would not result in objectionable odors. The threshold for odor is if a project creates an odor nuisance pursuant to South Coast AQMD Rule 402, Nuisance, which states:

> A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

The type of facilities that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The proposed project involves construction of a residential development and would not fall within the objectionable odors land uses. Emissions from construction equipment, such as diesel exhaust and VOCs from architectural coatings and paving activities may generate odors. However, these odors would be low in concentration, temporary, and would not affect a substantial number of people. Odor impacts would be less than significant.

4.4 Biological Resources

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
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?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?		X		

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 U.S. Fish and Wildlife Service?

Less-than-Significant Impact with Mitigation Incorporated. According to the Biological Technical Report (Appendix B), the proposed project has the potential to have a substantial adverse effect, either directly or through habitat modifications, on special-status species identified by the California Department of Fish and Wildlife (CDFW), and/or United States Fish and Wildlife Service (USFWS). Impacts to each special-status species identified as having a potential to occur are described below.

Of the 11 special-status plants identified, 6 plant species (San Diego ambrosia [*Ambrosia pumila*], Parry's spineflower *[Chorizanthe parryi*], long-spined spineflower [*Chorizanthe polygonoides* var. *longispina*], slender-horned spineflower [*Dodecahema leptoceras*], Munz's onion [*Allium munzii*], and thread-leaved brodiaea [*Brodiaea filifolia*]) were determined to have a moderate potential to occur on the project site. However, all six of these species are covered under the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) and considered adequately conserved through participation in the MSHCP. Impacts to these species do not require additional surveys or mitigation because the project site is not within a Narrow Endemic Plant Species Survey Area (NEPSSA) or Criteria Area.

Additionally, of the 49 special-status wildlife species identified in the literature search, 7 wildlife species (coastal whiptail [*Cnemidophorus tigris*], burrowing owl [*Athene cunicularia*], red diamond rattlesnake [*C. ruber*], Stephens' kangaroo rat [*Dipodomys stephensi*], San Diego black-tailed jackrabbit [*Lepus californicus bennettii*], coast horned lizard [*Phrynosoma coronatum*], and coastal California gnatcatcher [*Polioptila californica californica*]) have a high potential to occur on the project site. However, excluding burrowing owl and Stephens' kangaroo rat, the remaining five species are covered under the MSHCP and considered adequately conserved. Impacts to these five species do not require additional surveys or mitigation. Burrowing owl and Stephens' kangaroo rat do have additional requirements under the MSHCP and these are discussed herein.

Ten species have moderate or low potential to occur on the project site. Of these 10 species, 3 species (Los Angeles pocket mouse [*Perognathus longimembris*], northwestern San Diego pocket mouse [*Perognathus fallax fallax*], and Quino checkerspot butterfly [*Euphydryas editha quino*]) are covered by the MSHCP and considered adequately conserved and would not require additional surveys or mitigation. The remaining six species (California glossy snake [*Arizona elegans*], Crotch's bumble bee [*Bombus crotchii*], Dulzura pocket mouse [*Perognathus californicus femoralis*], loggerhead shrike [*Lanius ludovicianus*], southern grasshopper mouse [*Onychomys torridus*], and American badger [*Taxidea taxus*]) are not covered by the MSHCP and could be subject to direct impacts through ground disturbance and indirect impacts from construction noise, vibration, and increased human activity related to the development of the project site. However, due to the lack of high-quality habitat and the isolated nature of the project site, these species, if present, only occur in very low density and loss of those animals, excluding loggerhead shrike and Crotch's bumble bee, would not be enough to result in a significant impact under CEQA. Therefore, no focused surveys or mitigation measures are required and impacts to these species are considered less than significant. Crotch's bumble bee, a candidate for state listing as endangered, has a moderate potential to occur in the project area based on review of historical records within five miles of the project area and the presence of suitable habitat. Additional surveys are recommended to determine presence/absence of Crotch's bumble bee.

With payment of the MSHCP fee, as required by Chapter 8.27 of the Menifee Municipal Code, and implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3, impacts, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species, would be less than significant.

Mitigation Measures:

BIO-1: Preconstruction Surveys for Nesting Birds: Any development activities (such as ground disturbance, construction activities, and/or removal of trees and vegetation) within the project site shall be conducted during the non-breeding season for birds (approximately September 1 through February 15). This will avoid violations of the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503, 3503.5, and 3513. The nest surveys shall include the project site and adjacent areas where project activities have the potential to cause nest failure. If activities with the potential to disrupt nesting birds are scheduled to occur during the bird breeding season (February through August for raptors and March through August for songbirds), a preconstruction nesting bird survey shall be conducted by a qualified biologist. The survey results shall be provided to the City's Planning Department. The Project Applicant shall adhere to the following:

1. Applicant shall designate a biologist (Designated Biologist) experienced in: identifying local and migratory bird species of special concern; conducting bird surveys using appropriate survey methodology; nesting surveying techniques, recognizing breeding and nesting behaviors, and identifying nesting stages and nest success; determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization efforts.

2. Pre-activity field surveys shall be conducted at the appropriate time of day/night, during appropriate weather conditions, no more than 3 days prior to the initiation of Project activities. Surveys shall encompass all suitable areas including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the project site; density, and complexity of the habitat; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected is complete and accurate.

If no nesting birds are observed during the survey, site preparation and construction activities may begin. If nesting birds (including nesting raptors) are found to be present, then avoidance or minimization measures shall be undertaken in consultation with the City of Menifee and California Department of Fish and Wildlife. Measures shall include immediate establishment of an appropriate buffer zone to be established by a qualified biologist, and approved by the City of Menifee, based on their best professional judgement and experience. The buffer around the nest shall be delineated and flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines nesting species have fledged and the nest is no longer active or the nest has failed. The Designated Biologist shall monitor the nest at the onset of project activities, and at the onset of any changes in such project activities (e.g. increase in number or type of equipment, change in equipment usage, etc.) to determine the efficacy of the buffer. If the Designated Biologist determines that such project activities may be causing an adverse reaction, the Designated Biologist shall adjust the buffer accordingly or implement alternative avoidance and minimization measures, such as redirecting or rescheduling construction or erecting sound barriers. All work within these buffers will be halted until the nesting effort is finished (i.e. juveniles are surviving independent of the nest). The onsite qualified biologist will review and verify compliance with these nesting avoidance buffers and will verify the nesting effort has finished. Work can resume within these avoidance areas when no other active nests are found. Upon completion of the survey and nesting bird monitoring, a report shall be prepared and submitted to the City for mitigation monitoring compliance record keeping.

BIO-2: Preconstruction Surveys for Burrowing Owl: Four protocol-level burrowing owl surveys were conducted during the breeding season (February 1 through August 31) on March 22-23 and March 25-26, 2021, in accordance with the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). Although no sign of burrowing owl or live burrowing owls were identified during the survey, 16 potential burrowing owl burrows were identified on the project site during the four protocol surveys. To avoid project-related impacts to burrowing owls potentially occurring on or in the vicinity of the project site, a preconstruction survey be conducted by a qualified biologist no more than 30 days prior to construction (e.g. vegetation clearing, clearing and grubbing, tree removal, site watering) to determine the presence of own or sign thereof. The results shall be submitted to the City Planning Department. If no burrowing owls are observed during the survey, site preparation and construction activities may begin. If burrowing owls are found to be present, then avoidance or minimization measures shall be undertaken in consultation with the City of Menifee and California Department of Fish and Wildlife (CDFW). CDFW shall be sent written notification within 48 hours of detection of burrowing owls. If active burrowing owl burrows are detected, the Project applicant shall not commence activities until no sign is present that the burrows are being used by adult or juvenile owls or following CDFW approval of a Burrowing Owl Plan as described below. If owl presence is difficult to determine, a qualified biologist shall monitor the burrows with motion activated trail cameras for at least 24 hours to evaluate burrow occupancy. The onsite qualified biologist will verify the nesting effort has finished according to methods identified in the Burrowing Owl Plan.

The Burrowing Owl Plan shall be prepared in accordance with guidelines in the CDFW Staff Report on Burrowing Owl (March 2012) and the MSHCP. The qualified biologist and Project Applicant shall coordinate with the City, CDFW, and USFWS to develop a Burrowing Owl Plan to be approved by the City, CDFW and USFWS prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, relocation, monitoring, minimization, and/or mitigation actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites and details on proposed buffers if avoiding the burrowing owls or information on the adjacent or nearby suitable habitat available to owls for relocation. If no suitable habitat is available for nearby for relocation, details regarding the creation and funding of artificial burrows (numbers, location and type of burrows) and management activities for relocated owls shall also be included in the Burrowing Owl Plan. The City shall implement the Burrowing Owl Plan following CDFW and USFWS review and approval.

If burrowing owls are observed within Project Site(s) during project implementation and construction, the Project Applicant shall notify CDFW immediately in writing within 48 hours of detection. A Burrowing Owl Plan shall be submitted to CDFW for review and approval within two weeks of detection and no Project activity shall continue within 1,000 feet of the burrowing owls until CDFW approves the Burrowing Owl Plan. The City shall be responsible for implementing appropriate avoidance and mitigation measures, including burrow avoidance, passive or active relocation, or other appropriate mitigation measures as identified in the Burrowing Owl Plan.

If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a preconstruction survey for burrowing owl shall be conducted and submitted to the City for review. If a burrowing owl is found, the same coordination described above shall be necessary.

A final letter report shall be prepared by the qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CSFW prior to the start of Project activities.

BIO-3: **Crotch's Bumble Bee Surveys and Coordination:** Crotch's bumble bee has a moderate potential to occur on the project site and a focused survey shall be conducted prior to ground disturbance to determine presence of the species. Coordination with the City of Menifee and California Department of Fish and Wildlife on appropriate survey methods for this species will need to occur because there is no published survey protocol available. If Crotch's bumble bee is present on the project site and project impacts are unavoidable, then further coordination with the California Department of Fish and Wildlife will need to occur to develop a mitigation plan for the species. Mitigation measures may include seasonal work restrictions and additional biological monitoring.

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

Less-than-Significant Impact. A significant impact would occur if any riparian habitat or natural community would be lost or destroyed as a result of project implementation. The project site does not contain any riparian habitat or other sensitive natural community (as documented in the site visit performed as part of the Biological Technical Report

[Appendix B]). In accordance with Section 6.1.2 of the Western Riverside MSHCP, a habitat assessment was performed for riparian and riverine communities, vernal pools, and fairy shrimp.

The eucalyptus grove along the eastern border of the project site contained two riparian species (mule fat [*Baccharis salicifolia*] and willow [*Salix* spp.]) that were isolated and not extensive enough to call out as their own community. However, this area is not considered a riparian resource because there was no evidence of a nearby freshwater source and the few willows and mule fat do not appear to depend on soil moisture from a nearby freshwater source.

The eucalyptus groves do not provide suitable nesting habitat for riparian obligate special-status species, such as least Bell's vireo, because it is not dense enough and does not support an understory. Therefore, since no watercourses run through or adjacent to the project site, and no riparian habitat exists on-site, a less-than-significant impact would occur.

c) Have a substantial adverse effect on sate 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 site is currently vacant and there are no protected wetlands on-site. The nearest wetland to the site is Canyon Lake, approximately 1.5 miles southwest of the project site. However, Canyon Lake would not be impacted by the development activities that would occur on-site as a part of the proposed project. The proposed project would not impact any protected wetland areas. Therefore, no impact to state or federally protected wetlands would occur.

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?

No Impact. The project site is within and adjacent to areas containing existing disturbances (e.g., paved roads and residential, commercial, and industrial developments). The project site could provide wildlife movement opportunities since it consists of open and unimpeded land. However, because the project site was surrounded by development, it would not be considered a wildlife movement corridor that would need to be preserved to allow wildlife to move between important natural habitat areas. The site is exposed and did not contain any drainages or washes that would be considered movement corridors for wildlife. No migratory wildlife corridors or native wildlife nursery sites were identified within the project site. Therefore, no impacts would occur.

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

Less-than-Significant Impact. The project site, consisting mainly of scrub and grassland habitats, contained a mix of disturbed and undisturbed land. According to the Biological Technical Report (Appendix B), the eucalyptus groves on the project site consist primarily of gum tree (*Eucalyptus globulus*), and include other ornamental species, including Peruvian pepper tree (*Schinis molle*) and salt cedar (*Tamarix ramosissima*). However, according the City's General Plan EIR, these trees are not considered sensitive plant species. Thus, the proposed project would not conflict with Chapter 9.200, Tree Preservation, of the Comprehensive Development Code, which protects trees, considered to be a valuable community resource, from indiscriminate cutting or removal, including heritage trees such as those with certain characteristics (age, size, species, location, historical influence, aesthetic quality, or ecological value), which are subject to special attention and preservation efforts. The proposed project would comply with local policies and regulations protecting biological resources, as described in the Biological Technical Report (Appendix B), including the tree preservation policy. Therefore, the impact would be less than significant.

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?

Less-than-Significant Impact with Mitigation Incorporated. The project site is within the study area for the Western Riverside County MSHCP, but outside of any cell groups, criteria cells, and subunit designations. The project site is also not within MSHCP-designated survey areas for amphibians, criteria area species, mammals, and narrow endemic plant species survey areas. The project site is within MSHCP-designated burrowing owl survey area. The proposed project consists of construction of residential houses, which is a covered activity under the MSHCP for areas outside of subunits or criteria cells. Since development of the project site is a covered activity within the MSHCP, it is an allowable use that has been contemplated within the MSHCP. However, projects that are covered still need to comply with MSHCP requirements. Thus, the implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3, as described previously, would ensure consistency with the MSHCP, and would provide adequate protection for nesting birds, burrowing owls, and Crotch's bumble bee. Therefore, the proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan. Impacts would be less than significant with mitigation incorporated.

4.5 Cultural Resources

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?			X	
c) Disturb any human remains, including those interred outside of dedicated cemeteries?			X	

Would the project:

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

Less-than-Significant Impact. Section 15064.5 of the CEQA Guidelines defines historic resources as resources listed or determined to be eligible for listing by the State Historical Resources Commission, a local register of historical resources, or the lead agency. Generally a resource is considered "historically significant" if it meets one of the following criteria:

i. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
ii. Is associated with the lives of persons important in our past;
iii. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values;
iv. Has yielded, or may be likely to yield, information important in prehistory or history.

The project site is currently a vacant, undeveloped property and is not located within a national or historic district. The California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP) lists do not include the project site. According to the Cultural Resources Inventory and Evaluation Report (Appendix C), the proposed project does not contain any historic resources under CEQA and no previous cultural resources had been identified. Therefore, impacts to historical resources would be less than significant.

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

Less-than-Significant Impact. The Cultural Resources Inventory and Evaluation Report (Appendix C) determined that no historic resources are present within the project site. Additionally, the archaeological sensitivity of the project site is low to moderate as is the potential for ground-disturbing activities to expose previously unrecorded cultural resources (ECORP 2021). If subsurface deposits believed to be cultural or human in origin are discovered during construction of the proposed project, all work must halt within a 100-foot radius of the discovery and the City must be notified immediately. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained by the applicant to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately, and no agency notifications are required. However, if the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the professional archaeologist shall immediately notify the City of Menifee and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a historical resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Work may not resume within the no-work radius until the City, through consultation as appropriate, determines that the site either: (1) is not a historical resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or (2) that the treatment measures have been completed to their satisfaction. Therefore, impacts to archaeological resources would be less than significant.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Less-than-Significant Impact. There are no known human remains or cemeteries on the project site or adjoining properties. As previously discussed, the archaeological sensitivity of the project site is believed to be low to moderate. However, in the unlikely event that the project applicant discovers human remains during ground-disturbing activities, California Health and Safety Code Section 7050.5 requires that disturbance of the site shall remain halted. The County Coroner shall conduct an investigation into the circumstances, manner, and cause of any death and recommend the treatment and disposition of the human remains to the person responsible for the excavation or to his or her authorized representative, in the manner provided in Section 5097.98 of the California Public Resources Code. The coroner is required to make a determination within two working days of notification of the discovery of the human remains. If the coroner determines that the remains are not subject to his or her authority or has reason to believe the human remains to be those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) so that the NAHC can contact the "most likely descendant." The most likely descendant shall receive access to the discovery and would provide recommendations or preferences for treatment of the remains within 48 hours of accessing the discovery site. Disposition of human remains and any associated grave goods, if encountered, shall be treated in accordance with procedures and requirements set forth in Sections 5097.94 and 5097.98 of the Public Resources Code; Section 7050.5 of the California Health and Safety Code; and CEQA Guidelines Section 15064.5. Compliance with existing law regarding the discovery of human remains would reduce potential impacts to human remains to a less-than-significant level.

4.6 Energy

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

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?

Less-than-Significant Impact. The proposed project would result in short-term construction and long-term operational energy consumption.

Short-Term Construction Impacts

Construction of the proposed project would create temporary increased demands for electricity and vehicle fuels compared to existing conditions and would result in short-term transportation-related energy use.

Electrical Energy

Electricity use during construction of the proposed project would vary during different phases of construction. The majority of construction equipment would be gas- or diesel-powered, and electricity would not be used to power most of the construction equipment. Later construction phases could result in the use of electricity-powered equipment for interior construction and architectural coatings (paint spray equipment). However, it is anticipated that the majority of electric-powered construction equipment would be hand tools (e.g., power drills, table saws) and lighting, which would result in minimal electricity usage during construction activities. Therefore, project-related construction activities would not result in wasteful or unnecessary electricity demands, and impacts would be less than significant.

Natural Gas Energy

It is not anticipated that construction equipment used for the proposed project would be powered by natural gas, and no natural gas demand is anticipated during construction. Therefore, impacts would be less than significant with respect to natural gas usage.

Transportation Energy

Transportation energy use during construction of the proposed project would come from delivery vehicles, haul trucks, and construction employee vehicles. In addition, transportation energy demand would come from use of off-road construction equipment. It is anticipated that the majority of off-road construction equipment, such as those used during demolition and grading, would be gas or diesel powered. The use of energy resources by these vehicles would fluctuate according to the phase of construction.

To limit wasteful and unnecessary energy consumption, the construction contractors are anticipated to minimize nonessential idling of construction equipment during construction, in accordance with Title 13 of the California Code of Regulations (CCR) Section 2449. In addition, construction trips would not result in unnecessary use of energy since the project site is centrally located and is served by numerous regional freeway systems (e.g., I-215 and I-15) that provide the most direct routes from various areas of the region. Furthermore, electrical energy would be available for use during construction from existing power lines and connections, precluding the use of less-efficient generators. Moreover, all construction equipment would cease operating upon completion of project construction. Thus, energy use during construction of the proposed project would not be considered inefficient, wasteful, or unnecessary. Impacts would be less than significant.

Long-Term Impacts During Operation

Operation of the proposed project would generate new demand for electricity, natural gas, and transportation energy on the project site. Operational use of energy would include heating, cooling, and ventilation of buildings; water heating; operation of electrical systems, use of on-site equipment and appliances; and indoor, outdoor lighting.

Electrical Energy

Operation of the proposed residential development and retail uses would consume electricity for various purposes, including, but not limited to, heating, cooling, and ventilation of buildings, water heating, operation of electrical systems, lighting, and use of on-site equipment and appliances. Electrical service to the proposed project would be provided by Southern California Edison (SCE) through connections to existing off-site electrical lines and new on-site infrastructure. As shown in Table 4, Electricity Consumption, implementation of the proposed project would result in 1,035,410 kilowatt hours of electricity use per year.

Table 4 Electricity Consumption

Land Use	Electricity (kWh/year)
Proposed Project Conditions	
Single-Family Housing	1,035,410
Total	1,035,410

Source: CalEEMod Version 2020.4
Note: kWh = kilowatt hour(s)

While the proposed project would result in a higher electricity demand than existing conditions, it would be consistent with the requirements of the 2019 Building Energy Efficiency Standards and would be required to comply with the 2019 California Green Building Standards Code (CALGreen) (Sections 8.04 and 8.06 of the Menifee Municipal Code). Therefore, operation of the proposed project would not result in wasteful or unnecessary electricity demands and would not result in a significant impact related to electricity.

Natural Gas Energy

The potential natural gas consumption for the project site is shown in Table 5, Natural Gas Consumption. As shown in the table, implementation of the proposed project would generate an average natural gas demand of 3,677,300 kilo British thermal units (kBTU) per year, primarily due to natural gas use by residential development. While the proposed project would result in a higher natural gas demand than the existing vacant condition of the site, it would be consistent with the requirements of the Building Energy Efficiency Standards and would not result in wasteful or unnecessary natural gas demands. Therefore, operation of the proposed project would result in less-than-significant impacts with respect to natural gas usage.

Table 5 Natural Gas Consumption

Land Use	Natural Gas (kBTU/year)
Proposed Project Conditions	
Single-Family Housing	3,677,300
Total	3,677,300

Source: CalEEMod Version 2020.4
Note: kBTU = kilo British thermal units

Transportation Energy

The proposed project would consume transportation energy during operations from the use of motor vehicles. The efficiency of these motor vehicles is unknown, such as the average miles per gallon. Estimates of transportation energy use are based on the overall vehicle miles traveled (VMT) and associated transportation energy use. The project-related VMT would primarily come from the residents of the proposed development as well as visitors to the proposed retail establishment. The VMT for the proposed project is estimated to be 12,787 miles daily or 4,667,121 miles annually. However, because the proposed project involves development of new residential housing opportunities, it would provide more opportunities to reside in an urbanized area with nearby amenities and public transit options. These features of the proposed project would contribute to minimizing VMT and transportation-related fuel usage. Thus, it is expected that operation-related fuel usage associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than similar development projects. Therefore, impacts would be less than significant with respect to operation-related fuel usage.

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

No Impact. The state's electricity grid is transitioning to renewable energy under California's Renewable Energy Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. Electricity production from renewable sources is generally considered carbon neutral. Executive Order S-14-08, signed in November 2008, expanded the state's renewable portfolios standard (RPS) to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (Senate Bill [SB] X1-2). SB 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures. On September 10, 2018, Governor Brown signed SB 100, which supersedes the SB 350 requirements. Under SB 100, the RPS for publicly owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 established a new RPS requirement of 50 percent by 2026. The bill also established a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under SB 100, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

The statewide RPS goal is not directly applicable to individual development projects, but to utilities and energy providers such as SCE, which is the utility that would provide all electricity needs for the proposed project. Compliance of SCE in meeting the RPS goals would ensure the state meets its objective in transitioning to renewable energy. The proposed project also would comply with the latest 2019 Building Energy Efficiency Standards and CALGreen. Therefore, implementation of the proposed project would not conflict with or obstruct plans for renewable energy and energy efficiency, and no impact would occur.

4.7 Geology and Soils

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

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 Division of Mines and Geology Special Publication 42.

No Impact. The project site is not in a currently established Alquist-Priolo Earthquake Fault Zone for fault rupture hazard (DOC 2021). The nearest fault is the Glen Ivy North Fault, 5 miles southwest of the project site. Additionally, there is one pre-quaternary fault 2.5 miles east of the project site. No active faults with the potential for surface fault rupture are known to pass directly beneath the site; therefore, no impacts related to fault rupture would occur.

ii. Strong seismic ground shaking?

Less-than-Significant Impact. As discussed previously, the project site it not in an Alquist-Priolo Earthquake Fault Zone. However, as with all areas in southern California, movement associated with active faults could cause strong ground shaking at the project site. The degree of ground shaking and earthquake-induced damage is dependent on multiple factors, such as distances to causative faults, earthquake magnitudes, and expected ground accelerations. The proposed project would be required to comply with California Building Codes (CBC), as adopted by the City of Menifee (Title 8: Buildings and Construction, Menifee Municipal Code), which would ensure that the proposed project's buildings would be designed to withstand ground shaking. The proposed project would be required to comply with the seismic design parameters of the CBC, which regulates all building and construction projects within the city and implements a minimum standard for building design and construction that includes specific requirements for seismic safety, evacuation, foundations, retaining walls, and site demolition. The CBC would ensure that buildings on-site could withstand ground shaking. Therefore, a less-than-significant impact related to ground shaking would occur.

iii. Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. According to the United States Geological Survey (USGS), liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes (USGS 2021).

The project site is not within a liquefaction zone (DOC 2021) and is not within a zone of required investigation for liquefaction according to the California Geological Survey. Therefore, the potential for liquefaction at the site is low and the impact would be considered less than significant.

iv. Landslides?

Less-than-Significant Impact. A landslide is a type of erosion in which masses of earth and rock move downslope as a single unit. Susceptibility of slopes to landslides and other forms of slope failure depend on several factors, which are usually present in combination and include steep slopes, condition of rock and soil materials, the presence of water, formational contacts, geologic shear zones, and seismic activity.

The project site is not in an area with the potential for earthquake-induced landslides (DOC 2021). Thus, the potential for earthquake-induced landslides at the site is considered low and the impact would be considered less than significant.

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

Less-than-Significant Impact. Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed, or dissolved, and moved from one place to another. Precipitation, running water, waves, and wind are all agents of erosion. Ordinarily, erosion proceeds imperceptibly, but when the natural equilibrium of the environment is changed, the rate of erosion can be greatly accelerated. This can create aesthetic as well as engineering problems on undeveloped sites. Accelerated erosion in an urban area can cause damage by undermining structures; blocking storm drains; and depositing silt, sand, or mud in roads and tunnels. Eroded materials can eventually be deposited in local waters, where the carried silt remains suspended in the water for some time, constituting a pollutant and altering the normal balance of plant and animal life.

Project-related construction activities would expose soil through excavation, grading, and trenching, and thus could cause erosion during heavy winds or storms. Construction projects of one acre (such as the project site) or more are regulated under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) issued by the State Water Resources Control Board (SWRCB). Project applicants obtain coverage by developing and implementing a Stormwater Pollution Prevention Plan (SWPPP) estimating sediment risk from construction activities to receiving waters, and specifying best management practices (BMPs) that would be incorporated into the construction plan to minimize stormwater pollution. Categories of BMPs used in SWPPPs are described in Table 6, Construction Best Management Practices. Construction of the proposed project would be subject to the Statewide General Construction Permit and implementation of BMPs specified in the SWPPP.

Furthermore, construction activities of projects approved pursuant to the proposed General Plan would be required to comply with South Coast AQMD Rules 403 and 403.2 regulating fugitive dust emissions, thus minimizing wind erosion from such ground-disturbing activities. Construction activities would not generate substantial erosion. With these requirements, construction-phase soil erosion impacts would be less than significant.

Table 6 Construction Best Management Practices

Category	Purpose	Examples
Erosion Controls and Wind Erosion Controls	Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind.	Mulch, geotextiles, mats, hydroseeding, earth dikes, swales.
Sediment Controls	Filter out soil particles that have been detached and transported in water.	Barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; cleaning measures such as street sweeping.
Tracking Controls	Minimize the tracking of soil off-site by vehicles.	Stabilized construction roadways and construction entrances/exits; entrance/outlet tire wash.
Non-stormwater Management Controls	Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment. Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges.	BMPs specifying methods for: Paving and grinding operations; cleaning, fueling, and maintenance of vehicles and equipment; concrete curing; concrete finishing.
Waste Management and Controls (i.e., good housekeeping practices)	Management of materials and wastes to avoid contamination of stormwater.	Spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.

Source: California Stormwater Quality Association (CASQA). 2012, July. California Construction Best Management Practices Handbook.

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 Impact. Hazards arising from liquefaction and landslides would be less than significant, as discussed in Sections a(iii) and a(iv).

Lateral spreading. Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. However, as described previously, the project site is not within a liquefaction zone. Therefore, the proposed project would not expose people or residences to adverse effects associated with lateral spreading. Impacts would be less than significant.

Subsidence. The major cause of ground subsidence is withdrawal of groundwater. The project site is not over a groundwater basin. Therefore, project implementation would not pose substantial hazards to people or structures due to ground subsidence, and impacts would be less than significant.

Collapsible Soils. Collapsible soils are typically geologically young, unconsolidated sediments of low density that may compress under the weight of structures. Since the project site is not over a groundwater basin, the risk of soil expansion and collapse are considered low. Therefore, impacts would be less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial direct or indirect risks to life or property?

Less-than-Significant Impact. Expansive soils possess clay particles that react to moisture changes by shrinking when dry or swelling when wet. These soils have the potential to crack building foundations and, in some cases, structurally distress the buildings themselves. Minor to severe damage to overlying structures is possible.

According to the Preliminary Geotechnical Investigation prepared for the proposed project (see Appendix D), the low-lying area of the project site are underlain by soil cover and shallow slope wash deposits with minor alluvial channel materials ranging up to approximately 3 feet in thickness, thickest on the southern portion and the southern low-lying area, which overlie quartz rich metamorphic bedrock and granite rock. Soils sampled during field exploration exhibited very low expansion potential. Thus, the expansion potential is low for surficial soils and moderate for soils at the building foundation level. Since the project site is not over a groundwater basin, the risk of soil expansion and collapse are considered low. Therefore, the proposed project would not create substantial direct or indirect risks to life or property, and impacts would be less than significant.

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

No Impact. A project would cause a significant impact if adequate wastewater disposal were not available. The proposed project does not propose the use of septic tanks or alternative wastewater disposal systems. The project site is in a residential area and would connect to existing sewer lines. Therefore, no impacts would occur.

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

Less-than-Significant Impact. A paleontological resource is a natural resource characterized as faunal or floral fossilized remains but may also include specimens of nonfossil material dating to any period preceding human occupation. A significant impact would occur if ground-disturbing activities (e.g., grading, excavation) associated with project construction would disturb, damage, or destroy previously unknown buried prehistoric or historic features and deposits that could be considered significant resources.

Construction activities would require surficial grading and minimal excavation over the project site. In the unlikely event that paleontological resources are discovered during excavation or grading, potential impacts would be reduced through compliance with regulatory requirements in California Public Resources Code Section 21083.2 and the City's General Plan Conservation Element. Therefore, through compliance with these regulatory requirements, the potential for disturbing a known or unknown paleontological or geological resource as a result of the proposed development would be less than significant.

4.8 Greenhouse Gas Emissions

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

A background discussion on the greenhouse gas (GHG) regulatory setting and GHG modeling can be found in Appendix A to this Initial Study.

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough GHG emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

Project-related construction and operation-phase GHG emissions are shown in Table 7. Implementation of the proposed project would result in up to 130 new single-family units. The proposed project would generate 1,227 weekday vehicle trips for the 130 new units. Operation of the proposed project would also result in an increase in water demand, wastewater and solid waste generation, area sources (e.g., consumer cleaning products), and energy usage (i.e., natural gas and electricity). Annual average construction emissions were amortized over 30 years and included in the emissions inventory to account for one-time GHG emissions from the construction phase of the project. Overall, development and operation of the proposed project would not generate annual emissions that exceed the South Coast AQMD Working Group bright-line threshold of 3,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year (South Coast AQMD 2010). Therefore, the proposed project's cumulative contribution to GHG emissions would be less than significant.

Table 7 Project-Related Construction and Operation GHG Emissions

Source	GHG ($MTCO_2e$/Year)
Area	2
Energy	438
Mobile (Vehicle Trips)	1,310
Solid Waste	77

Table 7 Project-Related Construction and Operation GHG Emissions

Source	GHG ($MTCO_2e$/Year)
Water	84
Amortized Construction Emissions[1]	49
Total	1,960
South Coast AQMD Bright-Line Threshold	3,000 $MTCO_2e$/Yr.
Exceeds Bright-Line Threshold?	No

Source: CalEEMod, Version 2020.4.
Notes: $MTCO_2e$ = metric ton of carbon dioxide equivalent
[1] Total construction emission are amortized over 30 years per South Coast AQMD methodology.

b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. Applicable plans adopted for the purpose of reducing GHG emissions include the California Air Resources Board's (CARB's) Scoping Plan and SCAG's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). A consistency analysis with these plans is presented below.

CARB Scoping Plan

The CARB Scoping Plan is applicable to state agencies but is not directly applicable to cities or counties and individual projects (i.e., the Scoping Plan does not require the City to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the state agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the Low-Carbon Fuel Standard and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley California Advanced Clean Cars program).

The proposed project would adhere to the programs and regulations identified by the Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32 and SB 32. For example, new buildings under the proposed project would meet the current and future CALGreen and Building Energy Efficiency standards. The California Energy Commission anticipates that new nonresidential buildings would be required to achieve zero net energy by 2030. Project GHG emissions shown in Table 7 include reductions associated with statewide strategies that have been adopted since AB 32. Therefore, the proposed project would generate GHG emissions consistent with the reduction goals of AB 32 and SB 32, and impacts are considered less than significant.

SCAG's Regional Transportation Plan/Sustainable Communities Strategy

SCAG adopted the 2020-2045 RTP/SCS (Connect SoCal) in September 2020. Connect SoCal identifies that land use strategies that focus on new housing and job growth in areas rich with destinations and mobility options are consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in Connect SoCal is to plan for the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). Connect SoCal's transportation projects help more efficiently distribute population, housing, and employment growth, and forecast development is generally consistent with regional-level General Plan data to promote active transportation and reduce GHG emissions. The projected regional development, when integrated with the proposed regional transportation network in Connect SoCal, would reduce per-capita GHG emissions related to vehicular travel and achieve the GHG reduction per-capita targets for the SCAG region.

The Connect SoCal Plan does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency for governments and developers. The proposed project is a residential development that would provide new single-family housing on an infill site, which would contribute to reducing the vehicle miles traveled between residential and service needs. Therefore, the proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the Connect SoCal Plan, and impacts would be less than significant.

4.9 Hazards and Hazardous Materials

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

Would the project:

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

Less-than-Significant Impact. A significant impact would occur if the proposed project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Construction of the project would use limited amounts of hazardous materials, including vehicle fuels, grease, oils, transmission fluids, and coatings such as paint. Construction activities would be required to comply with federal, state, and local regulations for the handling, use, transport, and disposal of hazardous materials. Agencies that provide oversight of hazardous materials include the US Environmental Protection Agency, Riverside County Department of Environmental Health, California Division of Occupational Safety and Health, US Occupational Safety and Health Administration, and US Department of Transportation.

Operation of the project would involve the use and storage of common hazardous substances typical of those used in single-family homes, such as lubricants, paints, solvents, cleaning supplies, pesticides, landscaping supplies, vehicle fuels, oils, and transmission fluids. Quantities of these materials would be minimal and similar to other single-family homes. With compliance to applicable standards and regulations and adherence to manufacturers' instructions for the transport, use, or disposal of hazardous materials, the proposed project would not create a significant hazard through the routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

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

Less-than-Significant Impact. A significant impact would occur if the proposed project created a significant hazard to the public or environment due to a reasonably foreseeable release of hazardous materials. Since the project site is devoid of structures, no asbestos or lead-based paint are present on-site. Construction activities would involve the use of hazardous materials, which may include fuels, lubricants, coatings, and grease for the operation and maintenance of construction equipment. These hazardous materials would be used in accordance with regulatory standards and manufacturers' specifications. They would be used in small quantities and stored consistent with handling instructions so that they do not pose significant safety hazards. Further, construction activities would be temporary. Operation of the proposed project would include the use of small amounts of hazardous materials that are typical of single-family residential developments, such as cleaning materials, paints, oils, fuels, pesticides, and fertilizers. These materials would be stored on-site in small quantities for cleaning and maintaining the household. The use, storage, transport, and disposal of these potentially hazardous materials would comply with existing federal, state, and local regulations.

In the event of a reasonably foreseeable upset and accident regarding the release of hazardous materials, procedures and policies would be followed to remove the materials in a safe and timely manner. The proposed project would comply with regulations set forth by the City's 2021 Local Hazards Mitigation Plan (LHMP), which helps identify, analyze, and mitigate potential hazardous events within Menifee. The LHMP includes resources and information to assist city residents, public and private-sector organizations, and others interested in participating in planning for hazards, and provides a list of mitigation activities that may assist the city in reducing risk and preventing loss from future hazard events. The Hazard Mitigation Planning Committee (HMPC) consists of the Menifee Police Department, City Departments, CAL FIRE, and Riverside County Fire (City of Menifee 2021). In addition, the State of California Office of Emergency Services provides a Hazardous Material Incident Contingency Plan, which outlines the procedures and responsibilities of agencies and private organizations concerning hazardous materials emergencies (Cal OES 1991). Implementation of the project would follow the appropriate procedures and policies. Therefore, the potential for hazardous materials impacts through reasonably foreseeable upset and accident conditions to occur during construction or operation of the proposed project would be less than significant

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. The project is not within one-quarter mile of an existing or proposed school. The nearest school to the project site is Quail Valley Elementary School, which is approximately 0.4 mile southwest. Construction of the proposed project would include hazardous materials, vehicle fuels, grease, oils, transmission fluids, and coatings that are typical of residential construction projects. Operation of the proposed project would require limited hazardous materials that are typical of single-family residential uses, such as small amounts of typical cleaning supplies and solvents for housekeeping. Hazardous materials at the project site during construction and operation would be required to comply with federal, state, and local health codes and regulations. The proposed project would not create a significant hazard through hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, there would be no impact.

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?

No Impact. According to the SWRCB's GeoTracker, there is one Leaking Underground Storage Tank (LUST) cleanup site within 0.25 mile of the project site; however, cleanup for the site has been completed and the case has been closed. The project site is not on or within 0.25 mile of any other hazardous materials site (SWRCB 2021). Additionally, according to the Department of Toxic Substance Control's (DTSC) EnviroStor, the project site is not on or within 0.25 mile of a toxic substance site (DTSC 2021). Thus, the project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment. Therefore, no impacts would occur.

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 project site is not within an airport land use plan or within two miles of a public use airport. The nearest public use airport is the Perris Valley Airport in the City of Perris, approximately 4.2 miles north of the project site. Therefore, no impacts would occur.

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

No Impact. The City of Menifee maintains a citywide Emergency Operations Plan (EOP), which outlines the City's planned deployment, mobilization, and tactual operations in response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting the City of Menifee. No changes to access or overall uses of the area would change with the proposed project. Construction and operation of the proposed project would follow the appropriate local procedures and policies, as stated in the City's EOP, and other applicable federal and state regulations regarding emergency response. Thus, the proposed project would not interfere with any adopted emergency response or evacuation plan. Therefore, no impacts would occur.

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

Less-than-Significant Impact. A significant impact would occur if the proposed project exposed people and structures to high risk of wildfire. The project site is in a Local Responsibility Area (LRA) Very High Fire Hazard Severity Zone (VHFHSZ) with hillside terrain and vegetation susceptible to wildland fires. The proposed project is consistent with the zoning and land use designations of the project site and would not result in unplanned development on-site. The proposed project would be adequately served by the Riverside County Fire Department

(RCFD). The proposed project would be required to implement fuel modification practices throughout the site. Compliance with fuel modification requirements to protect people and structures from significant risk of loss, injury, or death involving wildland fires, the proposed project would minimize wildland fire risk during construction and operation. Therefore, impacts would be less than significant. Wildfire impacts are discussed further in Section 4.20, Wildfire.

4.10 Hydrology and Water Quality

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			X	
i) result in a substantial erosion or siltation on- or off-site;			X	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			X	
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			X	
iv) impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Would the project:

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

Less-than-Significant Impact. A significant impact would occur if the proposed project discharges water that does not meet the quality standards of agencies that regulate surface water quality and water discharge into storm drainage systems or does not comply with all applicable regulations as governed by the Santa Ana Regional Water Quality Control Board. During construction of the proposed project, there is a potential for short-term construction-related stormwater pollution. Pollutants would be associated with handling, storage, and disposal of construction material; maintenance and operation of construction equipment; and erosion from earth-moving activities. The proposed project would require a NPDES Construction General Permit and develop and implement a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP would identify BMPs during construction that would minimize soil erosion and sedimentation and control pollutants in stormwater runoff. Compliance with regulatory requirements would ensure that the construction of the proposed project would not result in substantial erosion or violate water quality standards.

Compared to existing conditions, the proposed project would increase impermeable surfaces on-site. Surface water from the impervious areas would be collected in catch basins and conveyed by storm drain to be used for irrigation on-site. Emergency overflow would be directed to the existing storm drainpipes on the project site (see Appendix F).

In addition, the proposed project would be required to comply with all local and regional regulations. Conformance would be ensured during the building plan review and approval process. Therefore, impacts related to water quality standards or waste discharge requirements 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 Impact. A project would normally have a significant impact on groundwater level if it would change potable water levels sufficiently to: (a) reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or emergencies and drought; (b) reduce yields of adjacent wells or well fields (public or private); (c) adversely change the rate or direction of flow of groundwater; or (d) result in demonstrable and sustained reduction in groundwater recharge capacity.

According to the City's General Plan, the project site is not over a groundwater basin. The Eastern Municipal Water District (EMWD) would supply potable water to the project site, and the proposed project does not have wells that would affect groundwater. Therefore, the proposed project would not substantially interfere with groundwater recharge, and impacts would be less than significant.

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 erosion or siltation on- or off- site.

Less-than-Significant Impact. A significant impact would occur if the proposed project would substantially impact surface water hydrology or if it would result in a permanent, adverse change to the movement of surface water that is sufficient to substantially change the current or direction of water flow and would result in substantial erosion or siltation.

As discussed previously, the proposed project would increase the total impervious area on-site compared to existing conditions. The proposed project would be required to prepare and implement a SWPPP, which would include BMPs to reduce erosion and siltation. Categories of BMPs used in SWPPPs are described in Table 6. Construction of the proposed project would be subject to the Statewide General Construction Permit and implementation of BMPs specified in the SWPPP. Compliance with City regulations, NPDES permit, and implementation of the SWPPP would ensure that the construction of the proposed project would not result in adverse water quality impacts while the existing drainage pattern of the site is being altered. Thus, the proposed project would not result in substantial erosion and siltation on- or off-site. Therefore, impacts would be less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

Less-than-Significant Impact. A significant impact would occur if the proposed project would substantially impact surface water hydrology or if it would result in a permanent, adverse change to the movement of surface water that would substantially increase the rate or amount of surface runoff and cause flooding on- or off-site.

There are no streams, rivers, or other surface water bodies on the project site. During construction, the proposed project would be required to comply with the NPDES Construction General Permit and prepare and implement a SWPPP. Under the SWPPP, the proposed project would implement BMPs that would control surface runoff. During operation, stormwater or runoff irrigation waters would be directed into on-site drainage and conveyed in a series of catch basins and drainage pipes to be reused on-site. The proposed project would not result in a significant increase in site runoff or change the local drainage patterns in a manner that would result in flooding on- or off-site. According to the Preliminary Drainage Study prepared for the proposed project (see Appendix E), the proposed storm drain improvements would include the construction of new drainage facilities. The new drainage facilities would consist of storm drain mains, laterals, catch basins, concrete ditches, and a spillway and Detention Basin/Sand Filter Basin. A proposed concrete ditch system would convey runoff from Area C to Williams Drive. The two proposed concrete ditches would include rip rap at their outlets to decrease outlet velocities and prevent erosion. The concrete ditch system would allow flows to sheet flow to Williams Drive, simulating the existing condition flows. Rip rap sizing calculations would be provided during final engineering.

A proposed storm drain network would convey in-tract runoff from Drainage Area B to the proposed Detention Basin/Sand Filter Basin. The proposed Detention Basin/Sand Filter Basin would have an outlet structure and underdrain PVC pipe system as part of the Sand Filter Basin configuration. The outlet structure and underdrain PVC pipe system would discharge flows to Goetz Road though a storm drain pipe and parkway culvert. Storm drain pipe and parkway culvert calculations would be provided during final engineering.

Runoff from Drainage Area B would sheet flow along Goetz Road and small water quality flows would be conveyed to a proposed curb type Modular Wetland System (MWS) Unit adjacent to Goetz Road to treat pollutants. Large storm events would bypass the MWS Unit and would continue to flow along Goetz Road. It would not create significant alterations to existing drainage patterns on the site and in surrounding areas that would result in runoff or flooding. Therefore, impacts would be less than significant.

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.

Less-than-Significant Impact. A significant impact would occur if the proposed project would substantially impact surface water hydrology or if it would increase runoff to exceed the capacity of stormwater drainage systems.

During construction, the proposed project would be required to comply with the NPDES Construction General Permit and prepare and implement a SWPPP. Under the SWPPP, the proposed project would implement BMPs that would control surface runoff. This would ensure that the proposed project does not contribute excess runoff into the stormwater drainage system serving the project site. During operation, stormwater or runoff irrigation water would be directed into on-site drainage, conveyed to a series of catch basins and drainage pipes, and reused on-site. According to the Preliminary Drainage Study prepared for the proposed project (see Appendix E), existing drainage patterns are preserved. Currently, the runoff produced within the project site drains towards the south in most areas with various high points located throughout the site. Rational method calculations and hydrology maps were prepared to identify existing drainage patterns within the project limits. In the existing conditions, the project site drains to two locations, Williams Drive and Goetz Road. In the developed condition, Drainage Management Area (DMA) A and DMA B would outlet runoff to Goetz Road, while DMA C would outlet runoff to Williams Drive, thus preserving existing drainage patterns. The proposed project would not result in a significant increase in site runoff nor change the local drainage patterns to exceed the capacity of stormwater drainage systems serving the project site. Nor would it add substantial sources of polluted runoff. Therefore, impacts would be less than significant.

iv. Impede or redirect flood flows?

Less-than-Significant Impact. According to the Federal Emergency Management Agency (FEMA) Map 06065C2055H, the project site is in Flood Zone X, which is an area determined to be outside the 0.2-percent annual chance floodplain. Implementation of the proposed project would introduce pervious landscaping on-site and would include a storm drain system to collect, treat, and convey stormwater into the existing storm drain system in the project site. Any off-site surface flows that enter the site would bypass through the proposed storm drain system or would sheet flow to existing cross gutters consistent with existing flow patterns. Therefore, the project would not result in impeding or redirecting flood flows and impacts would be less than significant.

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

No Impact. According to the FEMA Map 06065C2055H, the project site is in Flood Zone X, which is an area determined to be outside the 0.2-percent annual chance floodplain. Therefore, flood hazard is low. The project site is approximately 30 miles from the Pacific Ocean and there is no tsunami risk.

A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. The nearest dam is the Railroad Canyon Reservoir, approximately 1.6 miles southwest of the project site. There are no large water tanks or dams in the area that could directly impact the project site in the event of failure. Therefore, no impact would occur.

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

No Impact. After completion of the proposed project, ground surfaces would be either hardscape or maintained landscaping. The proposed project would comply with existing local, regional, and state regulations and would not obstruct implementation of a water quality control plan. Additionally, the proposed project would not affect groundwater and would not obstruct implementation of a sustainable groundwater management plan. The proposed project would comply with existing local, regional, and state regulations and would not obstruct implementation of a water quality control plan. Therefore, no impact would occur.

4.11 Land Use and Planning

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

Would the project:

a) Physically divide an established community?

No Impact. A significant impact would occur if a project would create a physical barrier in an established community, such as the construction of a new freeway or major street closures that could limit access across the neighborhood. The proposed project includes the development of single-family homes within an area zoned for low-density residential use. The implementation of the residential development would occur within the boundaries of the project site. Therefore, implementation of the proposed project would not physically divide an established community, and no impacts would occur.

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?

Less-than-Significant Impact. A significant impact could occur if the project is inconsistent with the City's General Plan, zoning, or other plans that apply to the project site and were adopted for the purposes of avoiding or mitigating environmental effects. As described in Section 4.4, Biological Resources, with payment of the MSHCP fee as required by Chapter 8.27 of the Menifee Municipal Code, and implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 to ensure consistency with the MSHCP, impacts would be less than significant. Additionally, the proposed project would not conflict with Chapter 9.200, Tree Preservation, of the Comprehensive Development Code, which protects trees, considered to be a valuable community resource.

In addition, the proposed project would be consistent with the City's General Plan, and would be required to comply with the following policies set by Community Design (CD), Land Use (LU), and Open Space and Conservation (OSC) Elements:

- CD-3.8: Design retention/detention basins to be visually attractive and well-integrated with any associated project and with adjacent land uses.
- CD-6.1: Recognize the importance of street trees in the aesthetic appeal of residential neighborhoods and require the planting of street trees throughout the city.
- LU-1.4: Preserve, protect, and enhance established rural, estate, and residential neighborhoods by providing sensitive and well-designed transitions (building design, landscape, etc.) between these

neighborhoods and adjoining areas.

- OSS-1.3: Locate and distribute parks and recreational facilities throughout the community so that most residents are within walking distance (1-half mile) of a public open space.

Thus, the proposed project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation. Therefore, the impacts would be less than significant.

4.12 Mineral Resources

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

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?

No Impact. The Menifee General Plan Open Space and Conservation Element identifies the area as MRZ-1, little likelihood for the presence of significant resources, and MRZ-3, areas with known or inferred mineral occurrences of undetermined significance (City of Menifee 2020). According to the mineral resource zone map within the Menifee General Plan, the proposed project does not contain mineral resources of significance. Based on the project site's location, development of the proposed project would not result in the loss of availability of known mineral resources. Therefore, no impact would occur.

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?

No Impact. As described previously, the proposed project does not contain a significant mineral resource zone. Additionally, the City of Menifee General Plan Draft EIR states that there are no designated mining sites or active mines within the city (City of Menifee 2013). Since the proposed project is consistent with the General Plan EIR and no mining resources are located within the project site, there would be no impacts.

4.13 Noise

	Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
	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 applicable standards of other agencies?		X		
b)	Generation of excessive groundborne vibration or groundborne noise levels?			X	
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Environmental Setting

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal, state, and city governments have established criteria to protect public health and safety and to prevent the disruption of certain human activities, such as classroom instruction, communication, or sleep. Additional information on noise and vibration fundamentals and applicable regulations are contained in Appendix G.

Existing Environment

As shown in Figure 3, the project site is along Goetz Road, north of Avenue Roble/Gaviota with adjacent residences along the western property line and residences to the east across Goetz Road. To the north and south are vacant undeveloped land parcels. The project site is primarily influenced by traffic along Goetz Road and surrounding existing residential uses, such as property maintenance.

Traffic is the dominant noise source in the project area. Existing noise conditions were estimated using a version of the Federal Highway Traffic Administration (FHWA) Noise Prediction Model, FHWA-RD-77-108. Modeling inputs include average daily traffic (ADT) volumes (provided by Urban Crossroads); day, evening, and night traffic percentage splits, and fleet mix (based on the Riverside County General Plan traffic assumptions in Appendix G of the Noise Element); and roadway speed limits and number of lanes, which were attained using Google Earth and Google Maps Street View. Table 8, Existing Traffic Noise Levels, shows the estimated existing community noise equivalent level (CNEL) at 50 feet.

Table 8 Existing Traffic Noise Levels

Roadway Segment	Existing ADT Volumes	Existing No Project dBA CNEL at 50 Feet
Goetz Road - north of Street B/Paseo La Plaza	**5,646**	**68**
Goetz Road - south of street B/Paseo La Plaza	5,588	68
Street B/Paseo La Plaza - east of Goetz Road	886	53
Goetz Road - north of A street	**5,588**	**68**
Goetz Road - south of A street	5,588	68
Goetz Road - north of Audie Murphy Road North	12,520	72
Goetz Road - south of Audie Murphy Road North	11,324	71
Audie Murphy Road North - east of Goetz Road	1,915	58
Audie Murphy Road North - west of Goetz Road	100	49
Goetz Road - north of Audie Murphy Road South	11,324	71
Goetz Road - south of Audie Murphy Road South	20,210	74
Audie Murphy south - east of Goetz Road	6,074	63
Audie Murphy south - west of Goetz Road	7,961	65
Goetz Road - north of Railroad Canyon Road	20,510	74
Goetz Road - south of Railroad Canyon Road	486	58
Railroad Canyon - east of Goetz Road	30,787	78
Railroad Canyon - west of Goetz Road	33,202	78
Berea Road - north of Newport Road	9,347	67
Berea Road - south of Newport Road	4,359	63
Newport Road - east of Berea Road	37,747	78
Newport Road - west of Berea Road	34,217	78
Murrieta Road - north of Newport Road	13,221	71
Murrieta Road - south of Newport Road	13,521	71
Newport Road - east of Murrieta Road	37,661	78
Newport Road - west of Murrieta Road	36,189	78
Evans Road - north of Newport Road	2,401	59
Evans Road - south of Newport Road	2,301	59
Newport Road - east of Evans Road	39,605	79
Newport Road - west of Evans Road	38,562	79
Brandley Road - north of Newport Road	18,952	68
Brandley Road - south of Newport Road	14,979	67
Newport Road - east of Bradley Road	47,795	79
Newport Road - west of Bradley Road	40,105	79
Avenida De Cortez - north of Newport Road	2,573	58
Avenida De Cortez - south of Newport Road	6,689	62
Newport Road - east of Avenida De Cortez	52,397	80
Newport Road - west of Avenida De Cortez	47,995	79

Table 8 Existing Traffic Noise Levels

Roadway Segment	Existing ADT Volumes	Existing No Project dBA CNEL at 50 Feet
Haun Road - north of Newport Road	13,807	67
Haun Road - south of Newport Road	35,546	74
Newport Road - east of Haun Road	72,746	81
Newport Road - west of Haun Road	49,381	80
I-215 SB Ramps - north of Newport Road	25,441	78
I-215 SB Ramps - south of Newport Road	6,675	72
Newport Road - east of I-215 SB Ramps	70,806	81
Newport Road - west of I-215 SB Ramps	72,746	81
I-215 NB Ramps - north of Newport Road	5,760	72
I-215 NB Ramps - south of Newport Road	24,140	78
Newport Road - east of I-215 NB Ramps	75,709	81
Newport Road - west of I-215 NB Ramps	70,620	81

Source: ADT provided by Urban Crossroads.
Notes: Calculations are included in Appendix G.
Bold: roadway segments in bold are segments adjacent to the project site.

The project site is within the Normally Acceptable, 70 A-weighted decibel (dBA) CNEL or less, noise and land use compatibility category for residential low-density uses according to the Governor's Office of Planning and Research. However, as a result of the Supreme Court decision regarding the assessment of the environment's impacts on projects (California Building Industry Association [CBIA] v. Bay Area Air Quality Management District [BAAQMD], 62 Cal. 4th 369 [No. S 213478] issued December 17, 2015), it is generally no longer the purview of the CEQA process to evaluate the impact of existing environmental conditions on any given project. As a result, while the noise from existing sources is taken into account as part of the baseline, the direct effects of exterior noise from nearby noise sources relative to land use compatibility of a future project as a result of the proposed project is typically no longer a required topic for impact evaluation under CEQA. Generally, no determination of significance is required except for certain school projects, projects affected by airport noise, and projects that would exacerbate existing conditions (i.e., projects that would have a significant operational impact).

Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residences, schools, hospital facilities, houses of worship, and open space/recreation areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. The nearest sensitive receptors to the project site are adjacent residences to the west and residences to the east across Goetz Road (see Figure 3, Aerial Photograph). There are additional residences further north and south of the project site.

Applicable Standards

City of Menifee Noise Regulations

The Noise Element of the General Plan includes goals and policies aimed at the control and abatement of environmental noise and protection of citizens from excessive exposure to noise. To protect residents from excessive noise, the Noise Element contains goals, policies, and actions. Goal N-1 and Policy N-1.7 provide exterior stationary noise standards, which are applicable to the project.

Goal N-1: Noise-sensitive land uses are protected from excessive noise and vibration exposure.

Policy N-1.7: Mitigate exterior and interior noises to the levels listed in Table 9 to the extent feasible, for stationary sources adjacent to sensitive receptors:

Table 9 City of Menifee Stationary (Exterior) Noise Standards

Residential Land Uses	Exterior Standard
10:00 pm to 7:00 am	45 Leq (10 minute)
7:00 am to 10:00 pm	65 Leq (10 minute)

Source: City of Menifee Noise Element, Table N-1

The noise standards in Table 9, City of Menifee Stationary (Exterior) Noise Standards, are reiterated in Section 9.210.060(D) of the Menifee Municipal Code stating that no person shall create any sound, on any property that causes the exterior and interior sound level on any other occupied property to exceed the sound-level standards set forth in Table 9.

The Menifee Municipal Code sets forth the following exceptions for construction noise:

- Private construction projects, with or without a building permit, one-quarter of a mile or more from an inhabited dwelling is exempt from the standards set forth in Section 9.210.060, including Table 9.
- Private construction projects, with or without a building permit, within one-quarter of a mile from an inhabited dwelling, shall be permitted to conduct construction activities Monday through Saturday 6:30 am to 7:00 pm. There shall be no construction permitted on nationally recognized holidays and Sundays, unless approval is obtained from the City Building Official or City Engineer.

Section 9.210.060(F)(2) prohibits the use of any power tools or equipment Monday through Saturday 6:30 am to 7:00 pm such that the equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than 100 feet from the power tools or equipment.

Section 9.210.070 states that all uses shall be operated so as to not generate vibration discernible without instruments by the average person while or beyond the lot upon which the source is located or within an adjoining enclosed space if more than one establishment occupies a structure. Vibration caused by motor vehicles, trains, and temporary construction is exempt.

Federal Transit Administration

The City of Menifee does not establish quantified thresholds for temporary construction noise and vibration damage. Therefore, to determine impact significance, the following Federal Transit Administration (FTA) criteria are used in this analysis. A vibration or construction noise impact would occur if:

- Vibration levels would exceed 0.20 inches/second (in/sec) peak particle velocity (PPV) at the façade of a non-engineered structure (e.g., wood-frame residential).
- Project construction activities would generate noise levels greater than 80 dBA Leq (8-hour) at the sensitive receptor property line.

Would the project:

a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less-than-Significant Impact with Mitigation Incorporated. Following is a discussion of the project's temporary and operational noise impacts as a result of the project's construction and operational phases.

Construction Noise

Two types of short-term noise impacts could occur during construction: (1) mobile-source noise from transport of workers, material deliveries, and debris and soil haul and (2) stationary-source noise from use of construction equipment. On-site construction is anticipated to start September 2022 and be completed by June 2024. It is anticipated that construction would occur weekdays, Monday through Friday, between the hours of 7:00 am and 4:00 pm, which complies with the allowable hours of the Municipal Code. As stated previously, the allowable construction hours are Monday through Saturday 6:30 am to 7:00 pm and no construction is permitted anytime on Sundays and nationally recognized holidays.

Construction Vehicles

The transport of workers and materials to and from the construction site would incrementally increase noise levels along site access roadways. Individual construction vehicle pass-bys may create momentary noise levels of up to approximately 85 dBA Lmax at 50 feet from the worker and vendor vehicles. However, these occurrences would generally be infrequent and short-lived.

The project would generate up to 845 daily worker and vendor trips (combined) during overlapping building construction, paving, finish and landscaping, and architectural coating construction phases for a period of one workday. A maximum of 25 daily haul truck trips would be generated during overlapping phases for a period of 5 workdays. Site access would be via Goetz Road, which has existing ADT volumes of 12,520. The addition of 845 daily worker and vender trips and 25 daily haul truck trips would result in a temporary traffic noise increase less than 0.3 dBA CNEL, which would not be a substantial increase. Therefore, construction-vehicle noise impacts would be considered less than significant, and no mitigation measures are necessary.

Construction Equipment

Noise generated by on-site construction equipment is based on the type of equipment used, its location relative to sensitive receptors, and the timing and duration of noise-generating activities. Each stage of construction involves different kinds of equipment and has distinct noise characteristics. Noise levels from construction activities are typically dominated by the loudest equipment. The dominant equipment noise source is typically the engine, although work-piece noise (such as dropping of materials) can also be noticeable.

The noise produced at each construction stage is determined by combining the Leq contributions from each piece of equipment modeled and used at a given time, while accounting for the ongoing time variations of noise emissions. Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels of up to 85 dBA at 50 feet. However, overall noise emissions vary considerably, depending on the specific activity performed at any given moment. Noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase would result in different noise levels from construction activities at a given receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dBA per doubling of distance (conservatively ignoring other attenuation effects from air absorption, ground effects, and shielding effects), the average noise levels at noise-sensitive receptors could vary considerably. In addition, mobile construction equipment would move around the site with different loads and power requirements.

Average noise levels from project-related construction activities are calculated by modeling the five loudest pieces of equipment per activity phase. Construction noise from activity that occurs throughout the entire site such as site preparation and rough and fine grading is calculated at spatially averaged distances (i.e., from the acoustical center of the general construction site to the property line of the nearest noise-sensitive receptors) because the area around the center of construction activities best represents the potential average construction-related noise levels at the various sensitive receptors. For building construction and architectural coating and paving, attenuated noise levels are calculated by measuring the distance from the center of the nearest proposed row of buildings and new neighborhood streets to the nearest sensitive receptor property line. Lastly, utility trenching is anticipated to occur along Goetz Road and throughout the site.

The expected construction equipment mix was categorized by construction activity using FHWA's Roadway Construction Noise Model (RCNM). The associated, aggregate sound levels, grouped by construction activity at various distances, are summarized in Table 10, Project-Related Construction Noise, dBA Leq. RCNM modeling input and output worksheets are included in Appendix G.

Table 10 Project-Related Construction Noise, dBA Leq

Construction Activity	RCNM Reference Noise Level	Residences to the East	Residences to the West
Distance in Feet	**50**	**645**	**715**
Site Preparation	84	62	61
Rough Grading	87	64	63
Fine Grading	86	64	63
Distance in Feet	**50**	**130**	**90**
Building Construction	83	75	78

Table 10 Project-Related Construction Noise, dBA Leq

Construction Activity	RCNM Reference Noise Level	Residences to the East	Residences to the West
Distance in Feet	**50**	**200**	**170**
Paving	84	72	73
Distance in Feet	**50**	**80**	**160**
Architectural Coating	74	70	64
Distance in Feet	**50**	**50**	**50**
Utility Trenching	77	77	77
Maximum Noise Level at Sensitive Receptor	**-**	**77**	**78**

Notes: Equipment mix is based on the greatest CalEEMod default area of 30 acres with a 1.49 Equipment Multiplier to estimate equipment mix for 44.7 acres.
Source: Equipment list based on CalEEMod construction modeling and information provided by applicant. Modeled using RCNM software.

As shown in Table 10, construction-related noise levels would be up to 78 dBA Leq during building construction and not exceed the 80 dBA Leq(8hr) threshold at the nearest sensitive receptors. In addition to the construction activity phases identified in Table 10, some asphalt demolition would occur as part of utility trenching. Asphalt demolition equipment is estimated to generate noise levels of approximately 85 dBA at 50 feet. However, this activity would expose sensitive receptors to short periods of construction noise as the work would move in a linear fashion and would be limited to just where trenching would be needed. Because this would be short-term and as-needed only, the Occupational Safety and Health Administration's (OSHA's) permissible noise limit is referenced to show that the permissible noise limit on any given workday would not be exceeded. Workdays are anticipated to be 9 hours with a 1-hour break and according to OSHA, this limit shall not exceed 90 dBA in an 8-hour workday. Therefore, construction noise would be less than significant and no mitigation measures are necessary.

Mobile Sources

A project would normally have a significant effect on the environment related to noise if it would substantially increase the ambient noise levels at adjoining areas. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA are detectable under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an exterior environment. Based on this, the following thresholds of significance, similar to those recommended by the Federal Aviation Administration (FAA), are used to assess traffic noise impacts at sensitive receptor locations. A significant impact would occur if traffic noise increase would exceed:

- 1.5 dBA in ambient noise environments of 65 dBA CNEL and higher;
- 3 dBA in ambient noise environments of 60 to 64 dBA CNEL; or
- 5 dBA in ambient noise environments of less than 60 dBA CNEL.

As stated in Existing Conditions, traffic noise increases are also calculated using a version of the Federal Highway Traffic Noise Prediction Model with various model inputs. Project-related traffic noise impacts are estimated by comparing the Existing Plus Project traffic volumes to the Existing No Project traffic volumes. The same method is used in determining the cumulative traffic noise increase (Future Plus Project traffic volumes compared to Existing No Project), and the project's contribution to the cumulative increase (Future Plus Project compared to Future No Project). As shown in Table 11, Project-Related and Cumulative Traffic Noise Increase, the project would result in an increase of up to 0.8 dBA CNEL along Goetz Road, south of A Street. Project-related increases do not exceed 1.5 dBA CNEL. Therefore, project-related impacts are less than significant.

A cumulative impact would occur if cumulative traffic noise would exceed the tiered thresholds mentioned previously and the project's contribution to the cumulative increase was found to be greater than 1 dBA CNEL. Table 11 shows cumulative traffic noise increases along study roadway segments. Four segments would have a potentially significant increase: (1) Audie Murphy Road North, west of Goetz Road would experience a 9.7 dBA CNEL increase in an ambient noise environment of 49 dBA CNEL; (2) Brandley Road, north of Newport Road would experience a 1.7 dBA CNEL increase in an ambient noise environment of 68 dBA CNEL; (3) Newport Road, west of Bradley Road would experience a 1.6 dBA CNEL increase in an ambient noise environment of 79 dBA CNEL; and (4) I-215 NB Ramps, north of Newport Road would experience a 2 dBA CNEL increase in an ambient noise environment of 72 dBA CNEL. However, the project's contribution to the cumulative increase along these four segments would be 0.1 dBA CNEL or less. Therefore, cumulative traffic noise increases are less than significant.

Table 11 Project-Related and Cumulative Traffic Noise Increase

Roadway Segment	dBA CNEL at 50 feet				Increase in dBA CNEL		
	Existing No Project	Existing Plus Project	Future No Project	Future Plus Project	Project Noise Increase	Cumulative Increase	Project Cumulative Contribution
Goetz Road - north of Street B/Paseo La Plaza	68	69	69	69	0.2	0.8	0.2
Goetz Road - south of Street B/Paseo La Plaza	68	69	69	69	0.5	1.1	0.4
Street B/Paseo La Plaza - east of Goetz Road	53	53	54	54	0.0	0.3	0.0
Goetz Road - north of A Street	68	69	69	69	0.5	1.1	0.4
Goetz Road - south of A Street	68	69	69	70	0.8	1.3	0.7
Goetz Road - north of Audie Murphy Road North	72	72	73	73	0.4	1.1	0.3
Goetz Road - south of Audie Murphy Road North	71	72	73	73	0.4	1.5	0.3
Audie Murphy Road North - east of Goetz Road	58	58	59	59	0.0	1.1	0.0
Audie Murphy Road North - west of Goetz Road	49	49	59	59	0.0	9.7	0.0
Goetz Road - north of Audie Murphy Road South	71	72	73	73	0.4	1.5	0.3
Goetz Road - south of Audie Murphy Road South	74	74	75	75	0.2	1.1	0.2
Audie Murphy south - east of Goetz Road	63	63	64	64	0.0	0.8	0.0

Table 11 Project-Related and Cumulative Traffic Noise Increase

Roadway Segment	dBA CNEL at 50 feet				Increase in dBA CNEL		
	Existing No Project	Existing Plus Project	Future No Project	Future Plus Project	Project Noise Increase	Cumulative Increase	Project Cumulative Contribution
Audie Murphy south - west of Goetz Road	65	65	65	65	0.0	0.4	0.0
Goetz Road - north of Railroad Canyon Road	74	74	75	75	0.2	1.1	0.2
Goetz Road - south of Railroad Canyon Road	58	58	59	59	0.0	1.5	0.0
Railroad Canyon - east of Goetz Road	78	78	78	78	0.1	0.8	0.1
Railroad Canyon - west of Goetz Road	78	78	79	79	0.1	0.7	0.0
Berea Road - north of Newport Road	67	67	67	67	0.0	0.6	0.0
Berea Road - south of Newport Road	63	63	64	64	0.0	0.5	0.0
Newport Road - east of Berea Road	78	79	79	79	0.1	0.7	0.1
Newport Road - west of Berea Road	78	78	79	79	0.1	0.7	0.1
Murrieta Road - north of Newport Road	71	71	72	72	0.0	1.3	0.0
Murrieta Road - south of Newport Road	71	71	72	72	0.0	1.1	0.0
Newport Road - east of Murrieta Road	78	78	80	80	0.1	1.2	0.1
Newport Road - west of Murrieta Road	78	78	79	79	0.1	0.8	0.1
Evans Road - north of Newport Road	59	59	62	62	0.0	2.2	0.0
Evans Road - south of Newport Road	59	59	61	61	0.0	1.4	0.0
Newport Road - east of Evans Road	79	79	80	80	0.1	1.4	0.1
Newport Road - west of Evans Road	79	79	80	80	0.1	1.4	0.1
Brandley Road - north of Newport Road	68	68	70	70	0.0	1.7	0.0
Brandley Road - south of Newport Road	67	67	68	68	0.0	1.1	0.0
Newport Road - east of Bradley Road	79	80	81	81	0.1	1.4	0.0
Newport Road - west of Bradley Road	79	79	80	80	0.1	1.6	0.1
Avenida De Cortez - north	58	58	59	59	0.0	0.8	0.0

Table 11 Project-Related and Cumulative Traffic Noise Increase

Roadway Segment	dBA CNEL at 50 feet				Increase in dBA CNEL		
	Existing No Project	Existing Plus Project	Future No Project	Future Plus Project	Project Noise Increase	Cumulative Increase	Project Cumulative Contribution
of Newport Road							
Avenida De Cortez - south of Newport Road	62	62	63	63	0.0	1.1	0.0
Newport Road - east of Avenida De Cortez	80	80	81	81	0.1	1.3	0.0
Newport Road - west of Avenida De Cortez	79	80	81	81	0.1	1.4	0.0
Haun Road - north of Newport Road	67	67	68	68	0.0	1.4	0.0
Haun Road - south of Newport Road	74	74	75	75	0.0	1.3	0.0
Newport Road - east of Haun Road	81	81	82	82	0.0	1.1	0.0
Newport Road - west of Haun Road	80	80	81	81	0.1	1.4	0.0
I-215 SB Ramps - north of Newport Road	78	78	79	79	0.0	0.8	0.0
I-215 SB Ramps - south of Newport Road	72	72	73	73	0.1	1.1	0.1
Newport Road - east of I-215 SB Ramps	81	81	82	82	0.0	1.0	0.0
Newport Road - west of I-215 SB Ramps	81	81	82	82	0.0	1.1	0.0
I-215 NB Ramps - north of Newport Road	72	72	74	74	0.0	2.0	0.0
I-215 NB Ramps - south of Newport Road	78	78	78	79	0.0	0.7	0.0
Newport Road - east of I-215 NB Ramps	81	81	82	82	0.0	0.8	0.0
Newport Road - west of I-215 NB Ramps	81	81	82	82	0.0	1.0	0.0
Maximum Increase	-	-	-	-	0.8	9.7	0.7
Potentially Significant?	**-**	**-**	**-**	**-**	**No**		

Notes: Calculations are included in Appendix G.

Mechanical Equipment

Heating, ventilation, and air conditioning (HVAC) systems would be installed on the rooftop of the proposed buildings. Typical HVAC equipment generates noise levels ranging up to 72 dBA at a distance of 3 feet. The nearest residential property line to the proposed buildings with HVAC is approximately 50 feet to the west. At this distance, noise levels would attenuate to approximately 48 dBA. The minimum required distance (screening distance) needed to achieve attenuated noise levels of 45 dBA or less is 70 feet. HVAC noise levels could exceed the City's nighttime exterior noise standard of 45 dBA Leq (10 minute) at the nearest residential property line. Therefore, impacts would be potentially significant. With implementation of Mitigation Measure N-1, noise impacts would be reduced to less than significant.

Mitigation Measure N-1: Mechanical equipment shall be installed at least 70 feet from any residential property line when feasible. Equipment installed within 70 feet of a residential property line shall be selected and designed to reduce impacts on surrounding uses to meet the City of Menifee nighttime noise standard of 45 dBA Leq (10 minute) and the applicant shall hire a qualified acoustical consultant to review mechanical noise as these systems are selected to determine specific noise-reduction measures necessary to reduce noise to comply with the City's noise-level requirements. Noise-reduction measures could include, but are not limited to:

- Locate equipment as far away as possible from noise-sensitive receptors.
- Selection of equipment that emits noise levels of 45 dBA or less at 70 feet;
- Installation of noise-dampening techniques, such as solid enclosures and parapet walls, to block the line-of-sight between the noise source and the nearest receptors. Blocking line of sight with a solid barrier or enclosure would reduce noise levels by at least 5 dBA.

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

Less-than-Significant Impact.

Operational Vibration

The operation of the proposed project would not include any substantial long-term vibration sources. Thus, no significant vibration effects from operations sources would occur and this impact would be less than significant.

Vibration Damage

Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The effects from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures.

As stated previously in Environmental Setting, a vibration level of 0.2 in/sec PPV is used as the limit for non-engineered timber and masonry buildings, which would apply to residential structures (FTA 2018). To determine potential vibration-induced architectural damage, the distance from the vibration source (construction equipment) to the sensitive receptor is measured from the edge of the construction site to the nearest structure's façades. Table 12, Project-Related Construction Vibration Levels, shows that a vibratory roller can generate vibration levels of up to 0.21 in/sec PPV at a distance of 25 feet. The nearest residences to construction activities such as grading and building construction are approximately 25 to 55 feet from the edge of the project site. The nearest residences to paving activities are approximately 40 feet. At these distances, vibration levels would be up to 0.089 in/sec PPV, which would not exceed the 0.20 in/sec residential vibration threshold. Therefore, impacts to the nearest residential structures would be less than significant.

Table 12 Project-Related Construction Vibration Levels

Equipment	Vibration in in/sec PPV			
	FTA Vibration Reference Levels at 25 feet	Residences to West		Residences to East Across Goetz Road at 55 feet
		25 feet	40 feet	
Vibratory Roller (Paving)	0.21	NA	0.104	0.064
Hoe Ram	0.089	0.089	NA	0.027
Large Bulldozer	0.089	0.089	NA	0.027
Caisson Drilling	0.089	0.089	NA	0.027
Loaded Trucks	0.076	0.076	NA	0.023
Jackhammer	0.035	0.035	NA	0.011
Small Bulldozer	0.003	0.003	NA	0.001

Source: FTA 2018.
NA: Not Applicable.

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. The nearest airports to the project site are Perris Valley Airport and Skylark Airport. Perris Valley Airport is approximately 3.7 miles to the northeast and Skylark Airport is approximately 6 miles to the southwest. While aircraft are frequently visible from the project site, and are occasionally audible depending on the elevation and type of aircraft, the project would not expose people working in the project area to excessive aircraft noise levels. Therefore, no impact would occur, and no mitigation measures are necessary.

4.14 Population and Housing

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?			X	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

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)?

Less-than-Significant Impact. The proposed project would result in the development of a residential development in the City of Menifee. The project site is currently vacant land, surrounded by similar residential development; thus, the proposed project could be considered infill development.

As stated in the General Plan EIR, SCAG's forecast growth projections anticipate the City of Menifee's population to increase by 26,175, or 28.1 percent of its 2020 population, by 2035. Additionally, households are forecast to increase by 10,389, or 28.7 percent from 2020 to 2035. As shown in Table 13, Estimated Population Growth, in accordance with the General Plan's future buildout projections, the proposed project would be anticipated to result in a population of approximately 403 residents within the 130 proposed dwelling units. Thus, the proposed project would not result in substantial unplanned population growth either directly or indirectly, and population growth as a result of the proposed project would be within SCAG's forecast growth projections for the city. It would not introduce new businesses nor extend roads or other infrastructure that may motivate persons to move to the area. The proposed project is consistent with the Low-Density Residential zone (LDR-2) on-site, which allows for the construction of residential development. Therefore, development of the proposed project is within the anticipated growth for the City of Menifee. Therefore, a less-than-significant impact would occur.

Table 13 Estimated Population Growth

Land Use Category	Acres	Assumed Density (du/ac)	Units	Population
2.1-5 du/ac Residential (2.1-5R)	44.7	2.9 du/ac	130	403[1]

[1] Estimated population is based on the average household size of 3.1 persons per unit
Source: City of Menifee General Plan's Land Use Element 2013 and Housing Element 2021

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

No Impact. A significant impact may occur if the project would result in the displacement of existing housing units, necessitating the construction of replacement housing elsewhere. The project site is undeveloped and no displacement of existing housing would occur; therefore, no impact would occur.

4.15 Public Services

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

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

a) Fire protection?

Less-than-Significant Impact. Fire protection and emergency medical services in the City of Menifee are provided by the Riverside County Fire Department (RCFD). Services include fire suppression, emergency medical, rescue, and fire prevention, and hazardous materials coordination services. There are four existing fire stations within the city:

- Quail Valley Station #5, 28971 Goetz Road, adjacent to the project site.
- Menifee Station #68, 26020 Wickerd Road, 6.7 miles from the project site.
- Sun City Station #7, 27860 Bradley Road, 7.2 miles from the project site.
- Menifee Lakes Station #76, 29950 Menifee Road, 7.5 miles from the project site.

The project site is adjacent to Quail Valley Fire Station #5 and within eight miles of three other fire stations. The proposed project would be constructed in compliance with Chapter 8.20, Fire Code, of the Menifee Municipal Code, and would not result in the need for new or physically altered fire department facilities that could cause significant environmental impacts. As discussed in Section 4.14, the proposed project's population and housing is consistent with the growth projections for the City of Menifee. Therefore, the proposed project could lead to an increase in need for fire protection services, but the increase would be within the projected growth anticipated for the city. Therefore, the project would result in less-than-significant impacts related to fire protection services.

b) Police protection?

Less-than-Significant Impact. The City of Menifee police protection services are provided by the Menifee Police Department. The closest police station is at 29714 Haun Road, which is 3.7 miles southeast from the project site. The proposed project includes construction of 130 single-family units. As discussed in Section 4.14(a), the proposed project's population and housing is within growth projections for the City of Menifee. While the proposed project may lead to an increase in demand for police protection services by adding new residents and housing units, such an increase is within the projected growth for the city and the proposed project would be required to pay all applicable impact fees. These fees are in place to address any incremental development project impact and used for infrastructure improvements and services. The proposed project would result in a less-than-significant impact to police services, and no mitigation measures are required.

c) Schools?

Less-than-Significant Impact. The Menifee Union School District (MUSD) and Perris Union High School District (PUHSD) would serve the proposed project. The MUSD serves grades kindergarten through 8 and PUHSD serves grades 9 through 12. The project site is within the school boundaries of Quail Valley Elementary School (grades TK-5), Hans Christensen Middle School (grades 6-8), and Paloma Valley High School (grades 9-12). Table 14, Schools Serving the Project Site, summarizes each of the school's enrollment.

Table 14 Schools Serving the Project Site

School	Distance from Project Site	Total Enrollment				
		2016-17	2017-18	2018-19	2019-20	2020-21
Quail Valley Elementary School	0.3 miles	539	519	517	570	531
Hans Christensen Middle School	3.7 miles	816	781	780	744	710
Paloma Valley High School	3.9 miles	3,124	3,191	3,146	3,174	3,311

Source: California Department of Education 2021

According to the City's General Plan EIR, the estimated increase in student generation for single-family residences would be approximately 0.3119 students/unit for elementary school students, 0.1525 students/unit for middle school students, and 0.1317 students/unit for high school students. Thus, an increase of 130 dwelling units in the proposed project would result in an increase of approximately 40 elementary school students, 20 middle school students, and 17 high school students. Based on historical enrollment, the addition of students generated by the proposed project to area schools would not substantially increase enrollment beyond historical enrollment levels and can be served within the capacity limits of existing schools. Moreover, the proposed project would be required to pay school impact fees, pursuant to SB 50, to reduce impacts to the school system. The school districts collect these fees at the time of issuance of building permits. The State legislature has found that funding programs established by SB 50 constitutes "full and complete mitigation of the impacts" on the provision of adequate school facilities (Government Code Section 65995(h)). SB 50 sets forth a state school facilities construction program that includes restrictions on a local jurisdiction's ability to demand mitigation of a project's impacts on school facilities in excess of fees in Education Code 17620. Therefore, project-related impacts to school facilities would be less than significant.

d) Parks?

Less-than-Significant Impact. The City of Menifee has approximately 132 acres of developed park and recreation facilities (City of Menifee 2013). In addition to city parks, regional parks in Riverside County provide recreational opportunities for Menifee residents. La Ladera Park is the closest park to the project site, approximately 1.4 miles southeast. La Ladera Park is 8.3 acres and includes a multipurpose field, baseball and softball field, tennis court, basketball court, play structure, public restrooms, and three shade shelters. Silver Star Park is another city-owned park 1.5 miles southeast of the project site and is 3.42 acres with two multipurpose fields, basketball court, play structure, and small shelter. In addition to these parks, three additional parks exist within two miles of the project site.

As stated in the General Plan EIR, proposed projects would be required to comply with the Quimby Act, California Government Code Section 66477, which requires the dedication of land and/or fees for park and recreational purposes as a condition of approval of a tentative map or parcel map. The City of Menifee has a standard of 5 acres of parkland per 1,000 persons. The proposed project is anticipated to have a population of approximately 403 residents and would be required to dedicate approximately 2.02 acres for park and recreational purposes. As stated in Section 2.1.1, the proposed project would include a 0.9-acre HOA-maintained park/tot lot and a 0.4-acre dog park, resulting in approximately 1.3 acres of dedicated parkland (see Figures 6a and 6b). Thus, as stated in the General Plan, development fees would be required for the remaining 0.72 acre of parkland, in accordance with the Quimby Act. The proposed project would not have an adverse physical impact on any parks or necessitate the construction of new parks. The proposed project would include its own recreation facilities and an outdoor play area to serve the residents. The proposed project would not result in the need for new or expanded park facilities and there would be no impact to park facilities.

e) Other public facilities?

Less-than-Significant Impact. In addition to the public facilities discussed previously in Sections 4.15(a) to (d), this analysis anticipates that a portion of the project residents would use the city's public libraries. The City of Menifee is served by the Riverside County Public Library system. The Riverside County Public Libraries include three libraries that service the city and are within nine miles of the project site. These include Paloma Valley Library 6.3 miles southeast, Sun City Library 6.5 miles east, and Romoland Library 8.8 miles northeast. The City of Menifee General Plan EIR identifies that the existing facilities are not adequate to serve the current population in Menifee and would not be adequate to serve the proposed project. However, additional development impact fees per Riverside County Ordinance 659 and Riverside County Code Chapter 4.60 would be required for the proposed project and would contribute toward the financing of additional library space and services in the city. With the impact development fees, the addition of project site residents would not substantially diminish level or service, response times, or performance objectives of the library system. Impacts to libraries would be less than significant.

4.16 Recreation

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?			X	
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less-than-Significant Impact. The City of Menifee has approximately 132 acres of developed park and recreation facilities, including neighborhood parks, mini-parks, and community parks (City of Menifee 2013). The city has 13 City-owned parks and an additional 20 Valley-wide owned parks. In addition to these parks, city residents have access to regional parks in Riverside County. The nearest parks to the project site are City-owned parks.

La Ladera Park is the closest park to the project site, approximately 1.4 miles southeast. La Ladera Park is 8.3 acres and includes a multipurpose field, baseball and softball field, tennis court, basketball court, play structure, public restrooms, and 3 shade shelters. Silver Star Park is another City-owned park 1.5 miles southeast of the project site and is 3.42 acres with two multipurpose fields, basketball court, play structure, and small shelter. In addition to these parks, three additional parks exist within two miles of the project site (see Table 15, City and County Parks Near the Project Site).

The nearest regional park is Roy W. Kabian Memorial Park, approximately 1.5 miles to the north of the project site. This regional park is approximately 1 acre and equipped with gazebos, barbeque grills, and playground facilities and 639 acres of wildlife refuge with hiking trails and equestrian trails through the hills of Quail Valley. Regional parks are operated by Riverside Parks and serve the regional population.

Table 15 City and County Parks Near the Project Site

Park	Location	Acres	Facilities/Resources
La Ladera Park	29629 La Ladera Road	8.3	Equipped with baseball field, soccer field, basketball court, tennis court, playground facilities, shade structures, and jogging path with fitness facilities.
Silver Star County Park	30054 Thunder Court	3.42	2 multipurpose fields, basketball court, play structure, and small shelter.
Spirit Park	25507 Normandy Road	8.78	Multipurpose field, 4 shade shelters, 2 playground facilities, tennis court, and basketball courts.

Table 15 City and County Parks Near the Project Site

Park	Location	Acres	Facilities/Resources
Audie Murphy Ranch Sports Park	30376 Lone Pine Drive	11.29	Multipurpose field, skate park, 3 shade shelters, baseball/softball field, basketball court, playground facility.
Roy W. Kabian Memorial Park	28001 Goetz City	640	1 acre of gazebos, barbeque grills, and playground facilities, and 639 acres of wildlife refuge with hiking trails and equestrian trails.
E.L. Pete Petersen Park	29621 Park City Avenue	4.81	Multipurpose field, basketball park, basketball court, 3 shade shelters, 2 playground facilities, and a dog park.

Source: Menifee, Parks, https://www.cityofmenifee.us/285/Parks, accessed July 13. 2021.

As previously discussed, the proposed project would be required to comply with the Quimby Act, which requires the dedication of land and/or fees for park and recreational purposes as a condition of approval of a tentative map or parcel map. The City of Menifee has a standard of five acres of parkland per 1,000 persons. The proposed project is anticipated to have a population of approximately 403 residents and would be required to dedicate approximately 2.02 acres for park and recreational purposes. The proposed project would include a 0.9-acre HOA-maintained park/tot lot and a 0.4-acre dog park, resulting in approximately 1.3 acres of dedicated parkland (see Figures 6a and 6b). Thus, development fees would be required for the remaining 0.72 acre of parkland, in accordance with the Quimby Act. Therefore, impacts to existing neighborhood and regional parks or other recreational facilities would be less than significant.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Less-than-Significant Impact. As discussed in Section 4.16(a), the City would be able to serve the proposed project through its existing park and recreational facilities. Therefore, the proposed project would not warrant the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. Furthermore, the proposed project would include its own recreation facilities and an outdoor play area to serve the residents. The proposed project does not involve the construction of recreational facilities beyond what is proposed on-site. Therefore, impacts would be less than significant.

4.17 Transportation

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

Would the project:

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

Less-than-Significant Impact. A significant impact may occur if the proposed project conflicts with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. The project's Traffic Impact Study (Appendix H) includes a comprehensive consistency review that compares the project and site design features with the City of Menifee's relevant plans and policies. As evaluated in that assessment, construction and operation of the proposed project would not conflict with any relevant state, regional, or local plans, policies, or programs because the proposed project does not include any features that would preclude the City from completing and complying with applicable guiding documents and policy objectives. Therefore, impacts would be less than significant.

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

Less-than-Significant Impact. CEQA Guidelines Section 15064.3(b)(1) describes specific considerations for evaluating a project's transportation impacts using vehicle miles traveled (VMT) for land use projects. The project is proposed to consist of single-family, detached residential dwelling units. It is anticipated that the project would open and be operational in 2025. Access to the project site would be provided via Goetz Road. Regional access to the project site is available from the I-215 freeway via the Newport Road interchange.

To develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for single-family detached residential (ITE Land Use Code 210) was used. According to the Traffic Impact Study (Appendix H), the project is anticipated to generate a net total of 1,370 trip-ends per day with 109 AM peak-hour trips and 144 PM peak-hour trips. The Traffic Impact Study identifies that the site screens out as a low VMT-generating zone. The proposed project has a VMT of 27.65 VMT per service population, which is 22.5 percent below the City's threshold of 35.68 VMT per service population. Thus, the proposed project is consistent with the General Plan and the socioeconomic data (SED) in the base model as well. Therefore, impacts would be less than significant.

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 Impact. A significant impact could occur if a project were to introduce a new roadway design or new land use or features into an area with specific transportation requirements and characteristics, or if access or other features were designed in such a way as to create hazardous conditions.

Further, the proposed project is a residential project within a single-family residential zoned area and is not an incompatible use. Access to the proposed project would be provided by two access points along Goetz Road at the proposed Street A and Street B (see Appendix H). The proposed project would construct access to the project site via Street B, by aligning with the existing Paseo La Plaza on Goetz Road; this driveway would be controlled with a stop sign on the side-street (Street B) with full access (no turn restrictions). Additionally, the proposed project would construct access to the project site via new Street A on Goetz Road; this driveway is to be controlled with a stop sign on the side-street (Street A) with full access (no turn restrictions)(see Figure 10, Proposed Project Site Access). To accommodate site access and maintain acceptable peak-hour operations, the following improvements are necessary to accommodate site access on Goetz Road and Street B/Paseo La Plaza:

- Project to construct eastbound shared left-through-right turn lane with a stop sign on the proposed Street B, at the intersection with Goetz Road.
- Project to construct a northbound left-turn lane on Goetz Road with a minimum of 100 feet of storage within a painted two-way left-turn lane, at the intersection of Street B/Paseo La Plaza.
- The roadway improvement would also accommodate a southbound left-turn lane (100 feet of storage) on Goetz Road into Paseo La Plaza.

Additionally, the following improvements are necessary to accommodate site access on Goetz Road and Street A:

- Project to construct eastbound shared left/right-turn lane with a stop sign on the proposed Street A, at the intersection with Goetz Road.
- Project to construct a northbound left-turn lane on Goetz Road with a minimum of 100 feet of storage.

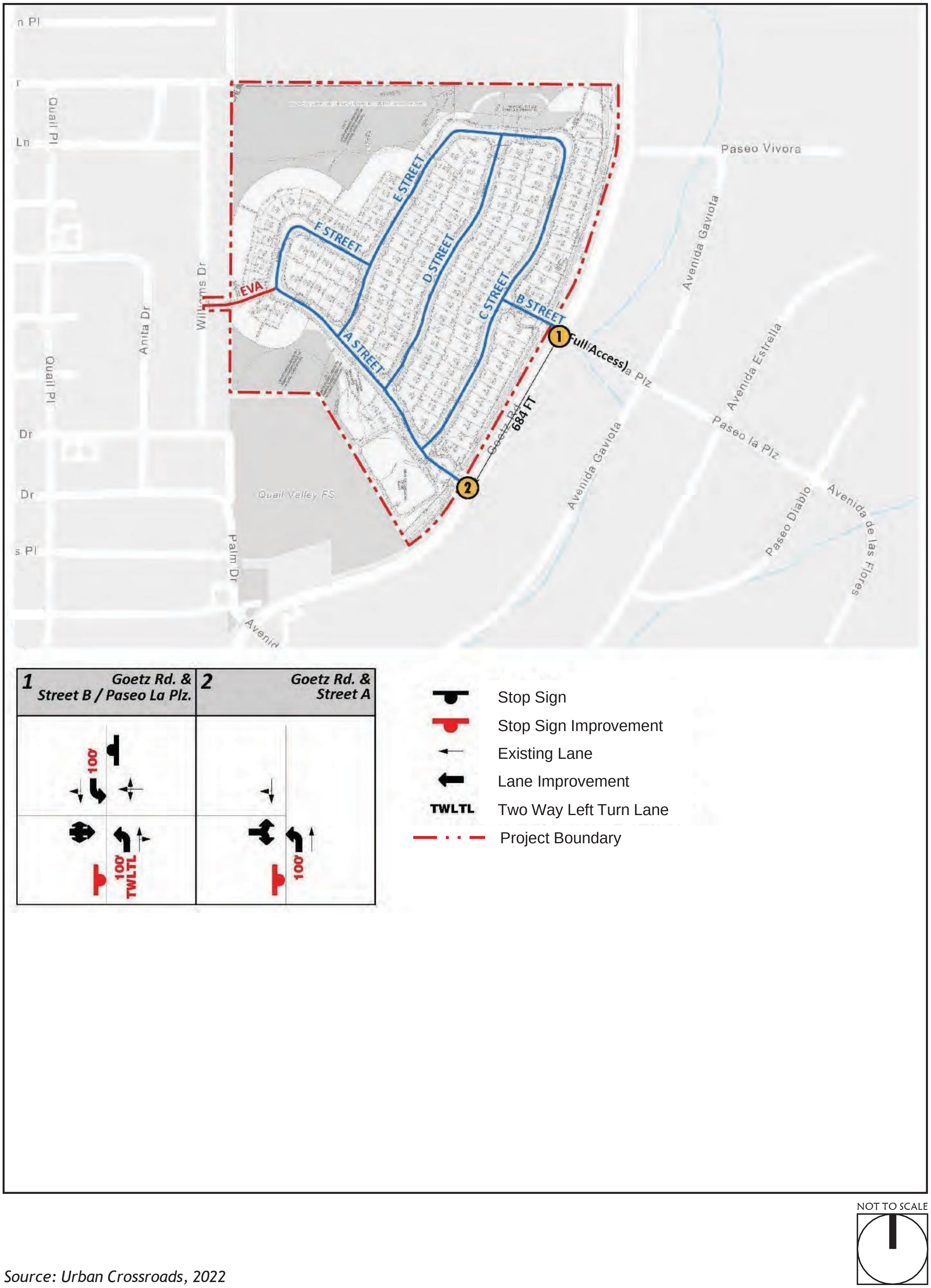
Goetz Road is a north-south oriented roadway on the project's eastern boundary. The project would construct Goetz Road at its ultimate half-width as a Major Highway (110-foot right-of-way) between the northern and southern project boundaries, consistent with the City's standards. Improvements to the half-section along the project's frontage also includes a sidewalk and Class I regional trail (similar to the one that exists south of California Place on Goetz Road). Although the frontage improvements would ultimately accommodate two southbound travel lanes, the interim condition would only accommodate a single through lane until such time the roadway is widened to its ultimate width to the south and can accommodate the second receiving lane. Internal project roadways would also be constructed with sidewalks that connect with the sidewalks along the project's frontage. Street B is proposed to align with Paseo La Plaza at Goetz Road, which is the beginning of the Class III bike route (unstriped, on-road bike route). On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform

Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the project site. Therefore, the impact would be less than significant.

d) Result in inadequate emergency access?

Less-than-Significant Impact. Project construction would not result in the closure of two or more travel lanes; thus, the proposed project would not result in the loss of regular vehicle access and would not impede emergency access. Additionally, operation of the proposed project would provide an emergency access route on the northwestern portion of the project site. The emergency access route would include a 24-foot-wide roadway, with 12-foot lanes in each direction, an access gate and removable bollards, and would lead from the proposed project into Williams Drive. The proposed project would comply with the City's EOP, and all project site plans would be reviewed by the RCFD for adequate fire access. Emergency response and access impacts would be less than significant.

Figure 10 - Proposed Project Site Access



Source: Urban Crossroads, 2022

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4.18 Tribal Cultural Resources

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) 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:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			X	
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

Would the project

a) 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:

i. 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)?

Less-than-Significant Impact. The project site is currently a vacant, undeveloped property and is not within a national or historic district. The CRHR NRHP lists do not include the project site. The project site does not meet any of the historic resource criteria and does not meet the definition of a historic resource pursuant to CEQA. Implementation of the project would not result in any substantial adverse change in a tribal cultural resource, defined pursuant to PRC Section 5024.1 or PRC Section 5020.1 (k). Therefore, impacts would be less than significant.

ii. 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 Impact with Mitigation Incorporated. AB 52 established a formal consultation process for California tribes within the CEQA process. The bill specifies that any project that may affect or cause a substantial adverse change in the significance of a tribal cultural resource would require a lead agency to "begin consultation with a California Native American tribe that is traditional and culturally affiliated with the geographic area of the proposed project." Section 21074 of AB 52 also defines tribal cultural resources as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and that are either listed on, or eligible for, the CRHR or a local historic register, or the lead agency chooses to treat the resource as a significant resource.

The City works closely with the tribes and consults on all projects before the City. With the inclusion of Mitigation Measures TRI-1 through TRI-6, impacts to tribal cultural resources would be mitigated to a less-than-significant impact.

Mitigation Measures:

TRI-1: Inadvertent Archaeological Find. If during ground-disturbance activities, cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Cultural resources are defined as being multiple artifacts in close association with each other, but also include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance, as determined in consultation with the lead agency and Native American tribe(s) that elected to consult under Assembly Bill 52 ("Consulting Tribe(s)").

a. All ground-disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the tribal representative(s), and the Planning Director to discuss the significance of the find.

b. At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s), developer, and the archaeologist, a decision shall be made, with the concurrence of the Planning Director, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources.

c. Grading or further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional tribal monitors if needed.

d. Treatment and avoidance of the newly discovered resources shall be consistent with the Treatment and Monitoring Agreements entered into with the Consulting Tribe(s) and the applicant. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources in native soils and/or re-burial on the project property so they are not subject to further disturbance in perpetuity, as identified in Mitigation Measures TRI-2 and TRI-5.

e. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan (see Mitigation Measure TRI-5) shall be prepared by the project archaeologist, in consultation with the Consulting Tribe(s), and shall be submitted to the City for their review and approval prior to implementation of the said plan.

f. Pursuant to California Public Resource Code Section 21083.2(b), avoidance is the preferred method of preservation for archaeological resources and tribal cultural resources. If the landowner and the Consulting Tribe(s) cannot agree on the significance or the mitigation for the archaeological or tribal cultural resources, these issues will be presented to the Planning Director for decision. The City's Planning Director shall make the determination based on the provisions of the California Environmental Quality Act with respect to archaeological and tribal cultural resources, recommendations of the project archaeologist, and shall take into account the cultural and religious principles and practices of the Consulting Tribe(s). Notwithstanding any other rights available under the law, the decision of the City Planning Director shall be appealable to the City Planning Commission and/or City Council.

TRI-2: **Cultural Resources Disposition.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a. One or more of the following treatments, in order of preference, shall be employed with the Consulting Tribe(s). Evidence of such shall be provided to the City Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources.

ii. Reburial of the resources on the project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods, and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the reburial shall be included in the confidential Phase IV report (see Mitigation Measure TRI-6). The Phase IV Report shall be filed with the City under a confidential cover and not subject to Public Records Request.

iii. If preservation in place or reburial is not feasible, then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets State Resources Department Office of Historic Preservation Guidelines for the Curation of Archaeological Resources ensuring access and use pursuant to the guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees by the Applicant necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the landowner to the City. There shall be no destructive or invasive testing on sacred items, burial goods, and Native American human remains, as defined by the cultural and religious practices of the Most Likely Descendant. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report.

TRI-3: **Archaeologist Retained.** Prior to issuance of a grading permit, the project applicant shall retain a Riverside County-qualified Registered Professional Archaeologist (RPA), to monitor all ground-disturbing activities in an effort to identify any unknown archaeological resources.

The RPA and the tribal monitor(s) shall manage and oversee monitoring for all initial ground-disturbing activities and excavation of each portion of the project site, including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition, etc. The RPA and tribal monitor(s) shall independently have the authority to temporarily divert, redirect, or halt the ground-disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors.

The developer/permit holder shall submit a fully executed copy of the contract to the Planning Department to ensure compliance with this condition of approval. Upon verification, the Planning Department shall clear this condition.

In addition, the RPA, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in Assembly Bill (AB) 52 to address the details, timing, and responsibility of all archaeological and cultural activities that will occur on the project site. A Consulting Tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the project, has not opted out of the AB 52 consultation process, and has completed AB 52 consultation with the City as provided for in California Public Resources Code Section 21080.3.2(b)(1) of AB 52. Details in the CRMP shall include:

a. Project grading and development scheduling;

b. The project archaeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with the City, the construction manager, and any contractors, and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The training will include a brief review of the cultural sensitivity of the project and the surrounding area; what resources could potentially be identified during earth-moving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the project following the initial training must take the Cultural Sensitivity Training prior to beginning work and the project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s), and project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

TRI-4: Native American Monitoring. Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s). Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned tribe and the land divider/permit holder for the monitoring of the project to the Planning Department and to the Engineering Department. The tribal monitor(s) shall have the authority to temporarily divert, redirect, or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.

TRI-5: Archaeology Report, Phases III and IV. Prior to final inspection, the developer/permit holder shall prompt the Project Archaeologist to submit two copies of the Phase III Data Recovery report (if required for the project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Planning Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two copies shall be submitted to the Eastern Information Center (EIC) at the University of California, Riverside (UCR) and one copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).

TRI-6: Non-Disclosure of Reburial Locations. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r)., parties, and lead agency, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r).

4.19 Utilities and Service Systems

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

Would the project:

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

Less-than-Significant Impact. The proposed project would connect sewer, storm drain, and water lines to existing infrastructure along Goetz Road.

Water Supply Facilities

The Eastern Municipal Water District (EMWD) provides water to the project site. The project site is in EMWD's 1800 Pressure Zone and would be served by an existing 18-inch water facility in Goetz Road. The proposed project would have two points of connection to the existing 18-inch pipeline in Goetz Road along project frontage. The water improvements would consist of 8-inch PVC main lines. As requested by EMWD, a valve would be installed to separate the two points of connection. According to the utilities report prepared for the proposed project, Medium-Density Residential units would require approximately 440 gallons per day per dwelling unit (gpd/DU); thus, the average daily demand for the proposed project would be approximately 58,080 gpd. The proposed fire flow requirement for the project is assumed to be 1,500 gallons per minute (gpm) for two hours, in accordance with County of Riverside,– Office of the Fire Marshal.

The proposed water system has been designed and sized to adequately serve the water demands of the proposed project. Per EMWD guidelines, the Average Daily, Peak Hour, and Max Day plus Fire Flow scenarios have been analyzed and it is concluded that proper pressure is maintained throughout the proposed network (see Appendix I). Therefore, the proposed project would not result in or require the construction of new or expanded water facilities. The proposed project would result in a less-than-significant impact related to water supply and infrastructure.

Wastewater Treatment Facilities

EMWD provides wastewater treatment to the City of Menifee. Wastewater from most of Menifee, except the north and south ends of the City, is collected at the Sun City Regional Wastewater Reclamation Facility (RWRF) and sent to the Perris Valley RWRF for treatment.

A Sewer Capacity Study was prepared for the proposed project, in which two sewer alternatives have been analyzed. The report analyzed the demand and capacity of the proposed network from within the proposed project site upstream to the main line connection downstream. Based on both the existing and proposed flow contributions, either proposed network would adequately service its tributary area, as outlined by Eastern Municipal Water District (EMWD). The proposed sewer network options have been analyzed and sized adequately for the peak flows generated by the proposed and existing developments. Thus, there are no capacity impacts to the downstream facility at the Goetz Road trunk sewer, as demonstrated by the flow calculations. Therefore, impacts would be less than significant.

Stormwater Drainage Facilities

The proposed project would include a storm drain system to collect, treat, and convey stormwater into the existing storm drain system and introduce pervious landscaping on the project site. According to the Preliminary Drainage Study prepared for the proposed project (see Appendix E), the proposed storm drain improvements would include the construction of new drainage facilities. The new drainage facilities would consist of storm drain mains, laterals, catch basins, concrete ditches, and a spillway and Detention/Sand Filter Basin. A proposed concrete ditch system would convey runoff from Area C to Williams Drive. The two proposed concrete ditches would include rip rap at their outlets to decrease outlet velocities and prevent erosion. The concrete ditch system would allow flows to sheet flow to Williams Drive simulating the existing condition flows. Rip rap sizing calculations would be provided during final engineering.

A proposed storm drain network would convey in-tract runoff from Drainage Area B to the proposed Detention Basin/Sand Filter Basin. The proposed Detention Basin/Sand Filter Basin would have an outlet structure and underdrain PVC pipe system as part of the Sand Filter Basin configuration. The outlet structure and underdrain PVC pipe system would discharge flows to Goetz Road though a storm drainpipe and parkway culvert. Storm drainpipe and parkway culvert calculations would be provided during final engineering.

Runoff from Area B would sheet flow along Goetz Road and small water quality flows be conveyed to a proposed curb type Modular Wetland System (MWS) unit adjacent to Goetz Road to treat pollutants. Large storm events would bypass the MWS unit and would continue to flow along Goetz Road. Therefore, the proposed project would result in a less-than-significant impact.

Electricity Facilities

Southern California Edison (SCE) provides electricity to the project site. The proposed project would connect to existing facilities in the public right-of-way (ROW). The proposed project would not require new or expanded electric power facilities other than connections to the existing electricity grid. The proposed project would result in a less-than-significant impact.

Natural Gas Facilities

Southern California Gas (SoCalGas) would provide natural gas service to the project site. The availability of natural gas service is based on present gas supply and regulatory policies. As a public utility, SoCalGas is under the auspices of the California Public Utilities Commission and federal regulatory agencies. Should these agencies take any action that affects gas supply or the conditions under which service is available, gas service would be provided in accordance with revised conditions. Development of the proposed project would comply with regulations and standards pertaining to natural gas and would connect to the existing natural gas infrastructure. The proposed project would result in a less-than-significant impact.

Telecommunication Facilities

Frontier Communications would provide telecommunication facilities, including telephone, cable television, and high-speed internet services, to the project site. As such, the area is adequately served by telecommunications facilities. The proposed project would include on-site connections to off-site telecommunication services and facilities in the immediate area of the project site. Facilities and infrastructure for the various telecommunication providers are adequate to serve the needs of the proposed project. The proposed project would not result in or require the construction of new or expanded telecommunication facilities. The proposed project would result in a less-than-significant impact.

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

Less-than-Significant Impact. A significant impact would occur if the proposed project would increase water consumption to such a degree that the capacity of facilities currently serving the project site would be exceeded. As described previously, the proposed project is within a residentially zoned area and is consistent with all local and regional water management plans. Therefore, the proposed project would have a less-than-significant impact related to water supplies.

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

Less-than-Significant Impact. As described in Section 4.19(a), the proposed project is in a residential area with utility connections on the project site. The proposed project's wastewater would be serviced by Sun City RWRF and sent to the Perris Valley RWRF for treatment. Located adjacent to Salt Creek on 123 acres, the Sun City regional facility redirects the wastewater from residents living within a 57-square-mile service area and sends it to Perris for processing. On-site storage capacity totals 187 million gallons of tertiary recycled water. The proposed project would generate additional wastewater, which would be accommodated by the Sun City RWRF. Therefore, impacts related to wastewater treatment capacity would be less than significant.

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 Impact. A significant impact would occur if the proposed project's solid waste generation exceeded the capacity of permitted landfills or generated solid waste in excess of State or local standards. More than 99 percent of the solid waste that Menifee disposed of in 2011 went to two landfills: El Sobrante Landfill in unincorporated Riverside County south of the City of Corona, and Badlands Sanitary Landfill near the City of Moreno Valley.

Based on the California Department of Resources, Recycling and Recovery's soil waste generation rates, a residential development produces approximately 12.23 pounds per household per day. Solid waste generated by the proposed project would be disposed of at El Sobrante Landfill, approximately 14 miles northwest of the project site. El Sobrante Landfill has a remaining capacity of approximately 77.5 million tons. The proposed project's solid waste represents less than 1 percent of the available capacity of El Sobrante. Therefore, the project's generation of solid waste would not be in excess of state or local standards and would have a less-than-significant impact.

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

Less-than-Significant Impact. The proposed project would result in new development that would generate an increased amount of solid waste. All solid waste-generating activities within Menifee are subject to the requirements set forth in Section 5.408.1 of the California Green Building Standards Code that requires demolition and construction activities to recycle or reuse a minimum of 75 percent of the nonhazardous construction and demolition waste, and AB 341 that requires diversion of a minimum of 75 percent of operational solid waste. Implementation of the proposed project would be consistent with all state regulations, as ensured through the City's project permitting process. Therefore, the proposed project would comply with all solid waste statute and regulations, and impacts would be less than significant.

4.20 Wildfire

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

Wildland fire protection in California is the responsibility of the local, state, or federal government. In state responsibility areas (SRAs), the State of California has the primary financial responsibility for the prevention and suppression of wildland fires. The SRAs cover more than 31 million acres, and the California Department of Forestry and Fire Protection (CAL FIRE) provides a basic level of wildland fire prevention and protection services.

Local responsibility areas (LRAs) include incorporated cities, cultivated agricultural lands, and portions of the desert. LRA fire protection is typically provided by city fire departments, fire protection districts, or county fire departments, or by CAL FIRE under contract to local government. CAL FIRE uses an extension of the SRA FHSZ model as the basis for evaluating fire hazard in LRAs. The LRA hazard rating reflects flame and ember intrusion from adjacent wildlands and from flammable vegetation in the urban area.

The project site and the surrounding area are in a VHFHSZ in an LRA. The project site is largely undeveloped and contains some vegetation and hillside terrain. The RCFD provides fire protection services to the project site.

As described in Section 2.1.6, the proposed project would include a fuel modification plan (as shown in Figure 9).

The proposed project would include the following.

<u>Irrigated Zone 1 - Light Green (Owner Maintained)</u>

All portions of a resident's flat-level building pad, plus portions located on slopes within 30 feet of any habitable structure shall be planted with fire-resistant vegetation and maintained to Irrigated Zone 1 criteria. Maintenance would be ongoing throughout the year, as needed.

Irrigated Zone 1a - Dark Green (HOA Maintained)

The area is in various perimeter areas. Distances may vary. These areas represent manufactured slopes that would be re-planted and irrigated in perpetuity. It shall be planted with fire-resistant vegetation and maintained to Irrigated Zone 1a criteria. Maintenance would be ongoing throughout the year, as needed.

Plant material used within this zone include the following:

- Trees: strawberry tree, California sycamore, thornless Chilean mesquite, Brisbane box, and California bay.
- Shrubs/Groundcover: Pigeon point coyote bush, fairy duster, Californian lilac, , toyon, Cleveland sage, and autumn sage.

Thinning Zone 2 Brown (Owner and HOA Maintained)

An area between 30 and 100 feet from each structure. This area may include single or small clusters of trimmed fire-resistant native plants up to 18 inches in height where 50 percent of the vegetation is removed. Selected native plant clusters must be separated by at least 1-1/2 times the mature height of the retained plants. The groundcover and grasses shall be weed whipped and maintained to 4 inches or less in stubble height.

Would the project:

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

Less-than-Significant Impact. The proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. The proposed project would include the City of Menifee's Code requirements for building in a VHFHSZ and the California Building Code. Additionally, the proposed project would be in compliance with the City's Emergency Operations Plan (EOP), which outlines the planned deployment, mobilization, and tactual operations in response to extraordinary emergency situations associated with natural disasters. As discussed in Section 4.17(d) the proposed project would provide a third entryway along the western edge of the project site and would lead into Williams Drive. This entryway would include a 24-foot-wide roadway, with 12-foot lanes in each direction; however, this entryway would be for emergency use only through an access gate, and would be blocked by removable bollards, when it is not in use. Therefore, the proposed project would not significantly impair any adopted emergency response plan or emergency evacuation plan, and the impact would be less than significant.

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 Impact. A project could have a significant impact if it would exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or uncontrolled spread of wildfire due to slope, prevailing winds, and other factors. As described previously, the proposed project would implement fuel modification practices throughout the site and would be subject to Menifee Municipal Code requirements, as described in Chapter 8.20: Fire Code. Through compliance with the Menifee Municipal Code and other California Fire Code requirements, the impact would be less than significant.

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

Less-than-Significant Impact. As discussed in Section 4.19, Utilities and Service Systems, the proposed project would connect to existing utility infrastructure surrounding the project site. The proposed project is consistent with the General Plan land use designation for the project site and would be adequately served by RCFD. The proposed fire-flow requirement for the project is assumed to be 1,500 gpm for two hours in accordance with County of Riverside – Office of the Fire Marshal, Schedule A – Single Family Residential Developments. Per EMWD guidelines, the Average Daily, Peak Hour, and Max Day plus Fire Flow scenarios have been analyzed and it is concluded that proper pressure is maintained throughout the proposed network. The proposed project would comply with Menifee Municipal Code requirements, as described in previous sections. The proposed project would not result in infrastructure that would exacerbate fire risk. Therefore, the impacts would be less than significant.

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?

No Impact. The project site is surrounded by vacant lots and residential properties on the adjacent areas. However, the project site is not within a flood zone or a landslide area, and would not result in result of runoff, post-fire slope instability, or drainage changes that would expose people or structures to significant risks. Therefore, no impact would occur.

4.21 Mandatory Findings of Significance

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
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.)			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

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 a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 4.4, Biological Resources, the project site does have the potential to contain special-status or sensitive biological resources. However, with payment of the MSHCP fee, as required by Chapter 8.27 of the Menifee Municipal Code, and implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3, impacts, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species, would be less than significant.

As discussed in Section 4.5, Cultural Resources, the proposed project does not eliminate important examples of the major periods of California history and would not have an adverse impact on California's prehistoric cultural resources. Therefore, impacts would be less than significant.

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)?

Less-than-Significant Impact. As discussed in this Initial Study, the proposed project would not have short-term and/or long-term environmental impacts related to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire. Therefore, the proposed project would not result in failure to achieve short-term nor long-term environmental goals. Impacts would be less than significant.

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

Less-than-Significant Impact. As discussed in the previous analyses, the proposed project would not result in significant direct or indirect adverse impacts or result in substantial adverse effects on human beings. Impacts would be less than significant.

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Appendix A Air Quality and Greenhouse Gas Background and Modeling Data

Air Quality and Greenhouse Gas Background and Modeling Data

AIR QUALITY

Air Quality Regulations

The Project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The Project Site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (South Coast AQMD). However, South Coast AQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the Project are summarized below.

AMBIENT AIR QUALITY STANDARDS

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS, based on even greater health and welfare concerns.

These National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*, these pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.
Notes: ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2 National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

CRITERIA AIR POLLUTANTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources and include CO, VOC, NO_2, SO_X, PM_{10}, $PM_{2.5}$, and Pb. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005, US EPA 2022). The SoCAB is designated as being in attainment under the California AAQS and attainment (serious maintenance) under the National AAQS (CARB 2022a).

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of ozone (O_3), South Coast AQMD has established a significance threshold for this pollutant (South Coast AQMD 2005).

Nitrogen Oxides (NO_x) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (South Coast AQMD 2005, US EPA 2022). On February 21, 2019, CARB's Board approved the separation of the area that runs along the State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for state nonattainment designation purposes. The Board designated this corridor as nonattainment.[1] The remainder of the SoCAB remains in attainment for NO_2 (CARB 2022a).

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific

[1] CARB is proposing to redesignate SR-60 Near-Road Portion of San Bernardino, Riverside, and Los Angeles Counties in the SoCAB as attainment for NO_2 at the February 24, 2022 Board Hearing (CARB 2022b).

evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (South Coast AQMD 2005; US EPA 2022). The SoCAB is designated as attainment under the California and National AAQS (CARB 2022a).

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems (South Coast AQMD 2005).

The US Environmental Protection Agency's (EPA) scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms (South Coast AQMD 2005). There has been emerging evidence that even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), known as ultrafine particulates (UFPs), have human health implications, because UFPs toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2013). However, the EPA or CARB have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by the CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,[2] environmental damage,[3] and damage[4] (South Coast

[2] $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.

[3] Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

[4] Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

AQMD 2005; US EPA 2022). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2022a).[5]

Ozone (O_3) is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (South Coast AQMD 2005; US EPA 2022). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2022a).

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (South Coast AQMD 2005; USEPA 2021). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[6] As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2022a). Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the proposed project.

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5 CARB approved the South Coast AQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM_{10} standards from 2004 to 2007. The EPA approved the State of California's request to redesignate the South Coast PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013.

6 Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (South Coast AQMD 2012).

TOXIC AIR CONTAMINANTS

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

Air Quality Management Planning

The South Coast AQMD is the agency responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

On March 3, 2017, the South Coast AQMD adopted the 2016 AQMP as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031,
- 2012 National annual $PM_{2.5}$ standard by 2025[7],
- 2006 National 24-hour $PM_{2.5}$ standard by 2019,
- 1997 National 8-hour ozone standard by 2023, and the
- 1979 National 1-hour ozone standard by year 2022.

[7] The 2016 AQMP requests a reclassification from moderate to serious non-attainment for the 2012 National $PM_{2.5}$ standard.

It is projected that total NO_X emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022 (South Coast AQMD 2017), which requires reducing NO_X emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard.

Reducing NO_X emissions would also reduce $PM_{2.5}$ concentrations in the SoCAB. However, as the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, South Coast AQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under this federal standard. A "moderate" non-attainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (South Coast AQMD 2017).

2022 AQMP

On October 1, 2015, the US EPA strengthened the National AAQS for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb). The SoCAB is classified as an "extreme" non-attainment area and the Coachella Valley is classified as a "severe-15" non-attainment area for the 2015 Ozone National AAQS. South Coast AQMD is updating the QMP to address the requirements for meeting this standard.

LEAD STATE IMPLEMENTATION PLAN

In 2008, EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The rest of the SoCAB, outside the Los Angeles County nonattainment area remains in attainment of the new standard. On May 24, 2012, CARB approved the SIP revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

SOUTH COAST AQMD PM2.5 REDESIGNATION REQUEST AND MAINTENANCE PLAN

In 1997, the US EPA adopted the 24-hour fine $PM_{2.5}$ standard of 65 micrograms per cubic meter ($\mu g/m^3$). In 2006, this standard was lowered to a more health-protective level of 35 $\mu g/m^3$. The SoCAB is designated nonattainment for both the 65 and 35 μg/m3 24-hour $PM_{2.5}$ standards (24-hour $PM_{2.5}$ standards). In 2020, monitored data demonstrated that the SoCAB attained both 24-hour $PM_{2.5}$ standards. The South Coast AQM has developed the 2021 Redesignation Request and Maintenance Plan for the 1997 and 2006 24-hour PM2.5

Standards for the SoCAB $PM_{2.5}$ Redesignation Request demonstrating that the SoCAB has met the requirements to be redesignated to attainment for the 24-hour $PM_{2.5}$ standards (South Coast AQMD 2021b).

AB 617, COMMUNITY AIR PROTECTION PROGRAM

Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017) requires local air districts to monitor and implement air pollution control strategies that reduce localized air pollution in communities that bear the greatest burdens. In response to AB 617, CARB has established the Community Air Protection Program.

Air districts are required to host workshops to help identify disadvantaged communities disproportionately affected by poor air quality. Once the criteria for identifying the highest priority locations have been identified and the communities have been selected, new community monitoring systems would be installed to track and monitor community-specific air pollution goals. In 2018 CARB prepared an air monitoring plan (Community Air Protection Blueprint), that evaluates the availability and effectiveness of air monitoring technologies and existing community air monitoring networks. Under AB 617, the Blueprint is required to be updated every five years.

Under AB 617, CARB is also required to prepare a statewide strategy to reduce TACs and criteria pollutants in impacted communities; provide a statewide clearinghouse for best available retrofit control technology; adopt new rules requiring the latest best available retrofit control technology for all criteria pollutants for which an area has not achieved attainment of California AAQS; and provide uniform, statewide reporting of emissions inventories. Air districts are required to adopt a community emissions reduction program to achieve reductions for the communities impacted by air pollution that CARB identifies.

MULTIPLE AIR TOXICS EXPOSURE STUDY V

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In April 2021, South Coast AQMD released the latest update to the MATES study, MATES V. The first MATES analysis, MATES I, began in 1986 but was limited because of the technology available at the time. Conducted in 1998, MATES II was the first MATES iteration to include a comprehensive monitoring program, an air toxics emissions inventory, and a modeling component. MATES III was conducted in 2004 to 2006, with MATES IV following in 2012 to 2013.

MATES V uses measurements taken during 2018 and 2019, with a comprehensive modeling analysis and emissions inventory based on 2018 data. The previous MATES studies quantified the cancer risks based on the inhalation pathway only. MATES V includes information on the chronic noncancer risks from inhalation and non-inhalation pathways for the first time. Cancer risks and chronic noncancer risks from MATES II through IV measurements have been re-examined using current Office of Environmental Health Hazards Assessment (OEHHA) and CalEPA risk assessment methodologies and modern statistical methods to examine the trends over time.

The MATES V study showed that cancer risk in the SoCAB decreased to 454 in a million from 997 in a million in the MATES IV study. Overall, air toxics cancer risk in the SoCAB decreased by 54 percent since

2012 when MATES IV was conducted. MATES V showed the highest risk locations near the Los Angeles International Airport and the Ports of Long Beach and Los Angeles. Diesel particulate matter continues to be the major contributor to air toxics cancer risk (approximately 72 percent of the total cancer risk). Goods movement and transportation corridors have the highest cancer risk. Transportation sources account for 88 percent of carcinogenic air toxics emissions, and the remainder is from stationary sources, which include large industrial operations such as refineries and power plants as well as smaller businesses such as gas stations and chrome-plating facilities. (South Coast AQMD 2021a).

Existing Conditions

CLIMATE/METEOROLOGY

South Coast Air Basin

The Project Site lies in the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (South Coast AQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the Project Site with temperature data is the Sun City Monitoring Station (ID 048655). The average low is reported at 34.5°F in January, and the average high is 98.0°F in August (WRCC 2022).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall averages 11.22 inches per year in the vicinity of the area (WRCC 2022).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the (South Coast AQMD 2005).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (South Coast AQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (South Coast AQMD 2005).

AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- **Unclassified:** a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.
- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.

- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 2, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*.

Table 2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment[2]
CO	Attainment	Attainment
NO_2	Nonattainment (SR-60 Near Road only)[1]	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[3]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2022a.

1 On February 21, 2019, CARB's Board approved the separation of the area that runs along State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for State nonattainment designation purposes. The Board designated this corridor as nonattainment. The remainder of the SoCAB remains in attainment for NO_2 (CARB 2019a). CARB is proposing to redesignate SR-60 Near-Road Portion of San Bernardino, Riverside, and Los Angeles Counties in the SoCAB as attainment for NO_2 at the February 24, 2022 Board Hearing (CARB 2022b).

2 The SoCAB is pending a resignation request from nonattainment to attainment for the 24-hour federal PM2.5 standards. The 2021 PM2.5 Redesignation Request and Maintenance Plan demonstrates that the South Coast meets the requirements of the CAA to allow US EPA to redesignate the SoCAB to attainment for the 65 µg/m3 and 35 µg/m3 24-hour PM2.5 standards. CARB will submit the 2021 PM2.5 Redesignation Request to the US EPA as a revision to the California SIP (CARB 2021).

3 In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the Project Site are best documented by measurements taken by the South Coast AQMD. The Project Site is located within Source Receptor Area (SRA) 24 – Perris Valley. The air quality monitoring station closest to the Project is the Lake Elsinore – W Flint Street Monitoring Station, which is one of 31 monitoring stations South Coast AQMD operates and maintains in the SoCAB.[8] Data from this station includes O_3, NO_x, and PM_{10} and is summarized in Table 3, *Ambient Air Quality Monitoring Summary*. The most current five years of data from these monitoring stations are included in Table 3 and show regular violations of the state and federal O_3 and PM_{10} standards in the last five years.

[8] Locations of the SRAs and monitoring stations are shown here: http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf.

Table 3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2016	2017	2018	2019	2020
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	15	23	16	4	18
State & Federal 8-hour ≥ 0.070 ppm (days exceed threshold)	44	54	30	28	54
Max. 1-Hour Conc. (ppm)	0.124	0.121	0.116	0.108	0.130
Max. 8-Hour Conc. (ppm)	0.093	0.098	0.095	0.089	0.100
Nitrogen Dioxide (NO_2)[1]					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	0.0513	0.0490	0.0413	0.0380	0.0436
Coarse Particulates (PM_{10})[1]					
State 24-Hour > 50 µg/m^3 (days exceed threshold)	*	*	*	*	*
Federal 24-Hour > 150 µg/m^3 (days exceed threshold)	0	0	0	0	1
Max. 24-Hour Conc. (µg/m^3)	99.7	134.1	105.3	93.8	192.4

Source: CARB 2022b.
Notes: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; * = Data not available
[1] Data obtained from the Lake Elsinore – W Flint Street Monitoring Station for O_3, NO_x, and PM_{10}.
[3] Most recent data available as of January 2022.

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest sensitive receptors to the proposed Project Site are the residences along are the residences along Palm Drive to the west of the Project Site.

Methodology

Projected construction-related air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2020.4. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only) use. The calculated emissions of the project are compared to thresholds of significance for individual projects using the South Coast AQMD's *CEQA Air Quality Analysis Guidance Handbook*.

Thresholds of Significance

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in South Coast AQMD's *CEQA Air Quality Handbook* and the significance thresholds on South Coast AQMD's website (South Coast AQMD 1993). CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. South Coast AQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

REGIONAL SIGNIFICANCE THRESHOLDS

The South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 4, *South Coast AQMD Significance Thresholds*, lists South Coast AQMD's regional significance thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, South Coast AQMD has not developed thresholds for them.

Table 4 South Coast AQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2019.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)

- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$) (South Coast AQMD 2015b)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists responsible for a landmark children's health study found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (South Coast AQMD 2015c).

Mass emissions in Table 4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not single-handedly trigger a regional health impact. South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS.

CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by the South Coast AQMD for busiest intersections in Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards.[9] As identified in the South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous

[9] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017).

LOCALIZED SIGNIFICANCE THRESHOLDS

The South Coast AQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5, *South Coast AQMD Localized Significance Thresholds*.

Table 5 South Coast AQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (South Coast AQMD)[1]	10.4 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Construction (South Coast AQMD)[1]	10.4 $\mu g/m^3$
24-Hour PM_{10} Standard – Operation (South Coast AQMD)[1]	2.5 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Operation (South Coast AQMD)[1]	2.5 $\mu g/m^3$

Source: South Coast AQMD 2019.
ppm – parts per million; $\mu g/m^3$ – micrograms per cubic meter
[1] Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

In accordance with South Coast AQMD's LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the Project Site in SRA 24 are shown in Table 6, *Screening-Level Construction Localized Significance Thresholds,* for sensitive receptors within 82 feet (25 meters) of the Project Site for NO_x and CO emissions and 250 feet (76 meters) for PM_{10} and $PM_{2.5}$.

Table 6 Screening-Level Construction Localized Significance Thresholds

Acreage Disturbed	Threshold (lbs/day)[1]			
	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acres Disturbed Per Day	118	602	4.00	3.00
3.00 Acres Disturbed Per Day	203	1,114	9.00	5.33
3.50 Acres Disturbed Per Day	220	1,230	9.99	6.00
≥5.00 Acres Disturbed Per Day	270	1,577	12.99	8.00

Source: South Coast AQMD 2008a and 2011.
[1] LSTs are based on sensitive receptors within 82 feet (25 meters) of the Project Site in Source Receptor Area (SRA) 24.

Because the Project is not an industrial project that has the potential to emit substantial sources of stationary emissions, operational LSTs are not an air quality impact of concern associated with the Project.

Health Risk

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 7, *Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment. CEQA does not require CEQA-level environmental document to analyze the environmental effects of attracting development and people to an area (*California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (Case No. S213478)*). However, the environmental document must analyze the impacts of environmental hazards on future users, when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 7 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: South Coast AQMD 2019.

GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[10] carbon (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[11] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

  - ***Chlorofluorocarbons (CFCs***) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-

[10] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

[11] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017a). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride (SF_6)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; USEPA 2022).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 8, *GHG Emissions and Their Relative Global Warming Potential Compared to CO_2*. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fourth Assessment Report (AR4) GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 250 MT of CO_2 (IPCC 2007).

Table 8 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report (SAR) Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report (AR4) Global Warming Potential Relative to CO_2[1]	Fifth Assessment Report (AR5) Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	1	1	1
Methane[2] (CH_4)	21	25	28
Nitrous Oxide (N_2O)	310	298	265

Source: IPCC 1995, 2007, 2013.
Notes:
[1] The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.
[2] Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.
[3] The GWP values in the IPCC's Fifth Assessment Report (2013) reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, South Coast AQMD uses the AR4 GWP values to maintain consistency in statewide GHG emissions modeling. In addition, the 2017 Scoping Plan Update was based on the AR4 GWP values.

California's Greenhouse Gas Sources and Relative Contribution

In 2020, the statewide GHG emissions inventory was updated for 2000 to 2018 emissions using the GWPs in IPCC's AR4.[12] Based on these GWPs, California produced 425.3 $MMTCO_2e$ GHG emissions in 2018. California's transportation sector was the single largest generator of GHG emissions, producing 39.9 percent of the state's total emissions. Industrial sector emissions made up 21.0 percent, and electric power generation made up 14.8 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (9.7 percent), agriculture and forestry (7.7 percent) high GWP (4.8 percent), and recycling and waste (2.1 percent) (CARB 2020).

Since the peak level in 2004, California statewide GHG emissions dropped below the 2020 GHG limit of 431 $MMCO_2e$ in 2016 and have remained below the 2020 GHG limit since then. In 2018, emissions from routine GHG emitting activities statewide were 6 $MMTCO_2e$ lower than the 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.0 $MTCO_2e$ per person to 10.7 $MTCO_2e$ per person in 2018, a 24 percent decrease. Transportation emissions decreased in 2018 compared to the previous year, which is the first year over year decrease since 2013. Since 2008, California's electricity sector has followed an overall downward trend in emissions. In 2018, solar power generation has continued its rapid growth since 2013. Emissions from high-GWP gases increased 2.3 percent in 2018 (2000-2018 average year-over-year increase is 6.8 percent), continuing the increasing trend as they replace Ozone Depleting Substances (ODS) being phased out under the 1987 Montreal Protocol. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 43 percent decline since the 2001 peak, while the state's GDP has grown 59 percent during this period (CARB 2020).

Regulatory Settings

REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

The US Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they

[12] Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (2006).

constitute the majority of GHG emissions and, per South Coast AQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2 per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2017 to 2026)

The federal government issued new corporate average fuel economy standards in 2012 for model years 2017 to 2025 that required a fleet average of 54.5 miles per gallon in 2025. However, on March 30, 2020, the EPA finalized updated corporate average fuel economy and GHG emissions standards for passenger cars and light trucks and established new standards covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient Vehicles Final Rule for Model Years 2021 to 2026. However, a consortium of automakers and California have agreed on a voluntary framework to reduce emissions that can serve as an alternate path forward for clean vehicle standards nationwide. Automakers who agreed to the framework are Ford, Honda, BMW of North America, and Volkswagen Group of America. The framework supports continued annual reductions of vehicle GHG emissions through the 2026 model year, encourages innovation to accelerate the transition to electric vehicles, and gives industry the certainty needed to make investments and create jobs. The auto companies that are parties to the voluntary agreement will only sell cars in the United States that meet these standards (CARB 2019). However, on December 21, 2021, under direction of Executive Order 13990 issued by President Biden, the National Highway Traffic Safety Administration (NHTSA) repealed Safer Affordable Fuel Efficient Vehicles Rule Part One, which had preempted state and local laws related to fuel economy standards. In addition, on August 5, 2021, the NHTSA announced new proposed fuel standards in response to Executive Order 13990. Fuel efficiency under the standards proposed would increase 8 percent annually for model years 2024 to 2026 and increase the estimated fleetwide average by 12 miles per gallon for model year 2026 compared to model year 2021 (NHTSA 2021).

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new, large stationary sources of emissions such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy rule, which became effective on August 19, 2019, following the Energy Independence Executive Order. It officially rescinds the Clean Power Plan rule issued during the Obama administration and sets emissions guidelines for states in developing plans to limit CO_2 emissions from coal-fired power plants.

REGULATION OF GHG EMISSIONS ON A STATE LEVEL

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-3-05, Executive Order B-30-15, Executive Order B-55-18, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32) and Senate Bill 375 (SB 375).

Executive Order S-3-05

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and targets for reductions in GHG emissions are generally embodied in AB 32. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction goals established in Executive Order S-03-05.

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, set a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directed CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlined potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan established a new emissions limit of

260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017b).

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

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

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally-appropriate goals that align with the statewide per capita targets and the State's sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the State's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population)—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The 2017 Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 9, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. It includes the existing renewables requirements, advanced clean cars, the "10 percent" Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 $MMTCO_2e$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 9 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions $MMTCO_2e$
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	**260**
Gap to 2030 Target	**60**

Source: CARB 2017b.

Table 10, *2017 Climate Change Scoping Plan Emissions Change by Sector*, provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 10 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 $MMTCO_2e$	2030 Proposed Plan Ranges $MMTCO_2e$	% Change from 1990
Agricultural	26	24-25	-8% to -4%
Residential and Commercial	44	38-40	-14% to -9%
Electric Power	108	30-53	-72% to -51%
High GWP	3	8-11	267% to 367%
Industrial	98	83-90	-15% to -8%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-32% to -27%
Net Sink[1]	-7	TBD	TBD
Sub Total	431	294-339	-32% to -21%
Cap-and-Trade Program	NA	24-79	NA
Total	**431**	**260**	**-40%**

Source: CARB 2017b.
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
[1] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, set a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning that not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of CO_2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPO). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 is defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks compared to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translates into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted sustainable communities strategies (SCS). As proposed, CARB staff 's proposed targets would result in an additional reduction of over 8 $MMTCO_2e$ in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018). CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018, are subject to these new targets.

SCAG's Regional Transportation Plan / Sustainable Communities Strategy

SB 375 requires each MPO to prepare a sustainable communities strategy in its regional transportation plan. For the SCAG region, the 2020-2045 RTP/SCS (Connect SoCal) was adopted on September 3, 2020, and is an update to the 2016-2040 RTP/SCS. In general, the SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land use strategies in development of the SCAG region through horizon year 2045 (SCAG 2020). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. Additionally, Connect SoCal also forecasts that implementation of the plan will reduce VMT per capita in year 2045 by 4.1 percent compared to baseline conditions for that year. Connect

SoCal includes a "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together and increasing investments in transit and complete streets (SCAG 2020).

Transportation Sector Specific Regulations

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles. (See also the discussion on the update to the Corporate Average Fuel Economy standards at the beginning of this Section 5.5.2 under "Federal.") In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of ZE vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less GHG emissions and 75 percent less smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in CO_2e gram per unit of fuel energy sold in California. The LCFS required a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and uses market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate ZE vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directed the number of ZE vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are ZE by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions to 80 percent below 1990 levels.

Executive Order N-79-20

On September 23, 2020, Governor Newsom signed Executive Order N-79-20, whose goal is that 100 percent of in-state sales of new passenger cars and trucks will be ZE by 2035. Additionally, the fleet goals for trucks are that 100 percent of drayage trucks are ZE by 2035, and 100 percent of medium- and heavy-duty vehicles in the state are ZE by 2045, where feasible. The Executive Order's goal for the State is to transition to 100 percent ZE off-road vehicles and equipment by 2035, where feasible.

Renewables Portfolio: Carbon Neutrality Regulations

Senate Bills 1078, 107, and X1-2 and Executive Order S-14-08

A major component of California's Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08, signed in November 2008, expanded the state's renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Energy Efficiency Regulations

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018, and went into effect on January 1, 2020.

The 2019 standards move toward cutting energy use in new homes by more than 50 percent and require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings are 30 percent more energy efficient than under the 2016 standards, and single-family homes are 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

Furthermore, on August 11, 2021, the CEC adopted the 2022 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission in December 2021. The 2022 standards become effective and replace the existing 2019 standards on January 1, 2023. The 2022 standards would require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards also include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers (CEC 2021).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[13] The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2019. The 2019 CALGreen standards became effective January 1, 2020. The 2022 standards become effective and replace the existing 2019 standards on January 1, 2023.

Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances.

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[13] The green building standards became mandatory in the 2010 edition of the code.

Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Diversion Regulations

AB 939: Integrated Waste Management Act of 1989

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

AB 1327

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

AB 1826

In October of 2014, Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste.

Water Efficiency Regulations

SBX7-7

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 required urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

AB 1881: Water Conservation in Landscaping Act

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Short-Lived Climate Pollutant Reduction Strategy

Senate Bill 1383

On September 19, 2016, the governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and methane. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants—to reduce methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills, which includes a 50 percent reduction in statewide organic waste disposal from 2014 levels by 2020 and a 75 percent reduction from 2014 levels by 2025. Under SB 1383, jurisdictions are required to implement organic waste collection services for all residents and businesses by January 1, 2022. On March 14, 2017, CARB adopted the "Final Proposed Short-Lived Climate Pollutant Reduction Strategy," which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s despite the tripling of diesel fuel use (CARB 2017b). In-use on-road rules were expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. South Coast AQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these char broilers by over 80 percent (CARB 2017b). Additionally, South Coast AQMD Rule 445 limits installation of new fireplaces in the SoCAB.

Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[14]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) held in September 2010, the South Coast AQMD Working Group identified a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency (South Coast AQMD 2010):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD requires an assessment of GHG emissions. The South Coast AQMD Working Group identified a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds: 1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

[14] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

> The South Coast AQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.[15] The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.

The bright-line screening-level criterion of 3,000 $MTCO_2e$/yr is used as the significance threshold for this project. Therefore, if the project operation-phase emissions exceed the 3,000 $MTCO_2e$/yr threshold, GHG emissions would be considered potentially significant in the absence of mitigation measures.

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Appendix B Biological Technical Report and MSHCP Consistency Analysis and Focused Owl Survey

Updated Biological Technical Report and MSHCP Consistency Analysis

43.4-Acre Project Site in the City of Menifee

Riverside County, California

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April 2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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ECORP Consulting, Inc. has assisted public and private land owners with environmental regulation compliance since 1987. We offer full service capability, from initial baseline environmental studies through environmental planning review, permitting negotiation, liaison to obtain legal agreements, mitigation design, construction monitoring, and compliance reporting.

Citation: ECORP Consulting, Inc. 2021. Updated Biological Technical Report and MSHCP Consistency Analysis for a 43.4-Acre Project Site in the City of Menifee, Riverside County, California. Prepared for Paul Onufer, JPMB Investments, LLC, Pasadena, California.

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1.0 INTRODUCTION

ECORP Consulting, Inc. (ECORP) conducted a biological reconnaissance survey for the proposed Quail Hills Tentative Tract Map Project Site (Project Site). The Project Site consists of approximately 43.4 acres (APNs 341-040-002, 341-060-007, 341-060-009, and a 2.4-acre portion of parcel 341-040-049) of undeveloped land in the City of Menifee, Riverside County, California. The biological reconnaissance survey of the Project Site was conducted in support of the proposed Tentative Tract Map 37692 and for the purposes of determining the baseline biological conditions, and to identify any biological constraints that would affect the Site plan for the Project. The survey was also conducted in accordance with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The Project will be subject to county, state, and federal regulations regarding compliance with the federal Endangered Species Act (ESA), California ESA, Migratory Bird Treaty Act (MBTA), and California Fish and Game Code.

1.1 Location and Setting

The Project Site is in a rural residential area of the City of Menifee (Figure 1). The Project Site is bounded by Goetz Road to the south and east and residential developments to the west and north (Figure 2). The Project Site does not contain any existing structures. Surrounding land uses consisted of rural residential developments. The Project Site, as depicted on the United States Geological Survey (USGS) Romoland 7.5-minute topographic quadrangle, is located within Section 25, Township 5 South, Range 4 West and Section 30, Township 5 South, Range 3 West of the San Bernardino Base and Meridian. The elevation on the Project Site ranges from 1,580 feet above mean sea level (msl) to 1,775 feet above msl.

1.2 Project Description and Purpose

The Quail Hills proposed Tentative Tract Map includes 145 single family lots on 43.4 acres, 0.5-acre park, a detention basin, walking paths, fuel modification and 12.4 acres of open space. ECORP conducted a biological reconnaissance survey that included characterizing the vegetation communities present on the Project Site, identifying suitable habitat for special-status species, and assessing the potential for special-status species and habitats to occur. The survey was conducted in accordance with the MSHCP. The MSHCP provides information on plant and wildlife species of concern to the County of Riverside (referred to as "Covered Species") and outlines goals for their conservation. Information on the MSHCP can be found at www.wrc-rca.org. The purpose of this study was to determine the baseline biological conditions on the Project Site and ensure that the Project development is consistent with the goals and requirements of the MSHCP.

2.0 SPECIAL-STATUS SPECIES REGULATIONS

This biological reconnaissance survey was conducted to identify potential issues and ensure compliance with state and federal regulations regarding listed, protected, and sensitive species. The regulations are detailed below.

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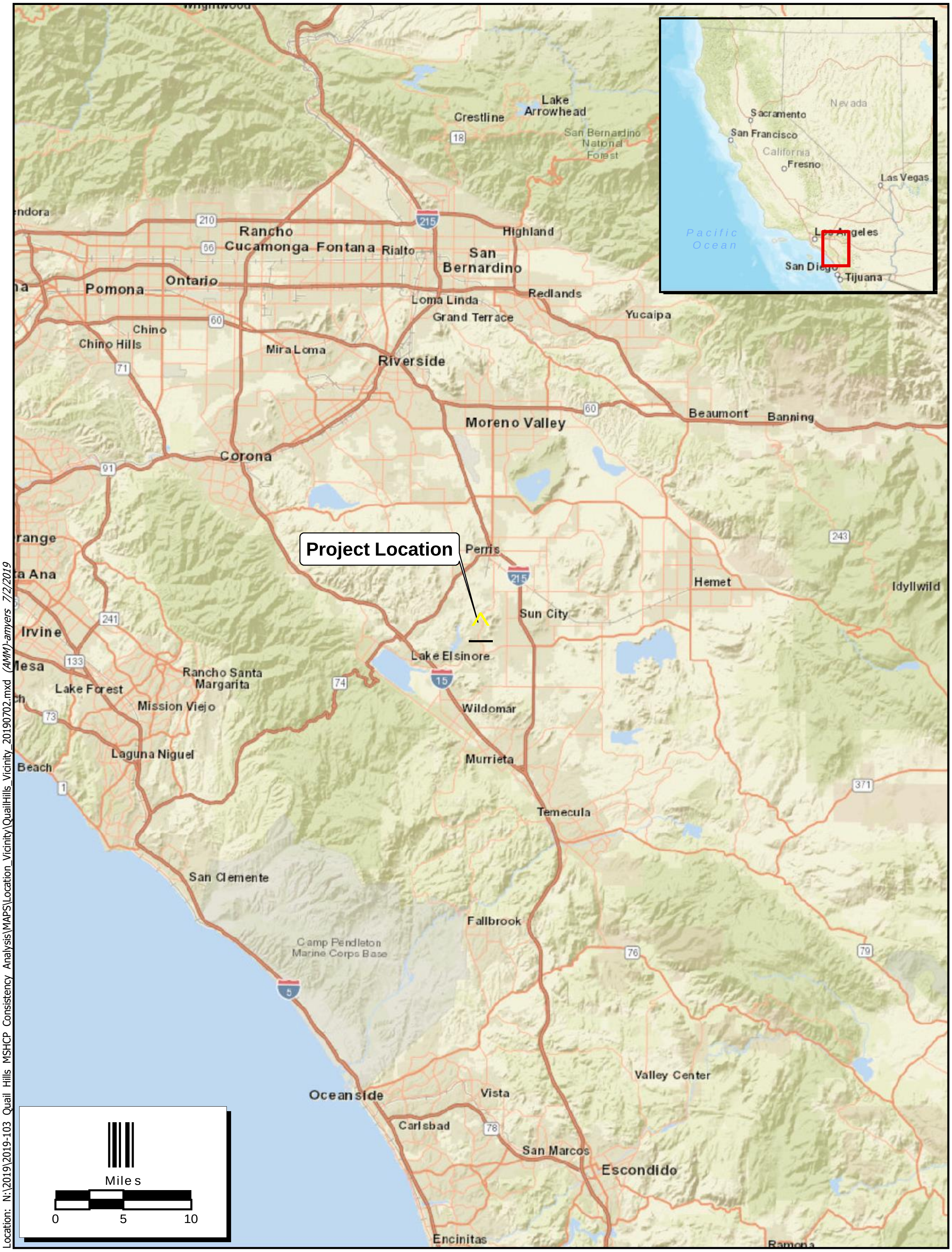

Map Date: 7/2/2019

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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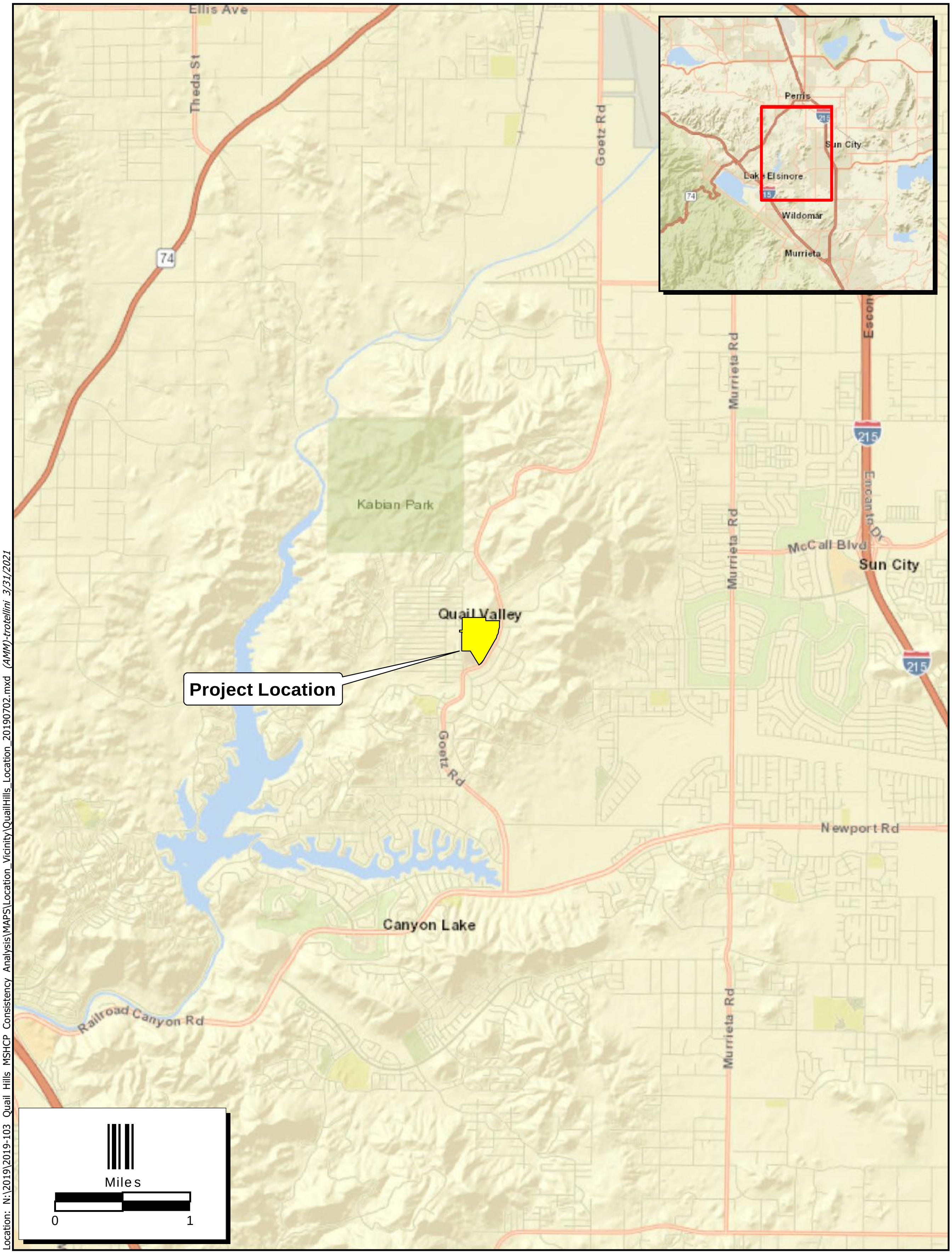
Figure 1. Project Vicinity

2019-103 Quail Hills MSHCP Conistency Analysis

Location: N:\2019\2019-103 Quail Hills MSHCP Consistency Analysis\MAPS\Location_Vicinity\QuailHills_Location_20190702.mxd (AMM)-trotellini 3/31/2021



Map Date: 3/31/2021

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Figure 2. Project Location

2019-103 Quail Hills MSHCP Consistency Analysis

2.1 Federal Regulations

2.1.1 The Federal Endangered Species Act

The ESA protects plants and animals that are listed as endangered or threatened by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service. Section 9 of the ESA prohibits the taking of endangered wildlife, where taking is defined as "*harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct*" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan (HCP) is developed.

2.1.2 Migratory Bird Treaty Act

The MBTA implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR Part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

In December 2017, the Department of the Interior (DOI) issued a memorandum reversing the incidental take interpretation of the MBTA. Take of a migratory bird or its active nest (i.e., with eggs or young) that is incidental to a lawful activity does not violate the MBTA.

2.1.3 Federal Clean Water Act

The federal Clean Water Act's (CWA) purpose is to "*restore and maintain the chemical, physical, and biological integrity of the nation's waters.*" Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the United States (U.S.) without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "*that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency acts as a cooperating agency to set policy, guidance and criteria for use in evaluation permit applications and reviews USACE permit applications.

The USACE regulates "fill" or dredging of fill material within its jurisdictional features. "Fill material" means any material used for the primary purpose of replacing an aquatic area with dry land or changing the bottom elevation of a water body. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the State Water Quality Control Board, administered by each of nine California Regional Water Quality Control Boards (RWQCB).

2.2 State and Local Regulations

2.2.1 California Endangered Species Act

The California ESA generally parallels the main provisions of the ESA but, unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as "*hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill*." The California ESA allows for take incidental to otherwise lawful development Projects. State lead agencies are required to consult with California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

2.2.2 Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to "*preserve, protect and enhance rare and endangered plants in this State*." The NPPA is administered by CDFW. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code § 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.4 California Fish and Game Code

Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for "*any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake*." The CDFW reviews the proposed actions and, if necessary, submits to the Applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the Applicant is the Streambed Alteration Agreement (SAA). Often, Projects that require an SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

Migratory Birds

The CDFW enforces the protection of nongame native birds in §§ 3503, 3503.5, and 3800 of the California Fish and Game Code. Section 3513 of the California Fish and Game Code prohibits the possession or take of birds listed under the MBTA. These sections mandate the protection of California nongame native birds' nests and also make it unlawful to take these birds. All raptor species are protected from "take" pursuant to California Fish and Game Code § 3503.5 and are also protected at the federal level by the MBTA of 1918.

2.2.5 CEQA Significance Criteria

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds the agency uses in determining the significance of environmental effects caused by Projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the Project would:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery Sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and

- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan (NCCP), or other approved local, regional or state HCP.

An evaluation of whether an impact to biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.6 Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in western Riverside County. The MSHCP identified 146 species, referred to as "Covered Species," for which the federal and California ESAs "take" authorization has been granted to signatories to the plan as long as they comply with its requirements. Of the 146 Covered Species within the MSHCP, 118 are considered to be "adequately conserved." The remaining 28 Covered Species will be adequately conserved when certain landmark conservation requirements are met during the course of future development. The goal of the MSHCP is to maintain the biological and ecological diversity within a rapidly urbanizing region while also improving the future economic development in the county by providing an efficient, streamlined regulatory process through which development can proceed in and efficient way.

The approval of the MSHCP and execution of the Implementing Agreement (IA) by the wildlife agencies allows signatories of the IA to issue "take" authorizations for all species covered by the MSHCP, including state- and federally listed species, as well as other identified sensitive species and/or their habitats. Each city of local jurisdiction will impose a Development Mitigation Fee for Projects within their jurisdiction. With payment of the mitigation fee to the county and compliance with the survey requirements of the MSHCP where required, full mitigation in compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), the California ESA, and the ESA will be granted. The Development Mitigation Fee varies according to Project size and Project description and is dependent on development density (Riverside County Ordinance No. 810.2). Payment of the mitigation fee and compliance with the requirements of Section 6.0 of the MSHCP are intended to provide full mitigation under CEQA, NEPA, and the California and federal ESAs for impacts to the species and habitats covered by the MSHCP, pursuant to agreements with USFWS, CDFW, and/or any other appropriate participating regulatory agencies as set forth in the IA for the MSHCP.

3.0 METHODS

3.1 Literature Review

Prior to conducting the biological reconnaissance survey, ECORP biologists performed an updated literature review using the CDFW's California Natural Diversity Data Base (CNDDB; CDFW 2021a) and the California Native Plant Society's (CNPS) Electronic Inventory (CNPSEI; CNPS 2021) to determine the special-status plant and wildlife species that have been documented near the Project Site. ECORP searched CNDDB and CNPSEI records within the Project Site boundaries as depicted on USGS 7.5-minute Romoland topographic quadrangle, plus the surrounding eight topographic quadrangles, including Bachelor Mountain, Lakeview, Lake Elsinore, Murrieta, Perris, Steele Peak, Wildomar, and Winchester. The CNDDB and CNPSEI contain records of reported occurrences of federally or state-listed endangered, threatened, proposed endangered or threatened species, California Species of Special Concern (SSC), and/or other special-status species or habitat that may occur within or near the Project. Additional information was gathered from the following sources and includes, but is not limited to:

- Natural Resources Conservation Service *Web Soil Survey* (NRCS 2021);
- *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2021b);
- *Special Animals List* (CDFW 2021c);
- *The Jepson Manual* (Hickman 1993);
- *The Manual of California Vegetation*, 2nd Edition (Sawyer et al. 2009); and
- various online websites (e.g., Calflora 2019).

Using this information and observations in the field, a list of special-status plant and animal species that have potential to occur within the Project Site was generated. For the purposes of this assessment, special-status species are defined as plants or animals that:

- have been designated as either rare, threatened, or endangered by CDFW, CNPS, or the USFWS, and/or are protected under either the federal or California ESAs;
- are candidate species being considered or proposed for listing under these same acts;
- are fully protected by the California Fish and Game Code, §§ 3511, 4700, 5050, or 5515;
- are of expressed concern to resource and regulatory agencies or local jurisdictions; and/or
- Are covered species under the MSHCP.

Special-status species reported for the region in the literature review or for which suitable habitat occurs on the Site were assessed for their potential to occur within the Project Site based on the following guidelines:

High:	Habitat (including soils and elevation factors) for the species occurs within the Project Site and a known occurrence has recently been recorded (within the last 20 years) within 5 miles (mi) of the Project Site.
Moderate:	Habitat (including soils and elevation factors) for the species occurs within the Project Site and a documented observation occurs within the database search, but not within 5 mi of the area; a historic documented observation (more than 20 years old) was recorded within 5 mi of the Project Site; or a recently documented observation occurs within 5 mi of the area and marginal or limited amounts of habitat occurs in the Project Site.
Low:	Limited or marginal habitat for the species occurs within the Project Site and a recently documented observation occurs within the database search, but not within 5 mi of the area; a historic documented observation (more than 20 years old) was recorded within 5 mi of the Project Site; or suitable habitat strongly associated with the species occurs on Site, but no records or only historic records were found within the database search.

Presumed Absent:	Species was not observed during a Site visit or focused surveys conducted in accordance with protocol guidelines at an appropriate time for identification; habitat (including soils and elevation factors) does not exist on Site; or the known geographic range of the species does not include the Project Site.

(Note: Location information on some special-status species may be of questionable accuracy or unavailable. Therefore, for survey purposes, the environmental factors associated with a species' occurrence requirements may be considered enough reason to give a species a positive potential for occurrence. In addition, just because a record of a species does not exist in the databases does not mean it does not occur. In many cases, records may not be present in the databases because an area has not been surveyed for that species.)

A desktop review of the Natural Resources Conservation Service's Web Soil Survey (NRCS 2021) and the corresponding USGS topographic maps was also conducted to determine if there were any blue line streams or drainages that might potentially fall under the jurisdiction of either federal or state agencies were present on the Project Site.

3.2 Western Riverside County MSHCP Consistency Analysis

Data regarding the Project Site were reviewed to determine consistency with the MSHCP. The Riverside Conservation Authority (RCA) MSHCP Information Map was queried to determine requirements for habitat assessment(s), potential focused survey(s), or other issues related to biological resources that could exist on the Project Site (RCA 2019).

Section 6.0 of the MSHCP also requires that the Project Site be assessed for potential effects on biological resources including riparian/riverine areas, vernal pools, and fairy shrimp be completed, if applicable. In addition, the MSHCP requires an Urban/Wildlands Interface analysis be conducted to address the indirect effects associated with locating proposed development in proximity of MSHCP Conservation Areas.

3.3 Field Survey

3.3.1 Biological Reconnaissance Survey

The biological reconnaissance survey was conducted by walking the entire Project Site to determine the vegetation communities and wildlife habitats on the Project Site. The biologist documented the plant and animal species present on the Project Site, and the location and condition of the Project Site were assessed for the potential to provide habitat for special-status plant and wildlife species. Data were recorded on a Global Positioning System (GPS) unit, field notebooks, and/or maps. Photographs were also taken during the survey to provide visual representation of the various vegetation communities within the Project Site. The Project Site was also examined to assess its potential to facilitate wildlife movement or function as a movement corridor for wildlife moving throughout the region. In addition, the biologist mapped the vegetation communities present on the Project Site.

Plant and wildlife species, including any special-status species that were observed during the survey, were recorded. Plant nomenclature follows that of *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). Wildlife nomenclature follows Society for the Study of Amphibians and Reptiles (SSAR 2019), *Check-list of North American Birds* (American Ornithologist's Union [AOU] 2016), and the *Revised Checklist of North American Mammals North of Mexico* (Bradley et al. 2014).

In instances where a special-status species was observed, the date, species, location and habitat, and GPS coordinates were recorded. The locations of special-status species observations were recorded using a handheld GPS in NAD 83, Universal Transverse Mercator coordinates, Zone 11S.

3.3.2 Preliminary Jurisdictional Delineation

A desktop review was conducted to identify potential streams and hydric soils on the property. This entailed examination of the NRCS Soil Mapper (2021), National Wetland Inventory (NWI) mapping, and the USGS topographic mapping of the Project Site to aid in identifying potential biological constraints to the Project due to jurisdictional streams. A preliminary jurisdictional delineation of the Site was conducted in the field. The property was walked to look for signs of Ordinary High-Water Mark (OHWM) as defined by the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Region Supplement) (USACE 2008). Boundaries of potential jurisdictional areas were not formally delineated.

4.0 RESULTS

Summarized below are the results of the literature review and field surveys, including Site characteristics, vegetation communities, wildlife, special-status species, and special-status habitats (including any potential wildlife corridors).

4.1 Biological Reconnaissance Survey

The biological reconnaissance survey was first conducted on May 29, 2019 by ECORP biologist, Phillip Wasz. Due to a change in the project boundary, an updated biological reconnaissance survey was conducted on January 12, 2021 by ECORP biologist Alden Lovaas. Summarized below are the results of both the biological reconnaissance survey, including Site characteristics, plant communities, wildlife, special-status species, and special-status habitats (including any potential wildlife corridors). Weather conditions during the survey are summarized in Table 1.

Table 1. Weather Conditions during the Survey

Date	Time		Temperature (˚F)		Cloud Cover (%)		Wind Speed (mph)	
	start	end	Min	Max	min	max	min	max
5/29/19	1000	1400	72	86	25	35	1	5
1/12/21	0730	0915	49	63	5	15	0	1

4.1.1 Site Characteristics and Land Use

The Project Site, consisted of three parcels, contained a mix of disturbed and relatively undisturbed land. Soils on Site consisted of mainly of Lodo Rocky Loam with an area of Arbuckle Loam along the east border. Disturbances on the Site included an extensive network of OHV trails, some minor trash dumping, weed abatement disking along Goetz Road, and unoccupied transient encampments. Representative photographs of the Project Site can be found in Appendix A.

Historic aerial images revealed that the Project Site has remained in its current state dating back to 1979 where images show that most of the southern half of the Project Site was disked or cleared, likely for agricultural production (NETR 2019). Additionally, aerial images form 1979 and 1967 show what appears to be a driveway and cleared area within the patch of ornamental trees along Goetz Road, indicating that that area of the Project Site likely contained a building or residence at some point in time prior to 1967 (NETR 2019).

4.1.2 Plants

Plant species observed on the Project Site were typical of the vegetation communities and land cover types present on the Project Site and the time of the year in which the survey was conducted. Dominant plant species included, California buckwheat, brittlebrush, mustard, small flowered fiddleneck, cheatgrass, foxtail chess, wild oat, and foxtail chess. A full list of plant species observed is included in Appendix B.

4.1.3 Wildlife

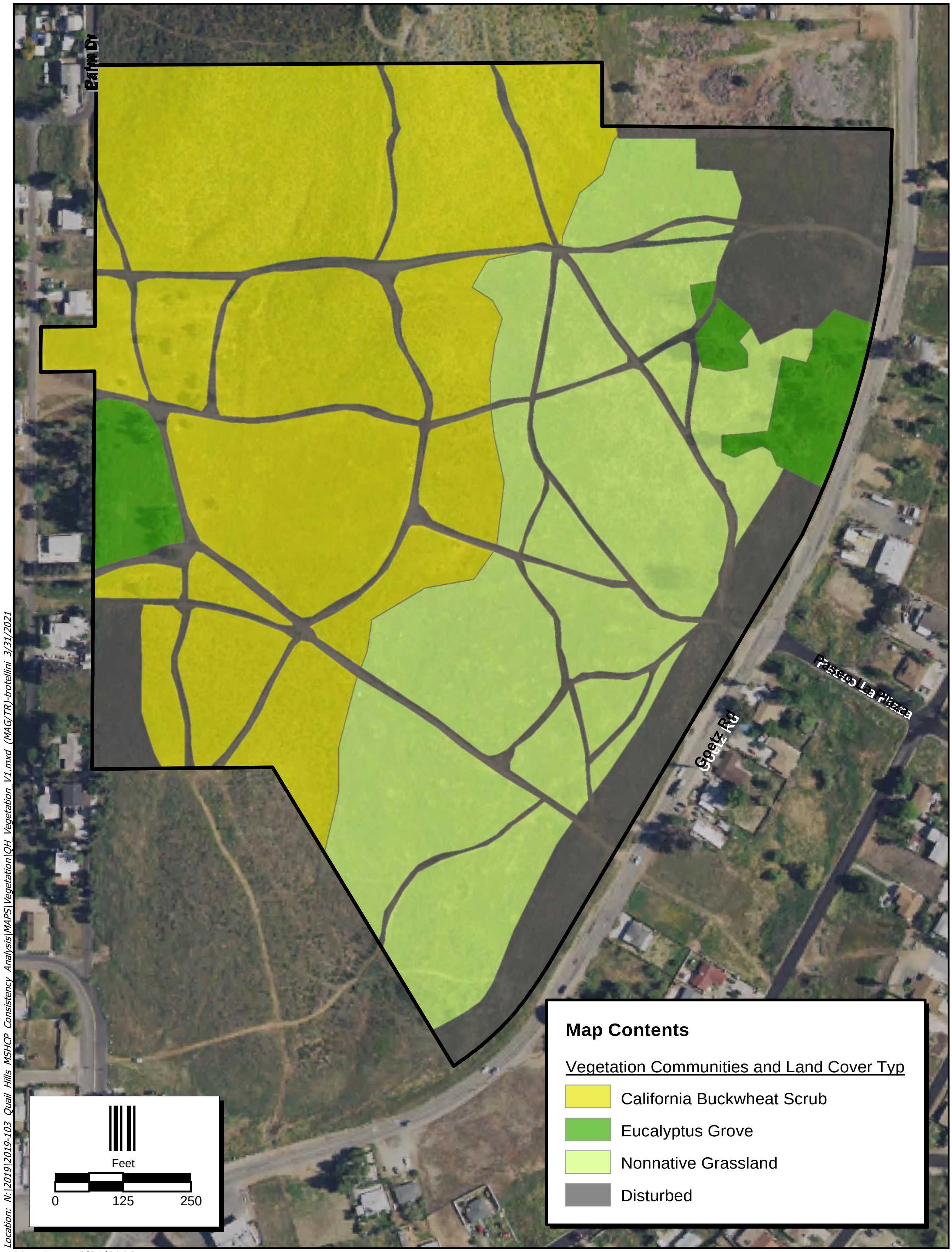
Wildlife species observed on the Project Site were typical of the vegetation communities and land cover types present on the Project Site and the time of the year in which the survey was conducted. Wildlife species observed during the survey included common raven (*Corvus corax*), house finch (*Haemorhous mexicanus*), California ground squirrel (*Otospermophilus beecheyi*) and mourning dove (*Zenaida macroura*). Burrowing owls were not observed at the time of the survey and but California ground squirrel burrows, suitable burrowing owl, were observed on the Project Site. Appendix C contains a list of all wildlife species identified during the survey.

4.2 Vegetation Communities

Three vegetation communities were present on the Project Site; California buckwheat scrub, nonnative grassland, and eucalyptus groves. One land cover type, disturbed, was also identified on Site. No special-status habitats or vegetation communities were observed on or near the Project Site. Classification of the vegetation communities and land cover types within the Project Site generally follow the Manual of California Vegetation (Sawyer et al. 2009) where feasible and are described in detail below and displayed in Figure 3.

4.2.1 California Buckwheat Scrub (Eriogonum fasciculatum Shrubland Alliance)

Eriogonum fasciculatum Shrubland Alliance (California buckwheat scrub) is a vegetation type characterized by low-growing shrubs where California buckwheat, a drought deciduous shrub, represents more than 50 percent of the relative cover in the shrub canopy (Sawyer et al 2009). This vegetation community typically occurs on upland slopes, intermittently flooded arroyos, and channels and washes with coarse well drained soils (Sawyer et al 2009). Plant species that are associated with this vegetation community include, but are not limited to, California sage (*Artemisia californica*), big sagebrush (*A. tridentata*), brittlebush (*Encelia farinosa*), and California brittlebush (*Encelia californica*). Associated plant species on the Project Site included brittlebush. California buckwheat scrub was present throughout most of the central portion of the Project Site and was largely contained to the slopes of the two large hills on the Project Site (Figure 3).



Map Date: 3/31/2021
Photo Source: Riverside County (2016)

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 3. Vegetation Communities and Land Cover Types

2019-103 Quail Hills MSHCP Consistency Analysis

4.2.2 Cheatgrass Grassland (Bromus tectorum Semi-Natural Herbaceous Stands)

Cheatgrass grasslands are described as having cheatgrass (*Bromus tectorum*) as the dominant or co-dominant species with other nonnatives in the herbaceous layer. This vegetation community is typically composed of annual grasses which originated in the Mediterranean region, similar to southern California, making it easy for them to thrive. Characteristic species include cheatgrass, wild oats (*Avena fatua*), foxtail chess (*B. madritensis*), cheatgrass (*B. tectorum*), ripgut brome (*B. diandrus*), Italian rye grass (*Festuca perennis*), and mustard (*Brassica* spp.). This vegetation community typically occurs in abandoned fields, eroded washes, overgrazed rangeland, road verges, foothills, waste places, and lower montane slopes. Associated plant species on the Project Site included cheatgrass, wild oat, foxtail chess, mustard, and small flowered fiddleneck (*Amsinckia menziesii*). Cheatgrass grassland was present near the northern border of the Project Site and along the southern and eastern borders of the Project Site (Figure 3).

4.2.3 Eucalyptus Groves – (Eucalyptus [globulus] Woodland Semi-Natural Alliance)

Eucalyptus [*globulus*] Woodland Semi-Natural Alliance (Eucalyptus groves) is a semi-natural vegetation type characterized by tall (50 meters or less) trees where Eucalyptus species represent more than 80 percent of the relative cover in the tree layer. Eucalyptus species are not native to California and some species are considered invasive. The eucalyptus groves on the Project Site consist primarily gum tree (*Eucalyptus globulus*), but also included a couple of other ornamental species, Peruvian pepper tree (*Schinis molle*), and salt cedar (*Tamarix ramosissima*). The eucalyptus grove on the east side also contained a few solitary mule fat (*Baccharis salicifolia*) and a large willow tree (*Salix* sp.) that were isolated and not extensive enough to call out as their own community. The Eucalyptus groves were present along Goetz Drive along the east border and along a portion of the west boundary of the Project Site (Figure 3). The trees and shrubs within the eucalyptus groves were likely associated with a building or residence on the Project Site in the 1950s or 1960s.

4.2.4 Disturbed

Disturbed is not a vegetation classification, but rather a land cover type. Areas mapped as disturbed were largely devoid of native vegetation due to human disturbance and were dominated by open areas or nonnative weedy and ruderal vegetation. Areas of dirt roads and bare dirt were also mapped as disturbed. Disturbed areas were mostly associated with weed abatement and fire breaks located along the north and east borders of the Project Site.

4.3 Literature Review

Special-status plant and wildlife species were evaluated for their potential to occur within the Project Site based on the results of the literature searches and the Site visit. Complete lists of special status plant and wildlife species that were evaluated for their potential to occur in the area are included as Appendices D and E, respectively.

4.3.1 Special-Status Plants

The literature search documented 12 special-status plant species within five miles of the Project Site, six of which were presumed absent due to lack of suitable habitat. The remaining six species have a moderate potential to occur in the habitat on the Project Site. These species are discussed below. A complete list of the

11 special-status plant species, with details habitat requirements, and potential for occurrence designations, is included as Appendix D.

For the purposes of this study, the results of the literature review were limited to plant species occurring within 5 miles of the Project Site and staging areas. With various habitat types occurring within the 9-quadrangle search, including Lake Elsinore, Canyon Lake, Lake Perris, Diamond Valley Lake, and the Santa Ana Mountain Range, several species appeared in the literature review results that had no potential to occur on or near the Project Site and staging areas. Additionally, for the purposes of this study, plant species with a CNPS Rare Plant Rank 3 or 4 were eliminated from the analysis because these rankings are considered a review list and a watch list, respectively. Descriptions of the CNPS designations are found in Table 2 and a list of the 55 special-status plant species identified in the literature review is presented below (CNPS 2021). The 12 special-status plant species with a moderate to low potential to occur are listed below with their status designation. Descriptions of the CNPS designations can be found in Table 2.

Table 2. CNPS Status Designations

List Designation	Meaning
1A	Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
2A	Plants Presumed Extirpated in California, But Common Elsewhere
2B	Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3	Plants about which we need more information; a review list
4	Plants of limited distribution; a watch list
List 1B, 2, and 4 extension meanings:	
.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

Note: According to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California FGC (CDFW 1984). This interpretation is inconsistent with other definitions.

Plant Species with a Moderate Potential to Occur

The following six species have a moderate potential to occur on the Project Site because either habitat for the species occurs on Site and a known occurrence has been reported in the database, but not within five miles of the Site, a historic documented observation (more than 20 years old) was recorded within five miles of the Project Site; or a known occurrence within five miles of the Site and marginal or limited amounts of habitat occurs on Site. Unless otherwise noted, these species are not covered by the MSHCP:

- San Diego ambrosia (*Ambrosia pumila*), federally listed (endangered), CNPS 1B.1, Covered under MSHCP
- Parry's spineflower (*Chorizanthe parryi* var. *parryi*), CNPS 1B.1, Covered under the MSHCP

- long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), CNPS 1B.2, Covered under the MSHCP
- slender-horned spineflower (*Dodecahema leptoceras*), federally listed (endangered), state-listed (endangered), CNPS 1B.1, Covered under MSHCP
- Munz's onion (*Allium munzii*), federally listed (endangered), state-listed (threatened), CNPS 1B.1, Covered under the MSHCP
- thread-leaved brodiaea (*Brodiaea filifolia*), federally listed (threatened), state-listed (endangered) CNPS 1B.1, Covered under the MSHCP

Plant Species Presumed Absent

The following six species are presumed absent from the Project due to the lack of suitable habitat soil type, and/or elevation range at the Project Site. Unless otherwise noted, these species are not covered by the MSHCP:

- Yucaipa onion (*Allium marvinii*) CNPS 1B.2, Covered under MSHCP
- San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*), federally listed (endangered), CNPS 1B.1, Covered under MSHCP
- smooth tarplant (*Centromadia pungens* ssp. *laevis*), CNPS 1B.1, Covered under MSHCP
- Moran's nosegay (*Navarretia fossalis*), CNPS 1B.1
- Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*), CNPS 1B.1, MSHCP Covered
- California orcutt grass (*Orcuttia californica*), CNPS 1B.1, MSHCP Covered

4.3.2 Special-Status Wildlife

The literature search documented 49 special-status wildlife species near the Project Site. The list of special-status wildlife includes species that are federally and state-listed, which are protected under FESA and/or CESA, and CDFW Species of Special Concern (SSC). Of these 49 species, seven were determined to have a high potential to occur on the Project Site and ten were determined to have a moderate or low potential to occur on the Project Site. The remaining 32 species were presumed to be absent from the Project Site. A complete list of the 49 special-status wildlife species, with details regarding habitat requirements and potential for occurrence designations, is included as Appendix E. Each species and its occurrence designation are discussed separately below. None of the sensitive wildlife species with a potential to occur in the area were observed during the reconnaissance survey.

Wildlife Species with a High Potential to Occur

The following seven species have a high potential to occur on the Project Site due to the presence of suitable habitat for the species occurring on the Project Site and a known occurrence that has been recorded within five miles of the Project Site:

Coastal Whiptail

The coastal whiptail (*Aspidoscelis tigris stejnegeri*) is a California SSC reptile that is found in woodland, riparian, and arid open areas with sparse vegetation (CDFW 2019a). Suitable open habitat occurs within the California buckwheat scrub habitat on Site and suitable scrub habitat occurs within the California buckwheat scrub habitat on the Project Site and several occurrences have been reported within five miles of the Site, the closest of which was in 2001 approximately 0.75 mile southeast. Therefore, this species has a high potential to occur. The coastal whiptail is a covered species under the MSHCP.

Burrowing owl

Burrowing owl (*Athene cunicularia*) is a CDFW SSC bird. This species is typically found in dry open areas with few trees and short grasses; it can also be found in vacant lots near human habitation. It uses uninhabited mammal burrows for roosts and nests. The Project Site contains suitable open habitat within the disturbed areas and within more open patches of the cheatgrass grassland and California buckwheat scrub. The soils within the Project Site are also suitable for burrowing, and California ground squirrels (*Otospermophilus beecheyi*), for which burrowing owls sometimes rely for burrows, were observed on and adjacent to the Project Site. Multiple burrowing owl records were identified within five miles of the Project Site, with the closest of these observations being documented in 1998 approximately 0.48 mile southeast of the Project Site (CDFW 2019a). Due to the presence of suitable burrowing and foraging habitat and the recorded observations within five miles of the Project Site, this species has a high potential to occur within the Project Site. The burrowing owl is a covered species under the MSHCP.

Red Diamond Rattlesnake

The red diamond rattlesnake (*Crotalus ruber*) is a California SSC reptile that is found in arid scrub, woodland, and desert slopes and rocky flat habitats (Zeiner et al. 1990a). Suitable open arid habitat occurs within the California buckwheat scrub habitat on the Project Site and occurrences have been reported within five miles of the Site, the closest of which was in 2001 approximately 0.75 mile southeast of the Project Site. Therefore, this species has a high potential to occur. The red-diamond rattlesnake is a covered species under the MSHCP.

Stephens' Kangaroo Rat

The Stephens' kangaroo rat (*Dipodomys stephensi*) is a federally listed (endangered) and state listed (threatened) mammal species that occurs in nonnative grassland plateaus surrounded by scrub habitats with soils suitable for digging burrows. Suitable habitat occurs within the cheatgrass grassland habitat on the Project Site and several occurrences have been reported within five miles of the Site. The closest occurrences include two large polygons which overlap portions of the Project Site. The first polygon, recorded in March 1998, overlaps with the western edge of the Project Site and the second polygon, recorded in May 1998, overlaps with the eastern edge of the Project Site. The records were likely mapped as a polygon to account for some level of inaccuracy with the records (CDFW 2019a). It is unknown if Stephens' kangaroo rats associated with the polygon were observed on the actual Project Site, but due to the proximity of the records and the suitable habitat on Site, this species has a high potential to occur. The Stephens' kangaroo rat is a covered species under the MSHCP.

San Diego Black-Tailed Jackrabbit

The San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) is a California SSC that occurs in the intermediate canopy stages of shrub and open shrub habitats, herbaceous and tree habitats, and herbaceous edges (Zeiner et al. 1990b). Suitable habitat occurs within the California buckwheat scrub habitat on the Project Site and several occurrences have been reported within five miles of the Site, the closest of which was in 2001 approximately 0.75 mile southeast of the Project Site. Therefore, this species has a high potential to occur. The San Diego black-tailed jackrabbit is a covered species under the MSHCP.

Coast Horned Lizard

Coast horned lizard (*Phrynosoma blainvillii*) is a California SSC reptile. This lizard occurs in open scrub and riparian habitats and other open areas with sandy soils and ample ant prey base (Zeiner et al. 1990a). Suitable open habitat occurs within the California buckwheat scrub habitat on the Project Site and several occurrences have been reported within five miles of the Site, the closest of which was in 2005 approximately 3.5 miles northwest. Therefore, this species has a high potential to occur. The coast horned lizard is a covered species under the MSHCP.

Coastal California Gnatchatcher

Costal California gnatcatcher (*Polioptila californica californica*) is a federal-listed (threatened) and CDFW SSC bird. This bird occurs in coastal scrub habitats, especially those dominated by California sage, including dry coastal slopes, washes, and mesas; areas of low plant growth (Atwood 1992). This species generally avoids crossing even small areas of unsuitable habitat (Atwood 1992). Suitable scrub habitat occurs within the California buckwheat scrub habitat on the Project Site and several recent occurrences have been reported within five miles of the Site, the closest of which was in 2003 approximately 0.25 mile east. Therefore, this species has a high potential to occur. The coastal California gnatcatcher is a covered species under the MSHCP.

Wildlife Species with a Moderate Potential to Occur

The following eight species have a moderate potential to occur on the Project Site because either habitat for the species occurs on Site and a known occurrence has been reported in the database, but not within five miles of the Site, a historic documented observation (more than 20 years old) was recorded within five miles of the Project Site; or a known occurrence within five miles of the Site and marginal or limited amounts of habitat occurs on Site Unless otherwise noted, these species are not covered by the MSHCP:

- California glossy snake (*Arizona elegans occidentalis*), CDFW SSC
- Crotch bumble bee (*Bombus crotchii*), state candidate for listing (endangered)
- Dulzura pocket mouse (*Chaetodipus californicus femoralis*), CDFW SSC
- northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), CDFW SSC, Covered under MSHCP
- loggerhead shrike (*Lanius ludovicianus*), CDFW SSC, Covered under MSHCP
- Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), CDFW SSC, Covered under MSHCP

- Quino checkerspot butterfly (*Euphydryas editha quino*), federally listed (endangered), Covered under MSHCP
- southern grasshopper mouse (*Onychomys torridus ramona*), CDFW SSC
- coast patch-nosed snake (*Salvadora hexalepis virgultea*), CDFW SSC

Wildlife Species with a Low Potential to Occur

The following species has a low potential to occur on the Project Site because limited habitat for the species occurs on Site and a known occurrence has been reported in the database, but not within five miles of the Site or a historic documented observation (more than 20 years old) was recorded within five miles of the Project Site, or suitable habitat strongly associated with the species occurs on Site, but no records were found in the database search. Unless otherwise noted, these species are not covered by the MSHCP:

- American badger (*Taxidea taxus*), CDFW SSC

Wildlife Species Presumed Absent

The following 32 species are presumed absent from the Project due to the lack of suitable habitat on the Project Site. Unless otherwise noted, these species are not covered by the MSHCP:

- tricolored blackbird (*Agelaius tricolor*), state-listed (threatened), CDFW SSC, Covered under MSHCP
- arroyo toad (*Anaxyrus californicus*), federally listed (endangered), CDFW SSC, Covered under MSHCP
- southern California legless lizard (*Anniella stebbinsi*), CDFW SSC
- golden eagle (*Aquila chrysaetos*), CDFW FP, Covered under MSHCP
- long-eared owl (*Asio otus*), CDFW SSC
- vernal pool fairy shrimp (*Branchinecta lynchi*), federally listed (threatened), Covered under MSHCP
- San Diego fairy shrimp (*Branchinecta sandiegonensis*), federally listed (endangered)
- Swainson's hawk (*Buteo swainsoni*), state-listed (threatened), Covered under MSHCP
- coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), CDFW SSC, Covered under MSHCP
- Dulzura pocket mouse (Chaetodipus californicus femoralis), CDFW SSC
- western snowy plover (*Charadrius alexandrinus nivosus*), federally listed (threatened), CDFW SSC
- northern harrier (*Circus hudsonius*), CDFW SSC, Covered under MSHCP
- San Diego banded gecko (*Coleonyx variegatus abbotti*), CDFW SSC, Covered under MSHCP
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*), federally listed (endangered), CDFW SSC, Covered under MSHCP
- white-tailed kite (*Elanus leucurus*), CDFW FP, Covered under MSHCP

- western pond turtle (*Emys marmorata*), CDFW SSC
- western mastiff bat (*Eumops perotis californicus*), CDFW SSC
- arroyo chub (*Gila orcuttii*), CDFW SSC, Covered under MSHCP
- bald eagle (*Haliaeetus leucocephalus*), state-listed (endangered), CDFW FP, Covered under MSHCP
- yellow-breasted chat (*Icteria virens*), CDFW SSC, Covered under MSHCP
- western yellow bat (*Lasiurus xanthinus*), CDFW SSC
- San Diego desert woodrat (*Neotoma lepida intermedia*), CDFW SSC, Covered under MSHCP
- pocketed free-tailed bat (*Nyctinomops femorosaccus*), CDFW SSC
- Jacumba pocket mouse (Perognathus longimembris internationalis), CDFW SSC
- California red-legged frog (*Rana draytonii*), federally listed (threatened), CDFW SSC, Covered under MSHCP
- yellow warbler (*Setophaga petechia*), CDFW SSC, Covered under MSHCP
- western spadefoot (*Spea hammondii*), CDFW SSC, Covered under MSHCP
- Riverside fairy shrimp (*Streptocephalus wootoni*), federally listed (endangered), Covered under MSHCP
- Coast Range newt (*Taricha torosa*), CDFW SSC, covered under MSHCP
- two-striped gartersnake (*Thamnophis hammondii*), CDFW SSC
- least Bell's vireo (*Vireo bellii pusillus*), federally listed (endangered), state-listed (threatened), Covered under MSHCP
- yellow-headed blackbird (*Xanthocephalus xanthocephalus*), CDFW SSC

4.3.3 U.S. Fish and Wildlife Service Designated Critical Habitat

The Project Site is not located within any USFWS-designated critical habitat but critical habitat for coastal California gnatcatcher is located approximately 1.0 mile west and .25 mile east of the Project Site.

4.3.4 Raptors and Migratory Birds

All raptor species are protected from "take" pursuant to California Fish and Game Code Section 3503.5. Raptors and songbirds are protected by the MBTA (USFWS 1918). Trees (native and nonnative), power poles, and other structures (e.g., abandoned buildings and cellular towers) that provide suitable nesting substrates for raptor and songbirds were relatively abundant within and adjacent to the Project Site. These substrates may also provide hunting perches for larger raptors. Shrubby vegetation was present mostly adjacent to the Project Site and staging areas, which provides suitable nesting habitat for songbirds. No nesting birds were overserved during the survey, but it is likely that raptors and songbirds use the Project Site for nesting activities. Raptors in the area typically breed between February and August while songbirds protected under the MBTA generally nest between March and August.

4.4 Jurisdictional Waters

Although a formal jurisdictional delineation was not conducted, the biologist noted several small swales and erosional features within the northern half of the Project Site. The characteristics observed within these features suggest that they likely convey surface water and run off during periods of high precipitation. The swales and erosional features on the Project Site did not contain any riparian habitat but could be considered riverine resources because they could potentially transport water supporting downstream resources. Furthermore, the swales and erosional features on the Project Site me be jurisdictional to CDFW and associated streambeds may be jurisdictional to the USACE under Section 404 of the CWA, CDFW under the California Fish and Game Code, and RWQCB under Section 401 of the CWA.

4.5 Wildlife Movement Corridors, Linkages, and Significant Ecological Areas

The concept of habitat corridors addresses the linkage between large blocks of habitat that allow the safe movement of mammals and other wildlife species from one habitat area to another. The definition of a corridor is varied, but corridors may include such areas as greenbelts, refuge systems, underpasses, and biogeographic land bridges, for example. In general, a corridor is described as a linear habitat, embedded in a dissimilar matrix, which connects two or more large blocks of habitat. Wildlife movement corridors are critical for the survivorship of ecological systems for several reasons. Corridors can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for the potential of genetic exchange between wildlife species populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife responses to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. Naturally, the nature of corridor uses, and wildlife movement patterns varies greatly among species.

The Project Site was assessed for its ability to function as a wildlife corridor. The Project Site could provide wildlife movement opportunities since it consists of open and unimpeded land. However, because the Project Site was almost surrounded by development it would not be considered a wildlife movement corridor that would need to be preserved to allow wildlife to move between important natural habitat areas. The Site is exposed and did not contain any major drainages or washes that would be considered movement corridors for wildlife.

4.6 HCPs and NCCPs

4.6.1 Western Riverside Multiple Species Habitat Conservation Plan

The Project Site was were reviewed to determine consistency with the MSHCP. The RCIP Conservation Summary Report Generator was queried to determine requirements for habitat assessment(s), potential focused survey(s), or other issues related to biological resources that could exist on the Project Site (County of Riverside 2021).

The Project Site is not located within any Conservation Areas, Criteria Cells, or other specially designated areas according to the Western Riverside MSHCP.

Section 6.0 of the MSHCP requires assessment of the potential effects from the Project on biological resources including riparian/riverine areas, vernal pools, and fairy shrimp, burrowing owl, and Narrow

Endemic Plant Species. In addition, the MSHCP requires an Urban/Wildlands Interface analysis be conducted to address the indirect effects associated with locating proposed development in proximity of MSHCP conservation areas. These resources were assessed during the reconnaissance survey and are discussed below in relation to the Project.

4.6.2 Riparian/Riverine, Vernal Pool, and Fairy Shrimp Habitat Assessment (Section 6.1.2)

In accordance with Section 6.1.2 of the Western Riverside MSHCP, a habitat assessment was performed for riparian and riverine communities, vernal pools, and fairy shrimp. The Project Site did not contain vernal pool habitat or suitable habitat for fairy shrimp due to the absence of clay soils and the sloped topography of the Project Site.

The eucalyptus grove located along the eastern border of the Project Site contained two riparian species (mule fat and willow) that were isolated and not extensive enough to call out as their own community. This small grove of trees, located along Goetz Road, was narrow in size and a defined drainage was not observed in association with this habitat. The trees and shrubs within the eucalyptus groves were likely associated with a building or residence on the Project Site in the 1950s or 1960s. This patch of habitat is narrow and subjected to disturbances from transient encampments and vehicular traffic along Goetz Road, as well as disturbances from periodic mowing/maintenance activities related to weed abatement. Nonnative species were abundant, including salt cedar and mustards. This area is not considered a riparian resource because there was no evidence of a nearby freshwater source and the willow and mule fat do not appear to depend on soil moisture from a nearby freshwater source. The eucalyptus groves do not provide suitable nesting habitat for riparian obligate special-status species, such as least Bell's vireo because it is not dense enough and does not support an understory.

Several small swales and erosional features were identified in the northern half of the Project Site. The characteristics observed within these features suggest that they likely convey surface water and run off during periods of high precipitation. The swales and erosional features on the Project Site did not contain any riparian habitat but could be considered riverine resources because they could potentially transport water supporting downstream resources.

4.6.3 Narrow Endemic Plant Species (Section 6.1.3)

The RCIP Conservation Summary Report Generator was reviewed to determine whether the Project Site or staging areas are located within a Narrow Endemic Plant Species Survey Area (NEPSSA), in accordance with Section 6.1.3 of the Western Riverside MSHCP. The Project Site is not located within a NEPSSA or a Criteria Area. All six of the species found in the literature search that have potential to occur on the Project Site are covered species under the MSHCP.

4.6.4 Burrowing owl Habitat Assessment (Section 6.3.2)

The Project Site is located with a MSHCP designated burrowing owl survey area. In accordance with Section 6.3.2 of the Western Riverside MSHCP, a habitat assessment for burrowing owl was performed. The Project Site contains suitable open habitat within the disturbed areas and within portions of the cheatgrass grassland and California buckwheat scrub that contained lower densities of grasses. The soils within the Project Site are also suitable for burrowing, and California ground squirrels burrows suitable for burrowing owl were observed on the Project Site.

4.6.5 Urban/Wildlands Interface (Section 6.1.4)

The requirements for Urban/Wildlands Interface for the management of edge factors do not apply to the Project Site because the Project Site is not situated adjacent to any wildlands or MSHCP-designated Conservation Area. The Project Site and staging areas are relatively isolated from larger, contiguous blocks of native habitat and completely surrounded by residential development, previous agricultural areas, and other anthropogenic land use. A net long-term increase of edge impacts is not expected as a result of this Project.

5.0 IMPACT ANALYSIS

5.1 Special-Status Species

The Project Site, consisting mainly of scrub and grassland habitats, contained a mix of disturbed and undisturbed land. Disturbances on the Site included an extensive network of OHV trails, some minor trash dumping, weed abatement disking along Goetz Road, and two unoccupied transient encampments. The proposed Project has the potential to have a substantial adverse effect, either directly or through habitat modifications, on special-status species identified by CDFW, and/or USFWS. Impacts to each special-status species identified as having a potential to occur are described below.

Of the 11 special-status plants identified in the literature search, six plant species (San Diego ambrosia, Parry's spineflower, long-spined spineflower, slender-horned spineflower, Munz's onion, and thread-leaved brodiaea) were determined to have a moderate potential to occur on the Project Site. However, all six of these species are covered under the MSHCP and considered adequately conserved. Impacts to these species do not require additional surveys or mitigation because the Project Site is not located within a NEPSSA or Criteria Area.

Of the 49 special-status wildlife species identified in the literature search, seven wildlife species (coastal whiptail, burrowing owl, red diamond rattlesnake, Stephens' kangaroo rat, San Diego black-tailed jackrabbit, coast horned lizard, and coastal California gnatcatcher) have a high potential to occur in the Project Site. However, excluding burrowing owl Stephens' kangaroo rat, the remaining five species are covered under the MSHCP and considered adequately conserved. Impacts to these five species do not require additional surveys or mitigation. Burrowing owl and Stephens' kangaroo rat do have additional requirements under the MSHCP and these are discussed below.

Ten species have moderate or low potential to occur on the Project Site. Of these eight species, three species (Los Angeles pocket mouse, northwestern San Diego pocket mouse, and Quino checkerspot butterfly) are covered by the MSHCP and considered adequately conserved and will not require additional surveys or mitigation. The remaining five species (California glossy snake, Crotch bumble bee, Dulzura pocket mouse, loggerhead shrike, southern grasshopper mouse, and American badger) are not covered by the MSHCP and could be subject to direct impacts through ground disturbance and indirect impacts from construction noise, vibrations, and increased human activity related to the development of the Project Site. However, due to the lack of high-quality habitat and the isolated nature of the Project Site these species, if present, only occur in very low density and loss of those animals, excluding loggerhead shrike and crotch bumble bee, would not be enough to result in a significant impact under CEQA. Therefore, no focused surveys or mitigation measures are recommended and impacts to these species are considered less than significant.

The Crotch bumble bee, a candidate for state listing as endangered, has a moderate potential to occur on the Project Area due to historical records within five miles of the Project Area and the presence of suitable habitat. Additional surveys are recommended to determine presence/absence of crotch bumble bee.

The MSHCP does not address nesting bird species, including loggerhead shrike, covered under the MBTA, and all development within the MSHCP area is required to comply with the MBTA and avoid impacts to nesting birds. The Project Site and surrounding areas provide suitable nesting habitat for raptors and songbirds. If construction of the proposed Project occurs during the bird breeding season (typically February 1 through August 31), ground-disturbing construction activities could directly affect birds protected by the MBTA and their nests through the removal of habitat on the Project Site and indirectly through increased noise, vibrations, and increased human activity. It is recommended that a preconstruction survey for nesting birds and raptors be conducted prior to construction.

The Project Site is in the MSHCP designated burrowing owl survey area and suitable habitat and burrows were identified on the Project Site. Therefore, the Project will be required to conducted burrow mapping and focused burrowing owl surveys in accordance with the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area*.

Suitable habitat is present for Stephens' kangaroo rat within grassland habitats on the Project Site and the Project Site is located within the Stephens' kangaroo rat fee assessment area which generally requires the payment of the appropriate fee set forth in Riverside County Ordinance No. 663. To offset impacts to the species, all applicants for development permits within the fee assessment area must pay a mitigation fee.

5.2 Sensitive Natural Communities

Although the Project Site supported a few solitary mule-fat and a large willow tree within the eucalyptus grove, it would not be considered a riparian area or sensitive community that would need to be preserved. This area would not be considered a riparian resource because there was no evidence of a defined drainage or a nearby freshwater source. Additionally, the few mule fat and willow within the eucalyptus grove do not appear to depend on soil moisture from a nearby freshwater source. The trees and shrubs within the eucalyptus groves were not associated with a drainage or wetland and, as shown in historic aerial imagery, were likely associated with a building or residence on the Project Site in the 1950s or 1960s. The mule fat and willow within the eucalyptus grove were fairly spread out, narrow, and not dense enough to support riparian obligate special-status species, such as least Bell's vireo. Additionally, the area is subjected to disturbances from transient encampments and vehicular traffic along Goetz Road, as well as disturbances from periodic mowing/maintenance activities related to weed abatement. Nonnative and ornamental species were also abundant, including salt cedar, Peruvian pepper tree, and mustards. The eucalyptus grove does not provide suitable nesting habitat for riparian obligate special-status species, such as least Bell's vireo, because it is not dense enough and does not support an understory. No impacts to sensitive natural communities are anticipated to result from the development of this Project.

5.3 Jurisdictional Waters

Several small swales and erosional features were identified in the northern half of the Project Site. The characteristics observed within these features suggest that they likely convey surface water and run off during periods of high precipitation. The swales and erosional features on the Project Site did not contain any riparian habitat but could be considered riverine resources because they could potentially transport water supporting downstream resources. It is recommended that a formal jurisdictional delineation be conducted to identify and jurisdictional and riverine features on the project site. If jurisdictional features are identified on the project site then coordination with the regulatory agencies (USACE, CDFW, RWQCB) regarding regulatory permitting will be required. Additionally, if these features are determined to be riverine resources, reparation of a Determination of Biologically Equivalent or Superior Preservation (DBESP) will be required to satisfy MSHCP requirements if impacts to riverine resources occur.

5.4 Wildlife Corridors and Nursery Sites

The Project Site is located within and adjacent to areas containing existing disturbances (e.g., paved roads and residential, commercial, and industrial developments). The Project Site could provide wildlife movement opportunities since it consists of open and unimpeded land. However, because the Project Site was surrounded by development it would not be considered a wildlife movement corridor that would need to be preserved to allow wildlife to move between important natural habitat areas. The Site is exposed and did not contain any major drainages or washes that would be considered movement corridors for wildlife. No migratory wildlife corridors or native wildlife nursery Sites were identified within the Project Site. No impacts to these resources are expected to occur during the development of the Project Site.

5.5 Habitat Conservation Plans and Natural Community Conservation Plans

5.5.1 Western Riverside County MSHCP Consistency Analysis

The Project Site is located within the study area for the MSHCP, but outside of any Cell groups, Criteria Cells, and Subunit designations. Project Site is also not located within MSHCP-designated survey areas for amphibians, criteria area species, mammals, and narrow endemic plant species survey areas. The Project Site is located within MSHCP designated burrowing owl survey area.

The proposed Project consists of construction of residential houses, which is a covered activity under the MSHCP for areas outside of a subunits or criteria cells. Since development of the Project Site is a covered activity within the MSHCP, it is an allowable use that has been contemplated within the MSHCP. However, Projects that are covered still need to comply with MSHCP requirements.

Riparian/Riverine, Vernal Pool, and Fairy Shrimp Habitat Assessment (MSHCP Section 6.1.2)

In accordance with Section 6.1.2 of the Western Riverside MSHCP, a habitat assessment was performed for riparian and riverine communities, vernal pools, and fairy shrimp. The Project Site, consisting of Lodo Rocky Loam with a small area of Arbuckle Loam along the east border and Ysidora Very Fine Sand along the north border, was lacking the typical clay soils needed to support vernal pool species and did not contain vernal pool habitat or suitable habitat for fairy shrimp.

The eucalyptus grove located along the eastern border of the Project Site contained two riparian species (mule fat and willow) that were isolated and not extensive enough to call out as their own community. However, this area is not considered a riparian resource because there was no evidence of a nearby freshwater source and the few willows and mule fat do not appear to depend on soil moisture from a nearby freshwater source. The eucalyptus groves do not provide suitable nesting habitat for riparian obligate special-status species, such as least Bell's vireo because it is not dense enough and does not support an understory.

Several small swales and erosional features were identified in the northern half of the Project Site. The characteristics observed within these features suggest that they likely convey surface water and run off during periods of high precipitation. The swales and erosional features on the Project Site did not contain any riparian habitat but could be considered riverine resources because they could potentially transport water supporting downstream resources.

Narrow Endemic Plant Species (MSHCP Section 6.1.3)

The RCA MSHCP Information Map was reviewed, and it was determined that the Project Site is not located within a Narrow Endemic Plant Species Survey Area. Therefore, no further habitat assessments or surveys are required for narrow endemic plant species.

Urban/Wildlands Interface Guidelines (MSHCP Section 6.1.4)

The requirements for Urban/Wildlands Interface for the management of edge factors do not apply to this Project Site because the Project Site is not situated near any wildlands of MSHCP-designated conservation areas or wildlands. The Project Site is relatively isolated from larger, contiguous blocks of native habitat and is surrounded by residential development on all four sides. Net long-term increase of edge impacts is not expected because of the Project.

Additional Surveys (MSHCP Section 6.3.2)

The RCA MSHCP Information Map was reviewed to determine if the Project Site was located with any MSHCP designated survey areas. The Information Map revealed that the Project Site is located within the burrowing owl survey area. In accordance with Section 6.3.2 of the Western Riverside MSHCP, a habitat assessment for burrowing owl was performed. The Project Site contains suitable open habitat within the disturbed areas and within more open portions of the cheatgrass grassland and California buckwheat scrub. The soils within the Project Site are also suitable for burrowing, and California ground squirrels burrows suitable for burrowing owl were observed on the Project Site.

As stated in the MSHCP, if the Project Site contains natural or man-made structures that could potentially support burrowing owls or burrowing owls are observed during the habitat assessment then a focused burrow survey and focused burrowing owl surveys will be required. Due to the presence of suitable California ground squirrel burrows on the Project Site, census, burrow mapping, and focused burrowing owl surveys will be required. Additionally, a pre-construction survey for burrowing owls will need to be completed prior to construction activities in accordance with the *Western Riverside MSHCP burrowing owl survey guidelines* (County of Riverside 2006).

6.0 ADDITIONAL SURVEY AND REQUIRMENTS

Preconstruction Surveys for Nesting Birds: Any development activities within the Project Site shall be conducted during the non-breeding season for birds (approximately September 1 through February 15). This will avoid violations of the MBTA and California Fish and Game Code Sections 3503, 3503.5 and 3513. If activities with the potential to disrupt nesting birds are scheduled to occur during the bird breeding season (February through August for raptors and March through August for songbirds), a pre-construction nesting bird survey shall be conducted by a qualified biologist. The nest surveys shall include the Project Site and adjacent areas where Project activities have the potential to cause nest failure. If no nesting birds are observed during the survey, Site preparation and construction activities may begin. If nesting birds (including nesting raptors) are found to be present, then avoidance or minimization measures shall be undertaken in consultation with CDFW. Measures shall include establishment of an avoidance buffer until nesting has been completed. The width of the buffer will be determined by the Project biologist.

Focused Breeding Season Burrowing Owl Surveys: Due to the presence of suitable California ground squirrel burrows on the Project Site, census, burrow mapping, and focused burrowing owl surveys will be required. The surveys should be conducted according to the guidelines provided in the *Western Riverside MSHCP burrowing owl survey guidelines* (County of Riverside 2006). The protocol requires that a focused burrow survey and three focused burrowing owl surveys be conducted between March 1 and August 31. Surveys conducted during the breeding season of March 1 to August 31 are required to describe if, when, and how the Site is used by burrowing owls. Negative results during surveys outside the breeding season are not conclusive proof that owls do not use the Project Site and may not provide an accurate picture of the number of owls that may utilize the Site. Surveys that are conducted outside the breeding season will likely need to be repeated during the breeding season; therefore, it is recommended that focused surveys only be conducted during the breeding season. The surveys should be conducted in the morning one hour before sunrise to two hours after sunrise or in the early evening two hours before sunset to one hour after sunset during favorable weather conditions (e.g., wind <20 mph, temperature <90° F).

Crotch Bumble Bee Surveys and Coordination: The Crotch bumble bee has a moderate potential to occur on the Project site and focused surveys should be conducted to determine presence of the species. Coordination with CDFW on appropriate survey methods for this species will need to occur because there is no published survey protocol available. If the Crotch bumble bee is present on the Project site and Project impacts are unavoidable, then further coordination with CDFW will need to occur to develop a mitigation plan for the species. Mitigation measures may include seasonal work restrictions and additional biological monitoring.

Mitigation Fees: Suitable habitat is present for Stephens' kangaroo rat within grassland habitats on the Project Site and the Project Site is located within the Stephens' kangaroo rat fee assessment area which generally requires the payment of the appropriate fee set forth in Riverside County Ordinance No. 663. To offset impacts to the species, all applicants for development permits within the fee assessment area must pay a mitigation fee prior to impacts to covered species and habitat. The amount of the fee required to be paid may vary depending upon a variety of factors, including the type of development application submitted and the applicability of any fee reduction or exemption provisions contained in Riverside County Ordinance No. 663.

Jurisdictional Delineation and Regulatory Permitting: A formal jurisdictional delineation is required to identify jurisdictional and/or riverine resources. The formal jurisdictional delineation shall be performed to determine the acreage of Project-related impacts to these features. Regulatory permitting with the regulatory agencies shall also be performed in compliance with the CWA and the California Fish and Game Code. Additional mitigation measures for the impacts to these features may be identified during that process.

Preparation of a DBESP: If impacts to the riverine resources are unavoidable, then preparation of a DBESP will be required to satisfy the MSHCP requirements. This document will outline mitigation measures that will replace any lost functions and values of the habitat as it relates to MSHCP-covered species.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the Project applicant or the applicant's representative and that I have no financial interest in the Project.

SIGNED: Phillip Wasz DATE: April 19, 2021

Phillip Wasz
Senior Wildlife Biologist
ECORP Consulting, Inc.

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LIST OF APPENDICES

APPENDIX A

Representative Project Site Photographs

Photo 1: Southwest corner of the Project Site looking east.

Photo 2: Southwest Corner of the Project Site looking

Photo 3: Center of eastern border looking south at eucalyptus grove.

Photo 4: Homeless encampment under solitary willow tree.


Photo 5: Dense grassland habitat along Goetz Road.


Photo 6: Center of Site looking north up large hill containing California Buckwheat Scrub.

Photo 7: Disturbed area along north border of Project Site.

Photo 8: California buckwheat scrub in norther part of Project site.

Plant Species Compendium

SCIENTIFIC NAME	COMMON NAME
Amsinckia menziesii	small flowered fiddleneck
*Avena barbata**	slender wild oat
Baccharis salicifolia	mulefat
*Brassica nigra**	black mustard
*Bromus diandrus**	ripgut brome
*Bromus madritensis**	foxtail brome
*Centaurea melitensis**	Maltese star-thistle
Carduus sp.*	thistle
Croton californicus	California croton
Croton setiger	dove weed
Cylindropuntia echinocarpa	silver cholla
Encelia farinosa	brittlebush
Eriogonum fasciculatum	California buckwheat
*Erodium cicutarium**	red-stemmed filaree
Eucalyptus globulus	gum tree
Euphorbia albomarginata	rattle snake weed
Helianthus annuus	slender sunflower
Lessingia glandulifera	valley vinegar weed
*Oncosiphon piluliferum**	stinknet
Salix spp.	willow
Salvia apiana	white sage
Sambucus nigra ssp. caerule	blue elderberry
*Schinus molle**	Peruvian pepper tree
Tamarix ramosissima	salt cedar

Wildlife Species Compendium

SCIENTIFIC NAME	COMMON NAME
Buteo jamaicensis	red-tailed hawk
Corvus corax	common raven
Falco sparverius	American kestrel
Haemorhous mexicanus	house finch
Mimus polyglottos	Northern mockingbird
Otospermophilus beecheyi	California ground squirrel
Sceloporus occidentalis	Western fence lizard
Tyrannus verticalis	Western kingbird

Scientific Name Common Name	Status		Potential for Occurrence; Habitat
Allium marvinii Yucaipa onion	Fed: Ca: CNPS: MSHCP:	None None 1B.2 COV	**Presumed Absent.** No suitable habitat was present, and the species elevation range does not occur within the Project Site. No species records were identified within 5 miles of the Project Site. Typically occurs in chaparral and clay openings.
Allium munzii Munz's onion	Fed: Ca: CNPS: MSHCP:	**END** **THR** 1B.1 COV	**Moderate:** Suitable habitat was present on the Project Site and species records were identified within 5 miles of the Project Site. Typically associated in mesic, clay soils within chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, or valley and foothill grassland habitat.
Ambrosia pumila San Diego ambrosia	Fed: Ca: CNPS: MSHCP:	**END** none 1B.1 COV	**Moderate:** Suitable habitat was present on the Project Site and species records were identified within 5 miles of the Project Site. Typically occurs in sandy loam or clay, often in disturbed areas, sometimes alkaline within chaparral, coastal scrub, valley and foothill grassland, or vernal pools.
Atriplex coronata var. notatior San Jacinto valley crownscale	Fed: Ca: CNPS: MSHCP:	**END** none 1B.1 COV	**Presumed Absent.** No suitable habitat was present on the Project Site. Typically occurs in wetlands, playas, and vernal pools.
Brodiaea filifolia thread-leaved brodiaea	Fed: Ca: CNPS: MSHCP:	**THR** **END** 1B.1 COV	**Moderate:** Suitable habitat was present on the Project Site and species records were identified within 5 miles of the Project Site. Typically occurs in valley grassland, foothill woodland, coastal sage scrub, freshwater wetlands, wetland-riparian.
Centromadia pungens ssp. ***laevis*** smooth tarplant	Fed: Ca: CNPS: MSHCP:	none none 1B.2 COV	**Presumed Absent.** No suitable habitat was present on the Project Site. Occurs in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland (alkaline).
Chorizanthe parryi var. ***parryi*** Parry's spineflower	Fed: Ca: CNPS: MSHCP:	none none 1B.1 COV	**Moderate.** Suitable habitat was present on the Project Site and species records were identified within 5 miles of the Project Site. Typically occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands (sandy or rocky openings).
Chorizanthe polygonoides var. ***longispina*** long-spined spineflower	Fed: Ca: CNPS: MSHCP:	none none 1B.2 COV	**Moderate.** Suitable habitat was present on the Project Site and species records were identified within 5 miles of the Project Site. Typically occurs in clay soils within chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, or vernal pools.
Dodecahema leptoceras slender-horned spineflower	Fed: Ca: CNPS: MSHCP:	**END** **END** 1B.1 COV	**Moderate.** Suitable habitat was present on the Project Site and species records were identified within 5 miles of the Project Site. Typically occurs in chaparral, coastal scrub, and cismontane woodland habitats.
Lasthenia glabrata ssp. ***coulteri*** Coulter's goldfields	Fed: Ca: CNPS: MSHCP:	none none 1B.1 COV	**Presumed Absent.** No suitable habitat was present on the Project Site. Marshes and swamps (coastal salt), playas, valley and foothill grassland, and vernal pools.

Scientific Name Common Name	Status		Potential for Occurrence; Habitat
Navarretia fossalis Moran's nosegay	Fed: Ca: CNPS: MSHCP:	**THR** none 1B.1 none	**Presumed Absent.** No suitable habitat was present on the Project Site. Typically occurs in wetlands and freshwater-marsh habitats.
Orcuttia californica California Orcutt grass	Fed: Ca: CNPS: MSHCP:	**END** **END** 1B.1 COV	**Presumed Absent**. No suitable habitat was present on the Project Site. Typically occurs in wetlands and freshwater-marsh habitats.

Federal Designations:
(Federal Endangered Species Act, USFWS)

END: federally listed, endangered
THR: federally listed, threatened

State designations:
(California Endangered Species Act, CDFW)

END: state-listed, endangered
THR: state-listed, threatened
Rare: CDFW Rare

Source: California Natural Diversity Data Base (CNDDB) California Native Plant Society Electronic Inventory (CNPSEI) Bachelor Mountain, Lakeview, Lake Elsinore, Murrieta, Perris, Perris, Romoland, Steele Peak, Wildomar, Winchester .7.5-minute topographic quadrangles.

Special-Status Wildlife Species Potential to Occur

Scientific Name Common Name	**Status**		**Habitat Requirements**	**Potential for Occurrence**
INVERTEBRATES				
Bombus crotchii Crotch bumble bee	Fed: Ca: MSHCP:	none **CAN** Covered	Open grasslands and scrub. This bee can persist in semi-natural habitats surrounded by intensely modified landscapes	**Moderate:** Suitable habitat is present and historical records (>20 years old) were identified within 5 miles of the project site.
Branchinecta lynchi vernal pool fairy shrimp	Fed: Ca: MSHCP:	**THR** none Covered	Vernal pools and ephemeral wetlands. Typically, in small and shallow pools with mud or grassy bottoms.	**Presumed Absent:** No ephemeral wetlands or vernal pools are present.
Branchinecta sandiegonensis San Diego fairy shrimp	Fed: Ca:	**THR** none	Vernal pools and ephemeral wetlands in San Diego and Orange Counties.	**Presumed Absent:** No ephemeral wetlands or vernal pools are present.
Euphydryas editha quino Quino checkerspot butterfly	Fed: Ca: MSHCP:	**END** none Covered	Chaparral and coastal sage scrublands in Riverside and San Diego counties.	**Moderate:** Marginally suitable habitat is present within scrub habitat on site and records were identified within 5 miles of the project site.
Streptocephalus wootoni Riverside fairy shrimp	Fed: Ca: MSHCP:	**END** none Covered	Occurs in vernal pools, tectonic swales, and earth slump basins in Riverside County.	**Presumed Absent:** No ephemeral wetlands or vernal pools are present.
FISH				
Gila orcutti arroyo chub	Fed: Ca: MSHCP:	none SSC Covered	Creeks, streams, and rivers with areas of slow-moving water with sand or mud bottoms. Ranges from San Diego to San Luis Obispo county.	**Presumed Absent:** No creeks, streams, or rivers are present.
AMPHIBIANS				
Anaxyrus californicus arroyo toad	Fed: Ca: MSHCP:	**END** SSC Covered	Sandy banks of rivers, arroyos, and streams with shallow sandy pools. Also found in riparian woodlands or uplands adjacent to arroyos.	**Presumed Absent:** No rivers, arroyos, or streams with shallow pools are present.
Spea hammondii Western spadefoot	Fed: Ca: MSHCP:	none SSC Covered	Prefers open areas with sandy or gravelly soils, including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, and alkali flats	**Presumed Absent:** No suitable soils on site.
Taricha torosa coast range newt	Fed: Ca: MSHCP:	none SSC Covered	wet forests, oak forests, chaparral, and rolling grasslands. Burrows in moist soil or wood debris.	**Presumed Absent:** no moist soil habitat on the project site.
REPTILES				

Scientific Name Common Name	**Status**		**Habitat Requirements**	**Potential for Occurrence**
Anniella stebbinsi southern California legless lizard	Fed: Ca: MSHCP:	none SSC none	Typically occurs in moist warm loose soil with plant cover in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	**Presumed Absent.** No moist soil habitat on site.
Arizona elegans occidentalis California glossy snake	Fed: Ca: MSHCP:	none SSC none	Typically occurs in scrub or grassland habitat, often with loose or sandy soils.	**Moderate:** Marginally suitable habitat was present on site and records were identified within 5 miles.
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: Ca: MSHCP:	none SSC Covered	Arid habitats including chaparral, woodlands, and dry riparian areas.	**High:** Suitable habitat is present within scrub habitat and records were identified within five miles.
Coleonyx variegatus abbotti San Diego banded gecko	Fed: Ca: MSHCP:	none SSC Covered	Rocky areas in coastal sage scrub and chaparral.	**Presumed Absent:** No suitable habitat and no records within five miles.
Crotalus ruber red-diamond rattlesnake	Fed: Ca: MSHCP:	none SSC Covered	Found in coastal chaparral, arid scrub, rocky grassland, oak and pine woodlands, desert mountain slopes and rocky desert flats.	**High:** Suitable habitat is present within scrub habitat and records were identified within five miles.
Emys marmorata western pond turtle	Fed: Ca: MSHCP:	none SSC Covered	Ponds, lakes, rivers, streams, marshes, and other water sources with rocky or muddy substrate. Basks on logs, rocks, and exposed banks.	**Presumed Absent:** No aquatic habitats occur.
Phrynosoma blainvillii coast horned lizard	Fed: Ca: MSHCP:	none SSC Covered	Open areas of valleys, foothills, and semiarid mountains with sandy soil and low vegetation including chaparral, woodlands, and grasslands.	**High:** Suitable habitat is present within scrub habitat and records were identified within five miles.
Salvadora hexalepis virgultea coast patch-nosed snake	Fed: Ca:	none SSC	semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	**Moderate:** Suitable habitat was present on site and but no records within five miles.
Thamnophis hammondii two-striped gartersnake	Fed: Ca:	none SSC	Occurs along aquatic habitats such as creeks and pools with rocky areas in chaparral, brushland, oak woodlands, and conifer forests. Hunts in water.	**Presumed Absent:** No aquatic habitats occur.
BIRDS				

Scientific Name Common Name	**Status**		**Habitat Requirements**	**Potential for Occurrence**
Agelaius tricolor tri-color blackbird (nesting colony)	Fed: Ca: MSHCP:	none **CAN** COV	Freshwater marshes with dense cattails, bulrushes, sedges, and tule. Forages in open habitat such as cultivated fields and pastures.	**Presumed Absent:** No freshwater marshes are present.
Aquila chrysaetos golden eagle (nesting & wintering)	Fed: Ca: MSHCP:	none FP COV	Open country including prairies, sagebrush, savannah or sparse woodlands, and barren hills or mountainous areas. Nests on rocky cliff edges.	**Presumed Absent:** No suitable nesting habitat on site.
Asio otus long-eared owl (nesting)	Fed: Ca:	none SSC	Nests in trees or tree cavities within deciduous and evergreen forests, orchards, wooded parks, farm woodlots, river woods, desert oases.	**Presumed Absent.** No suitable habitat was present on the Project Site**.**
Athene cunicularia burrowing owl (burrow & some wintering sites)	Fed: Ca: MSHCP:	none SSC COV	Open grasslands including prairies, plains, and savannah, or vacant lots and airports. Nests in abandoned dirt burrows.	**High:** Suitable foraging and burrow habitat present throughout portions of the project site.
Buteo swainsoni Swainson's hawk (nesting)	Fed: Ca: MSHCP:	none **THR** COV	Open pine-oak woodland, savannah, and agricultural fields with scattered trees. Nests in large solitary trees	**Presumed Absent:** No suitable nesting habitat on site.
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	Fed: Ca: MSHCP:	none SSC COV	Coastal sage scrub with tall opuntia cacti. Nests in opuntia cactus.	**Presumed Absent:** Suitable coastal sage scrub with opuntia cacti is not present.
Charadrius alexandrinus nivosus western snowy plover	Fed: Ca:	**THR** SSC	Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**Presumed Absent:** No sandy, gravelly, or friable soils adjacent to water features are present.
Circus hudsonius Norther harrier	Fed: Ca: MSHCP:	none SSC COV	Open pine-oak woodland, savannah, and agricultural fields with scattered trees. Nests in solitary bush or tree, or in small groves.	**Presumed Absent:** No suitable nesting habitat on site.
Elanus leucurus white-tailed kite (nesting)	Fed: Ca: MSHCP:	none FP COV	Open habitat in lowlands including savanna, open woodlands, marshes, and agricultural fields. Nests in tall trees within or on the edge of forested areas.	**Presumed Absent:** No suitable nesting habitat on site.

Scientific Name Common Name	**Status**		**Habitat Requirements**	**Potential for Occurrence**
Icteria virens yellow-breasted chat (nesting)	Fed: Ca: MSHCP:	none SSC COV	Riparian and upland thickets, and dry overgrown pastures. Prefers to nest in dense scrub along streams or at the edges of ponds or swamps.	**Presumed Absent:** No suitable riparian habitat identified on the project site.
Lanius ludovicianus loggerhead shrike (nesting)	Fed: Ca: MSHCP:	none SSC COV	Open country, with scattered shrubs and trees or other perches for hunting; includes agricultural fields, deserts, grasslands, savanna, and chaparral.	**High:** Suitable habitat is present and documented records were identified within five miles.
Polioptila californica californica coastal California gnatcatcher	Fed: Ca: MSHCP:	**THR** SSC COV	Dry coastal slopes, washes, and mesas with areas of low vegetation and coastal sage scrub.	**High:** Suitable scrub habitat present and records within five miles of the project site.
Setophaga petechia yellow warbler	Fed: Ca: MSHCP:	none SSC COV	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	**Presumed Absent.** No suitable riparian habitat identified on the project site.
Vireo bellii pusillus least Bell's vireo (nesting)	Fed: Ca: MSHCP:	**END** **END** COV	Riparian woodlands and willow-cottonwood forests particularly with streamside thickets and dense brush.	**Presumed Absent:** No suitable riparian habitat identified on the project site.
MAMMALS				
Chaetodipus californicus femoralis Dulzura pocket mouse	Fed: Ca:	none SSC	Chaparral, coastal scrub, and desert grasslands in San Diego county along the U.S.-Mexico border.	**Moderate:** Marginally suitable habitat is present, and records have been identified within five miles.
Chaetodipus fallax fallax northwestern San Diego pocket mouse	Fed: Ca: MSHCP:	none SSC COV	Coastal scrub, chaparral, sagebrush, and grasslands in western San Diego county.	**Moderate:** Marginally suitable habitat is present, and records have been identified within five miles.
Dipodomys merriami parvus San Bernardino kangaroo rat	Fed: Ca: MSHCP:	**END** SSC COV	Occurs in alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains.	**Presumed Absent.** No suitable habitat was present on the Project Site.
Dipodomys stephensi Stephens' kangaroo rat	Fed: Ca: MSHCP:	**END** **THR** COV	Annual grasslands, coastal sage scrub with sparsely spaced vegetation, loose friable soils, and flat or slightly rolling terrain.	**High:** Suitable habitat is present within the grassland habitat and records have been identified in close proximity to the project site.
Eumops perotis californicus western mastiff bat	Fed: Ca:	none SSC	Roosts high above ground in rock and cliff crevices, shallow caves, and rarely in buildings. Occurs in arid and semiarid regions including rocky canyon habitats.	**Presumed Absent:** No suitable habitat was present on the Project Site.

Scientific Name Common Name	**Status**		**Habitat Requirements**	**Potential for Occurrence**
Haliaeetus leucocephalus bald eagle (nesting & wintering)	Fed: Ca: MSHCP:	**DL** **END** COV	Breeding habitat most commonly includes areas close to coastal areas, bays, rivers, lakes, reservoirs, or other bodies of water that reflect the general availability of primary food sources including fish, waterfowl, or seabirds	**Presumed Absent.** No suitable habitat was present on the Project Site**.**
Lasiurus xanthinus western yellow bat	Fed: Ca:	none SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	**Presumed Absent.** No suitable habitat was present on the Project Site**.**
Lepus californicus bennettii San Diego black-tailed jackrabbit	Fed: Ca: MSHCP:	none SSC COV	Variety of open or semi-open country including grasslands, croplands, and sparse coastal scrub.	**High:** Suitable habitat is present within the scrub habitat and records have been identified within five miles of the project site.
Neotoma lepida intermedia San Diego desert woodrat	Fed: Ca: MSHCP:	none SSC COV	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops & rocky cliffs & slopes.	**Presumed Absent.** No suitable habitat was present on the Project Site**.**
Nyctinomops femorosaccus pocketed free-tailed bat	Fed: Ca:	none SSC	Roosts in crevices of outcrops and cliffs, shallow caves, and buildings. Found along rugged canyons, high cliffs, and semiarid rock outcroppings.	**Presumed Absent:** No suitable habitat was present on the Project Site.
Onychomys torridus ramona southern grasshopper mouse	Fed: Ca:	none SSC	Low, semi-open, and open scrub habitats with flat, sandy valley floors. Habitats include coastal and mixed chaparral, coastal sage scrub, riparian scrub, low sagebrush, and grasslands with interspaced shrubs.	**Moderate:** Marginally suitable habitat is present within less dense portions of the site and records have been identified within five miles of the site.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Fed: Ca: MSHCP:	none SSC COV	Habitats with sandy and fine soils, including grasslands, coastal sage scrub, and alluvial sage scrub.	**Moderate:** Marginally suitable habitat is present, and records have been identified within five miles.
Perognathus longimembris internationalis Jacumba pocket mouse	Fed: Ca:	none SSC	Desert, Grassland/herbaceous, Shrubland/chaparral	**Presumed Absent:** Site is outside of the range for the species, nearest record is over 18 miles away.

Scientific Name Common Name	Status		Habitat Requirements	Potential for Occurrence
Taxidea taxus American badger	Fed: Ca:	none SSC	Low, semi-open, and open scrub habitats with flat, sandy valley floors. Habitats include coastal and mixed chaparral, coastal sage scrub, riparian scrub, low sagebrush, and grasslands with interspaced shrubs.	**Low:** Marginally suitable habitat throughout the site but no records have been identified within 10 miles of the site.

Federal Designations:
(Federal Endangered Species Act, USFWS)

END: Federally Listed, Endangered
THR: Federally Listed, Threatened
FC: Federal Candidate Species
FSC: Federal Species of Concern
FPD: Federal Proposed for Delisting
DL: Federally Delisted

State designations:
(California Endangered Species Act, CDFW)

END: State-listed, Endangered
THR: State-listed, Threatened
CAN: State Candidate for Listing
SSC: California Species of Special Concern
FP: Fully Protected Species

Other Designations
COV: Covered under the Western Riverside MSHCP

Source: California Natural Diversity Data Base (CNDDB) Bachelor Mountain, Lakeview, Lake Elsinore, Murrieta, Perris, Perris, Romoland, Steele Peak, Wildomar, Winchester 7.5-minute quads.

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Appendix C Cultural Resources Inventory and Evaluation Report

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Appendix D Preliminary Geotechnical Investigation

PRELIMIARY GEOTECHNICAL INVESTIGATION
& PERCOLATION TESTING
63.6 ACRES HOUSING DEVELOPMENT
Al'\1:ENDED N0.2 TENTATIVE TRACT MAP NO. 32794
QUAIL VALLEY, RIVERSIDE COUNTY, CALIFORNIA

Prepared for;

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November 30, 2005
PROJECT FILE NO. 24131-102

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APPENDICES

PRELIMIARY GEOTECHNICAL INVESTIGATION
& PERCOLATION TESTING
63.6 ACRES HOUSING DEVELOPMENT
AMENDED N0.2 TENTATIVE TRACT MAP NO. 32794
QUAIL VALLEY, RIVERSIDE COUNTY, CALIFORNIA

1.0 INTRODUCTION

This report presents a summary of our findings and recommendations based on our preliminary geotechnical investigation, percolation testing, geological mapping, and review of referenced reports for the proposed 63.6 acres master planned single-family residential development at Quail Valley site No. 2, Tentative Tract Map No. 32794, south of the Perris city limits, in the County of Riverside, California The site and vicinity of the project are shown in Figure 1 on the following page.

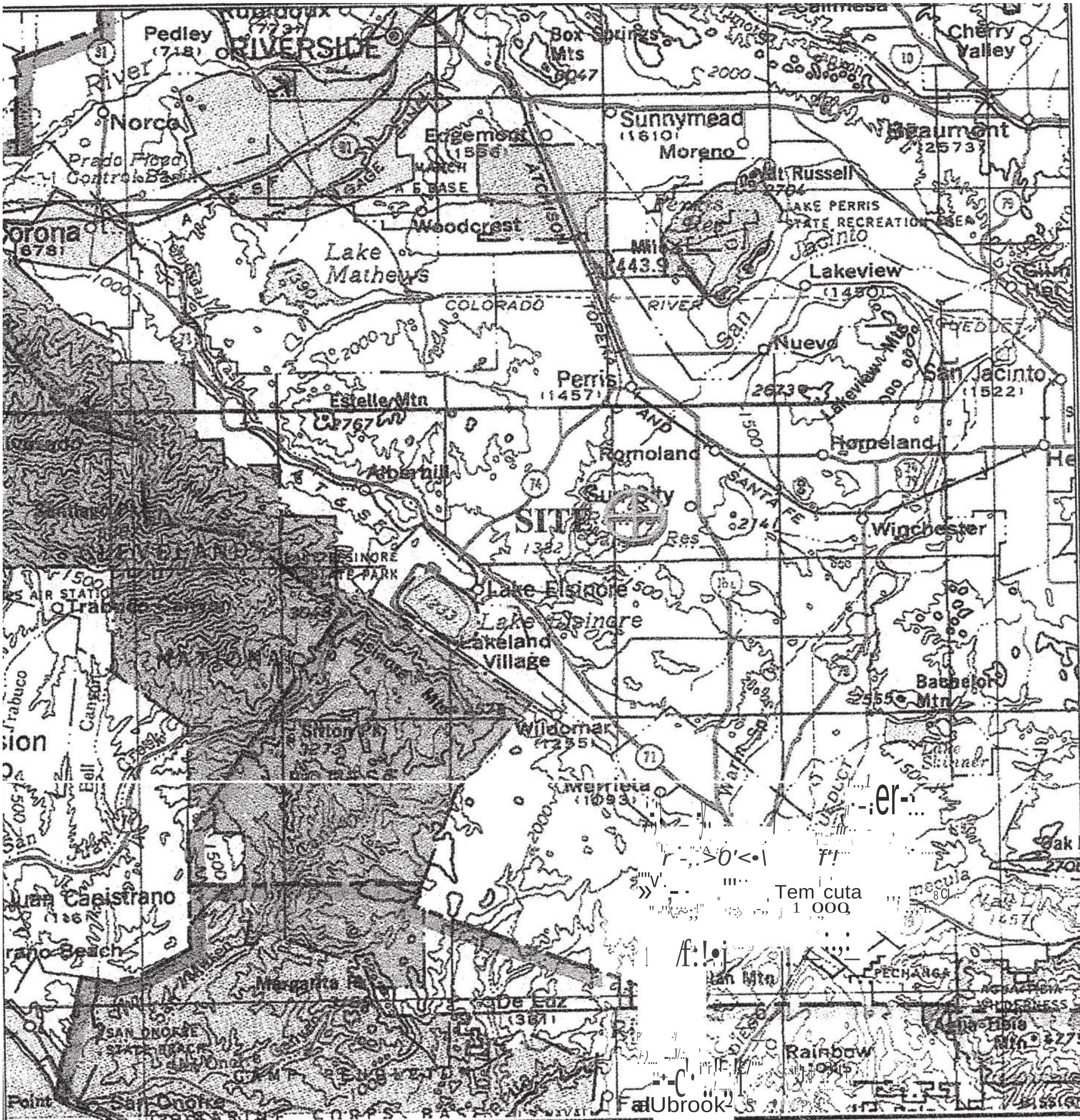
1.1 Purpose and Scope

This study was performed in order to obtain geotechnical and percolation data pertinent to development of the site with single-family residences. The procedures used for this study consisted of:

- Review of applicable publications and geotechnical references (published and unpublished);
- Subsurface investigation with backhoe, test pit logging and soil sampling, and percolation testing;
- Correlative laboratory testing;
- Geotechnical review and analysis; and,
- Preparation of this report, illustrations, and plans.

1.2 Objective of this Report

The purpose of this report is to summarize our findings, provide conclusions as to the overall suitability of the project site, and present recommendations for the proposed master planned development from a geotechnical standpoint. The field investigation was undertaken on September 19 & 20, 2005. The test pit locations are shown on the geotechnical plan presented in Appendix A, Figure A-1-1.



Reference: **TOPO! USGS 7.5 Min. Quadrangle Maps, Los Angeles Region**

Scale: 1000 0 1000 2000 3000 4000 FEET; 1 MILE

TN MN

P. A & ASSOCIATES, INC.	TITLE: SITE VICINITY MAP	FIGURE NO.: 1
	PROJECT: Quail Valley Site No. 2, Riverside County, CA	
	PROJECT NO: 24131 102 DATE: **11/30/05** BY: MM	

1.3 Site Description

The subject site comprises approximately 63.6 acres of vacant land, covered by seasonal grasses and bushes, located approximately one-quarter mile south of the Perris City Limits, in the unincorporated area of Quail Valley. Toe property is partially bounded by Goetz Road on the southeast. Palm Drive on the west, and San Jacinto Road (boundary south of Road) on the north.

A rocky ridge extends south-southwest across the site and parallels a major drainage that roughly follows Goetz Rd. on the southeastern side property line. Three smaller drainage courses drain the ridge to the east on the southeastern portion of the property. Another drainage course channels runoff on the northern portion of the site to the southwest.

A portion of the highest pe located in the northern portion of the ridge, has been designated as a mountainous area on the Open Space and Conservation Map (Reference 1), which applies to areas of at least 10 acres in size with slopes greater than 25 percent. Toe topographic relief within the property is 217 ft.

1.4 Use of Report

1bis report was prepared at the request and for the use of Mr. Ludwig Smeets, and is intended for the exclusive use of Norris-Repke, Inc. and the finn's design consultants for development of the site. Use of this report by others, or for purposes other than those stated herein, may be subject to misinterpretation, and is therefore not recommended. The use of this report by others or for other purposes or by should be evaluated by this consultant in order to verify applicability of its findings. P.A. and Associates should review the project plans as they become available for applicability and compliance with recommendations presented.

1.5 Project Description

Based upon our conversations with Mr. Ludwig Smeets, it is our understanding that the proposed project will consist of master planned single-family residential development with streets and associated improvements.

2.0 GENERAL GEOLOGY AND SUBSURFACE CONDITIONS

2.1 Regional Geology

The project is situated within the northern portion of the Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province consists of a series of ridges that extend approximately 900 miles from the Los Angeles basin southeastward to the tip of Baja California, Mexico. This Province is approximately 80 to 100 miles wide, east to west, and is bounded on the north by the Transverse Ranges and the east by the Salton Trough. The Province includes the Perris Block, the Santa Ana Mountains, and the San Jacinto Mountains. The Perris Block is characterized as a broad undulating plain between the San Jacinto and Elsinore fault zones; its surface was eroded on primarily plutonic igneous roclr.s, and it lies 7000 ft. below the summits of the San Jacinto Mountains. The project site is located within the bills between Lake Elsinore and Menifee Valley. The site is underlain by meta sedimentary bedrock of Jurassic age, Bedford Canyon Formation and Cretaceous granitic rock of the southern California batholith. See Figure 2a on the following page.

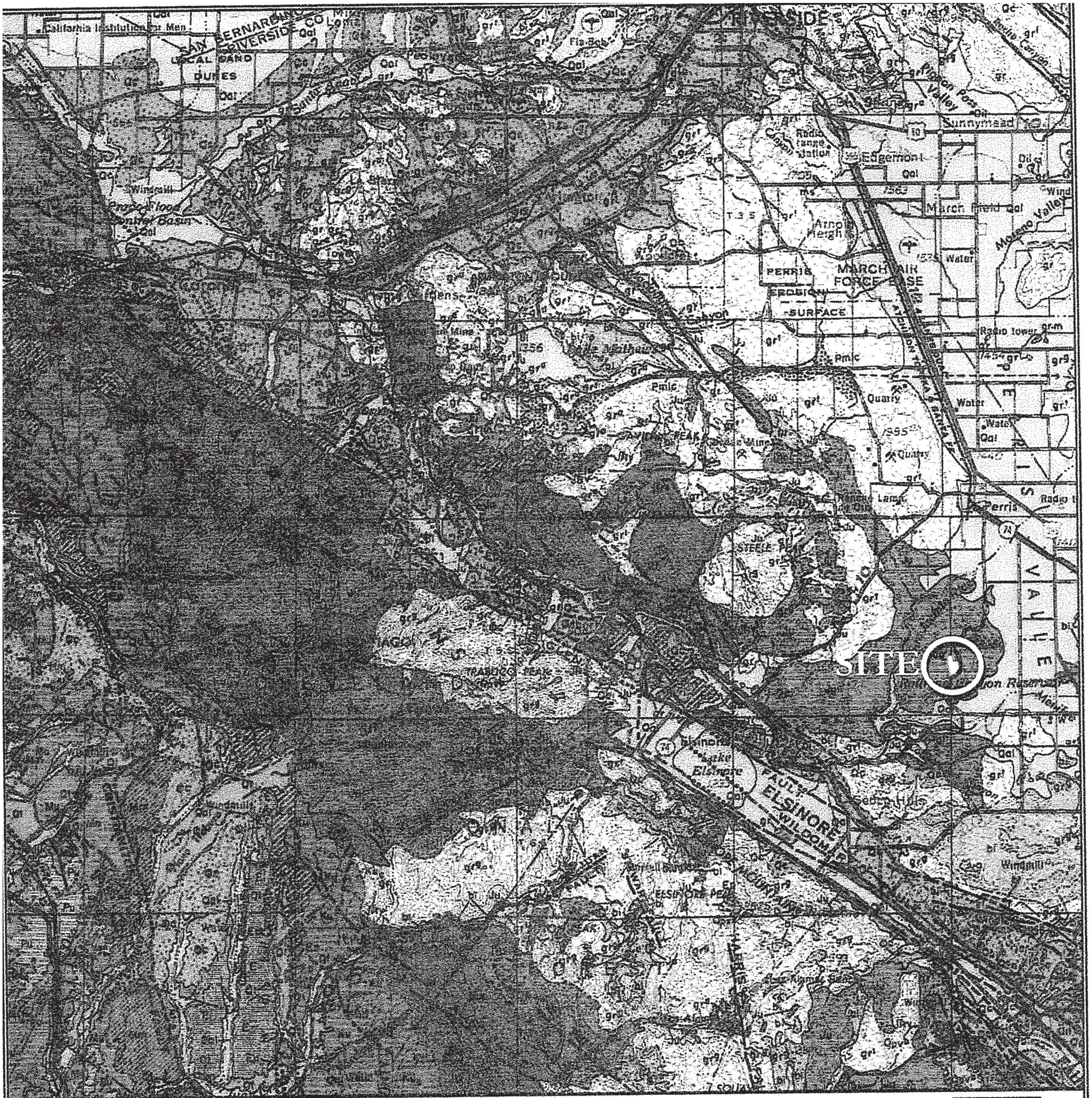
The dominant features of the Peninsular Ranges consist of northwest-trending fault zones. Tectonic uplift of and faulting within the Peninsular Ranges, caused by oblique convergence between the Pacific and North American Plates, began during the Pliocene. Faulting within the Peninsular Ranges has manifested as a series of right-lateral northwest trending transform faults (e.g., Newport-Inglewood, Norwalk-Anaheim Hills, Whittier-Elsinore, and San Jacinto faults). See Figure 3, page 8. In addition, numerous discontinuous north-south trending faults have been mapped within the northern portion of the Peninsular Ranges. Several faults within the Peninsular Ranges are considered active or potentially active pursuant to the guidelines of the Alquist-Priolo Earthquake Fault Zoning Act (1994).

2.2 Earth Materials

Earth materials encountered during our exploration were classified in accordance with the Unified Soil Classification System (see Appendix A-2). The geotecbnical plan is shown in Figure A-1-1.

2.3 Slopewasb (Qsw)

The low lying areas of the site are generally underlain by thin soil cover and shallow slopewash deposits with minor alluvial channel materials ranging up to approximately 3 feet in thickness, thickest on the southeastern portion and the southern low-lying area, which overlie quartz rich metamorphic bedrock and granitic rock. Please see Geologic Vicinity Map, Figure 2b. The surficial materials generally consist of reddish brown sandy silt and silty sand with some gravel and occasional rounded cobbl s that were damp and stiff to very stiff.



Reference: RODGERS, 1965, OLAF P. JENKINS EDITION, SANTA ANA SHEET, 1985

Scale: 1:250,000

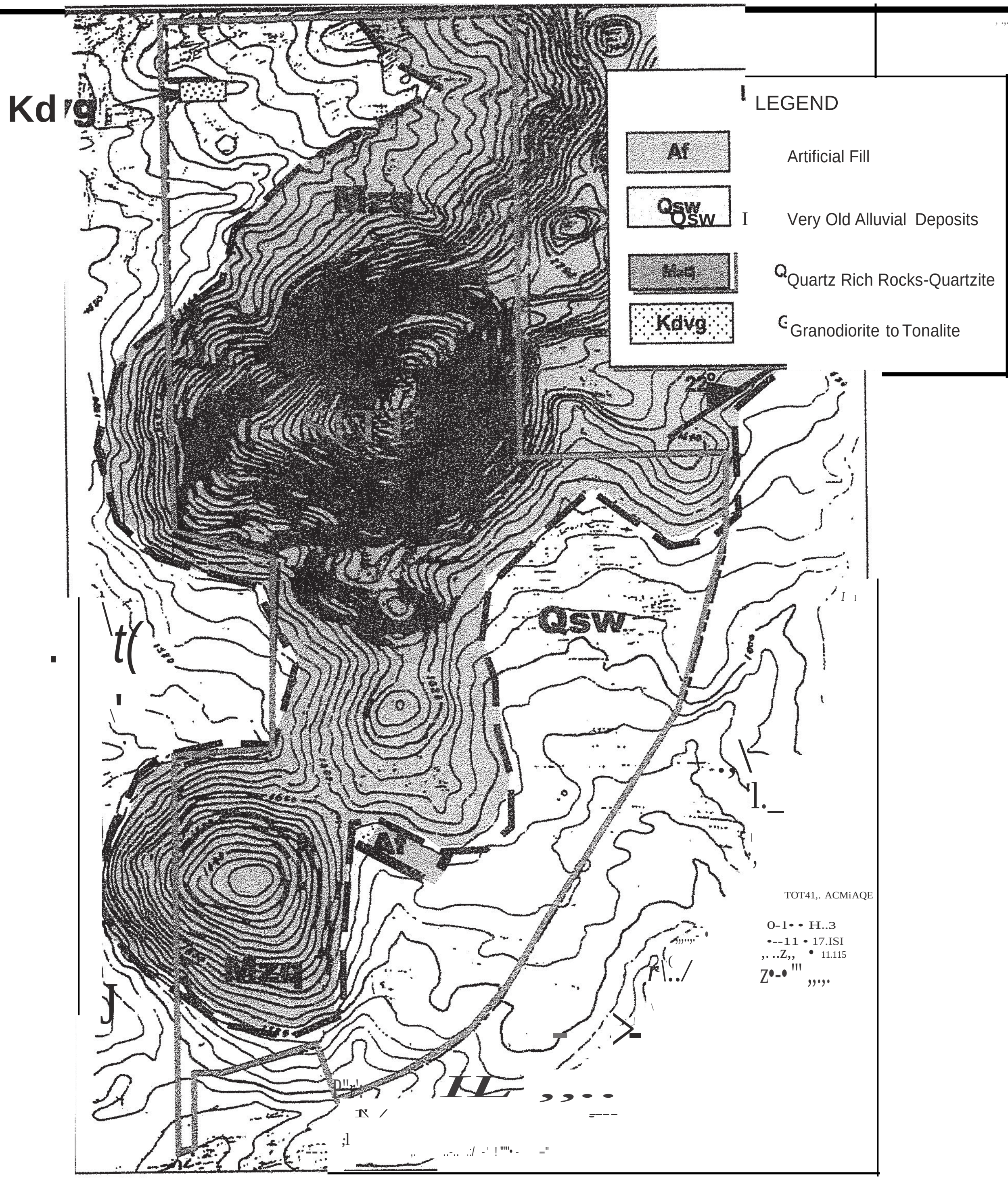
TITLE: GEOLOGIC SITE VICINITY MAP

FIGURE NO.: 2a

PROJECT: Quail Valley Site No. 2, Riverside County, CA

PROJECT NO: 24131-102 DATE: 11/30/05 BY: MM

e. A & AS 9CIATES, INC.



.eference: **Topographic Map prepared by J. F. Davidson Associates, Inc.**

Scale: 2p-0 ..J 250 1000 ft. approx.

TN MN 14°

!TITLE: **GEOLOGIC MAP** .

FIGURE **NO.:** **2b**

PROJECT: **Quail Valley Site No. 2, Riverside County, CA**

PROJECT NO: **24131-102** DATE: **11/30/05** BY: JR

P. A & ASSOCIATES. **INC.**

2.4 Jurassic Metasedimentary Bedrock

The site is underlain by quartz rich bedrock consisting of reddish brown quartzite, quartz rich metasandstone, and minor shale. The bedrock was well indurated and generally closely fractured where exposed. Mapped foliations in the Bedford Canyon Formation in the region generally strike northwest-southeast and are inclined 45 to 65 degrees to the northeast. Foliation mapped in the road cut along Goetz Rd, to the east of the site, was inclined 22 degrees to the northwest.

2.5 Cretaceous Granitic Rock (Kdvg)

Cretaceous massive granodiorite to tonalite bedrock was uncovered in our trenches located in narrow drainage courses on the northern and southeastern portions of the site and off-site, at the southern end. The granitic rock was highly weathered and moist to depths of approximately 10.5 to 12 feet depths. The granitic rock was overlain by weathered metatasediments or minor alluvium, confined to channels approximately six feet wide.

2.6 Groundwater

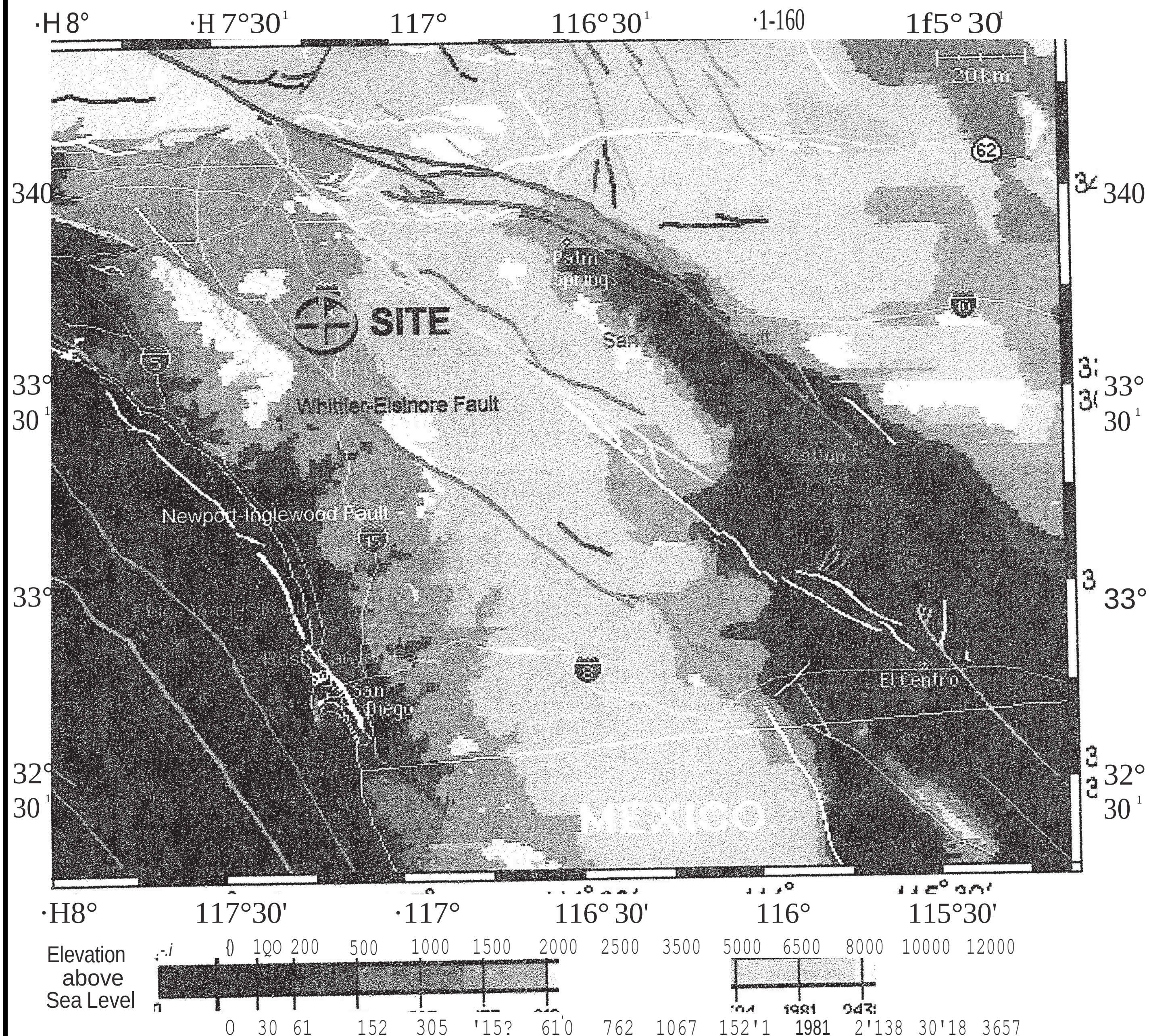
Based on observations of vegetation and topography on the southeast portion of the property, the shallow lying impermeable bedrock may facilitate the perching of infiltrated waters close to the ground surface.

2.7 **Percolation**

Three trenches adjacent to narrow drainage channels located on the northwestern, southeastern, and southern portion of the property were tested for percolation. A one cubic foot excavation in the bottom of the trenches {see trench logs in Appendix A) was filled with water and monitored for period of one hour. Although the metasediments tend to be closely fractured, no measurable percolation was observed during the course of the hour-long tests.

2.8 Fault Zones

The site is not currently located within an Alquist-Priolo Earthquake Fault Zone. It may, however, be expected to experience moderate to potentially severe ground shaking from earthquakes generated on faults which are present within 100 kilometers of the site (i.e., Whittier-Elsinore, San Jacinto, and San Andreas faults). The site may also experience lesser ground shaking from earthquakes on other faults within the Southern California region. See active fault map of Southern California, Figure 3, page 8. No active or potentially active faults are known to tmnsect the site.



.eference:	Southern California Earthquake Center (SCEC)
Scale:	6 !okm

P. A & ASSOCIATES, INC.

TITLE:	ACTIVE FAULTS OF S. CALIFORNIA MAP	FIGURE NO.:
PROJECT:	Quail Valley Site No. 2, Riverside County, CA	3
PROJECT NO:	24131-102 DATE: 11/30/05 IBY: MM	

3.0 SOILS ENGINEERING

In general, most of the site is covered with soils that appear to have moderate cohesion and very low expansion potential. A representative sample was taken from the southeastern portion of the site. Engineering properties and physical parameters of soils sampled and tested during our investigation are summarized as follows:

3.1 Classification

Field classifications were verified in the laboratory by visual examination. The final soil classifications are described in accordance with the Unified Soil Classification System and are shown on the boring logs in Appendix A.

3.2 Maximum Dry Density - Optimum Moisture

The maximum dry density and optimum moisture content of typical on-site soils were determined in the laboratory in accordance with ASTM Standard Test D-1557-02. The results of these tests are presented in the Laboratory Test Summary, Appendix B.

3.3 Expansion Potential

Expansion potential was tested in accordance with U.B.C. Standard 18-2. fu general, soils sampled during our field exploration exhibited very low expansion potential. However, confinnation of these results should be performed after rough grading for the proposed development The expansion test results are summarized in Appendix B.

3.4 Direct Shear Test

Soil strength was determined for remold samples in accordance with ASTM Test Designation D-3080-04. Results of these tests are utilized in determining maximum soil bearing values. The results of these tests indicated a maximum cohesion of 250 pound per square foot with corresponding internal friction angle of 23 degrees. This test is summarized in Appendix B.

4.0 CONCLUSIONS

4.1 Feasibility of Development

From a geotecbnical standpoint, the proposed development on this site is considered feasible, and will not have adverse effects on adjacent properties or structures, providing our conclusions and recommendations, together with the builder's standard of care, are taken into consideration under the supervision of a representative of this firm.

4.2 Earth Materials

The earth materials encountered on the site generally comprised a thin cover of soil, slopewash and minor alluvium generally overlying quartz rich metamorphic rock. The soils consisted sandy silt or silty sand with minor gravel.

4.3 Rippability

Based on reconnaissance of the site and experience with the rock formations in the area, we consider that the hard quartzite underlying the property is generally rippable ,vith high degree of difficulty. Blasting might be considered locally if quart.Zite lacks fractures to facilitate ripping, We estimate ripping of rock may be possible to about 30 ft. A seismic refraction survey would provide definitive infonnation on the maximum depths feasible for ripping when the specific site development plans become available with estimated depths of cuts and fill.

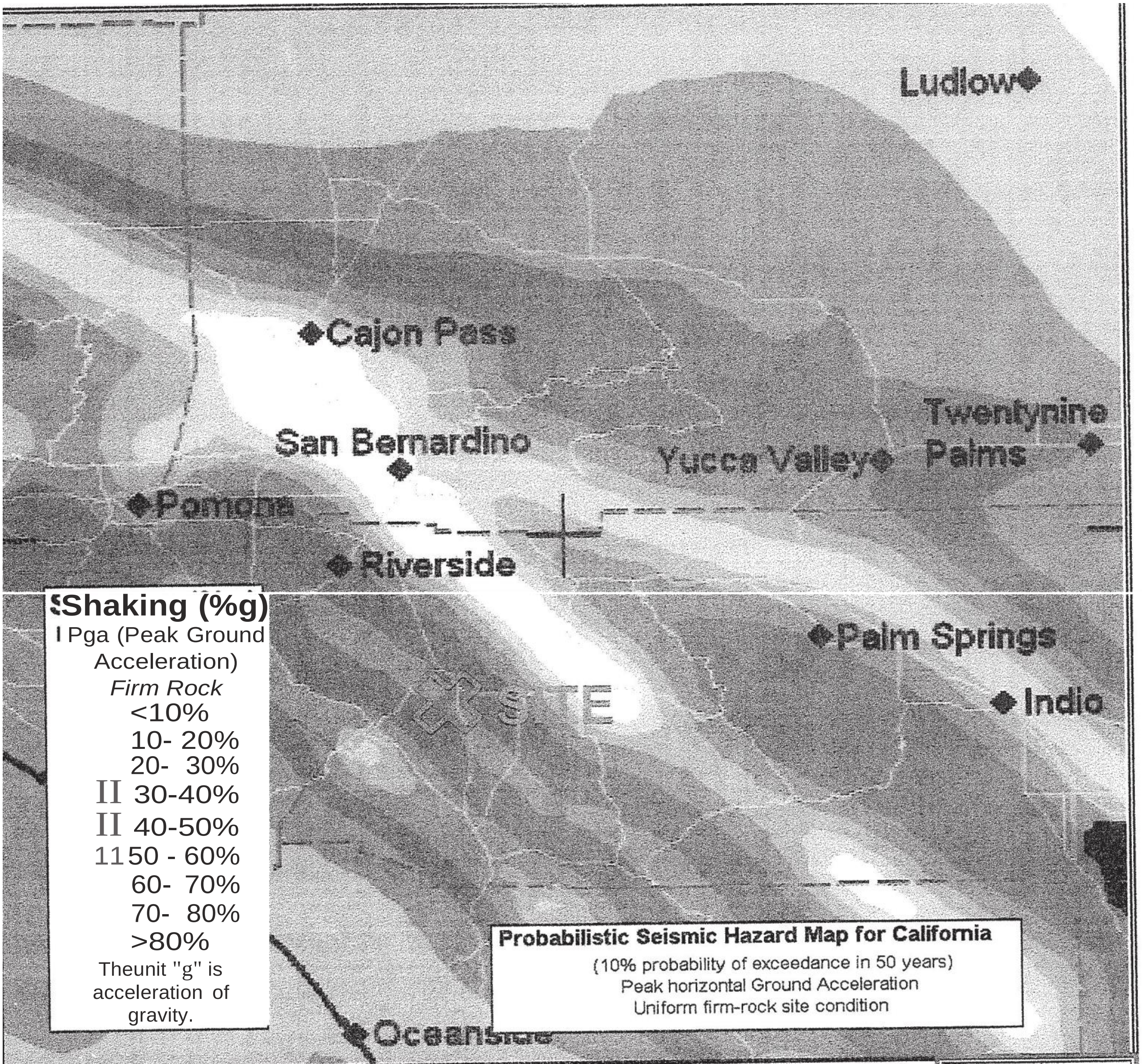
4.4 Seismicity

The site is located approximately 11.6 kilometers northeast of the causative Elsinore fault (Glen Ivy segment) near source and approximately 22 kilometers southwest of the active San Jacinto fault near source, and may be expected to experience potentially severe shaking.

The site is expected to experience Peak Horizontal Acceleration of 0.4g to 0.5g v..'ith a 10% probability of exceedance in 50 years *(US. Geological Survey, National Seismic Mapping Project, I 999)*. See Figure 4 on following page. Seismic criteria for a near source event should be considered in the design of the structures.

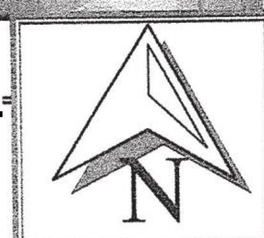
4.5 Groundwater

In low-lying areas, the shallow lying impenneable bedrock may facilitate perching of surface and infiltrating waters close to the ground surface. On the northern portion of the



Reference: California Division of Mines and Geology -Open File Report 96-08

Scale: 0 10 20 Miles



P. A 8. ASSOCIATES, INC.	TITLE: PROBABILISTIC SEISMIC HAZARD MAP	FIGURE NO.:
	PROJECT: Quail Valley Site No. 2, Riverside County, CA	4
	PROJECT NO: 24131-102 DATE: 11/30/05 BY: MM:	

site, moderate groundwater seepage *was* observed in the westerly trending drainage (see trench log T-10 in Appendix A) flowing immediately below the topsoil cover. The underlying granitic rock was moist and highly weathered to depth of 11 feet. No groundwater seepage was encountered on the southeastern drainage on the site in trench T-8, however the granitic rock was highly weathered and moist to depth of 12 feet. Trench T-2 was excavated off-site in a small basin adjacent to the southern end of the property, where storm water evidently ponds along Goetz Rd. Moderate seepage was encountered in the weathered rock at depth of approximately 6.5 feet below the surface.

4.6 Percolation

Three trenches located in low lying drainage areas of the site were tested for percolation in accordance with generally accepted test methods. Tbe trenches used for percolation testing were excavated in the vicinity of narrow channels where deep weathering of bedrock was encountered; however, the weathering of bed.rock appears to be confined to narrow channel areas about six feet wide. No measurable percolation was observed over a period of one hour in our percolation test pits.

4.7 Liquefaction

Liquefaction is a phenomenon that occurs in saturated, cohesionless (usually sandy) soils in which the soils undergo transfom1ation from a solid to a liquid state as a result of increased interstitial **pore** pressure and reduced effective stress. This typically occurs in the upper 30 feet during ground shaking such as during an earthquake event. The site is underlain by bedrock, and should be considered to possess no potential for liquefaction.

4.8 Slope Stability

Based on our site reconnaissanc.;e, steeply inclined foliation of the bedrock, and moderately sloping topography, it is our professional opinion that the proposed construction will be globally **stable** providing our conclusions and recommendations are incorporated into the design and constmction of the project. The regional strike and dip of foliation is favorable for stability of proposed road cuts, 2:1 H:V and flatter. During grading of the road cuts the project engineer and/or engineering geologist may recommend flattening of proposed slopes if unfavorable geologic structure is encountered.

5.0 RECOMMENDATIONS

The construction proposed for the site is considered geotechnically feasible. Grading and foundation plans should take into account the appropriate geotechnicai conditions of the site.

5.1 Grading

Prior to the start of grading, any vegetation and or other deleterious materials should be stripped and legally disposed·of off-site.

5.2 Sub-Surface Soil Preparation

After clearing the site, the loose and soft soil within the building lines and 5-feet beyond should be removed to competent bedrock and replaced with compacted 90 percent soil. Transition line from cut to fill created or proposed within building pads should be eliminated by over-excavating 2 feet below the bottom of footings and 3 feet beyond the footprint.

5.3 Scarificatio11

All exposed surfaces, including overexcavated surfaces, should be scarified 6 inches, moisture-conditioned, and compacted to 90 percent relative compaction, as tested in accordance with ASTM Test Method D-i557-02.

5.4 Import and Fill l\ifa.terial Usage

Should importation of fill be desirable, the material should be primarily granular, with very low expansion potential, having an expansion index less than 20. All import should be inspected, and tested as necessary by the Soils Engineer prior to importation to the site.

5.5 Fill

Native soils are acceptable for utilization as stmctural fill. All fill soils shall be placed (compacted) in maximum 6:-inch lifts to at least 90 percent relative compaction.

5.6 Trench Backfill

All trenches should be backfilled with soils compacted mechanically to at least 90 percent relative compaction. Trenches deeper than 2 feet should be tested progressively as fill is placed.

Backfill of all trenches should be compacted to achieve a relative compaction of at least 90 percent of the maximum density. Care should be taken not to damage utility lines. The site soils are considered suitable for use as trench backfill, provided they are at or near optimum moisture.

The walls of temporary construction trenches are expected to be stable when excavated nearly vertical, with only minor shoring, provided the total depth does not exceed about 5 feet. Shoring of excavation walls or flattenir1g of slopes may be required, if greater depth are necessary.

All work associated with trench shoring must minimally confirm to Cal-OSHA and local safety codes.

5.7 Suggested Preliminary Pavement Section ,

Based on an assumed **R-Value of 50,** the State of California Highway Department design procedures, and Assumed Traffic Index = 6.0 for auto light traffic of heavy trucks, 5.0 for driveways and parking areas, the following preliminary pavement sections are suggested, further evaluation should be performed at the conclusion of rough grading:

<u>Auto and light tmck traffic</u>
Traffic Index (TI)= *5.0*
Asphalt Concrete (AC) = **3.0 inches**
Aggregate Base (AB) Class II = **4.0** inches

<u>I,ight heavy tmck traffic & heavy traffic of light vehicles</u>
Traffic Index (TI)= 6.0
Asphalt Concrete (AC) = **3.5 inches**
Aggregate Base (AB) Class II= **5.0** inches

Aggregate Base and Asphalt Concrete should be compacted to a minimum of 95 percent relative compaction. AC should be compacted in layers not exceeding 3.5 inches.

5.8 Geotechnical Observation and Testing

Base on the City of Perris and County of Riverside's quality control requirements and our client's desired quality control, observation and testing by our representative are recommended for the activities specified as follows:

- During clearing of the site;
- During rough and precise grading of the site and surrounding slopes;

- During footing excavation for building and/or retaining wall, prior to backfill;
- During and after retairring wall subdrain installation, if any;
- During back.fill of utility trenches and retaining walls;
- During sub-slab sand and visqueen placement;
- During sub-base, aggregate base, and paving asphalt placement;
- When any unusual geotechnical conditions are encountered

6.0 FOUNDATION RECOMMENDATIONS

6.1 Continuous and Square Pad Footings

Continuous footings should be a minimum of 15 and 18 inches wide and 18 inches deep into competent material for one and two stories riespectively. Square pad footings should be founded at least 18 inches into competent materials, below lowest adjacent grade, and should have a minimum dimension of 24 inches square. Isolated pad footings and garage entries should be interconnected in two directions with grade beams, minimum 18 inches deep and 18 inches wide. All continuous footings should be reinforced with two No.4 bar on top and two at the bottom. Spread footings should be reinforced with No.4 bars spaced 12 inches on-center each-way, unless determined otherwise by the Structural Engineer. Bottom of the footings should be setback minimum of 10 feet away from the slope face (daylight).

6.2 Allowable Bearing Capacity (Continuous and Square Pad Footings)

Continuous footings may be designed with an allowable bearing capacity of 2000 pounds per square foot in bedrock and 1600 pcf in certified fill material. Square pad footings may be designed with an allowable bearing capacity of 2200 pcf in bedrock and 1700 pcf in certified fill material.

6.3 Short-term Seismic or Wind Loads

When designing for short duration wind or seismic loads, the above values can be increased by one-third.

6.4 Seismic Recommendation

The structural design for the site should conform to the most recent 1997 Uniform Building Code requirements for Seismic Zone 4 and the most recent design standards of the Structural Engineers Association of California. Based on the materials encountered and review of the referenced report the following recommendations (next page) are made:

Foundations in Rock

- Soil Profile Type is Ss, UBC 1997, Table 16-J.

- Seismic zone of 4 & Z = 0.4, Table 16-I;
- Seismic source type is B;
- Na= 1.0, UBC 1997, Table 16-S;
- Nv = 1.0, UBC 1997, Table 16-T;
- Ca= 0.40Na, UBC 1997, Table 16-Q;
- Cv = 0.56Nv, UBC 1997, Table 16-R;

Foundations in Fill

- Soil Profile Type is So, UBC 199.7, Table 16-J.

- Seismic zone of 4 & Z = 0.4, Table 16 1;
- Seismic source type is B;
- Na= 1.0, UBC 1997, Table 16-S;
- Nv = 1.0, UBC 1997, Table 16-T;
- Ca= 0.44Na, UBC 1997, Table 16-Q;
- Cv = 0.64Nv, UBC 1997, Table 16-R;

6.5 Slabs-on-Grade

Slabs on the proposed driveway should be a minimum of 4 inches in thickness and reinforced with No.3 bars at 18 inches on-center, each-way. Any interior slabs on grade (in living areas) should be underlain by 10-mil Visqueen plastic moisture barrier with two inches of sand (clean sand with Sand Equivalent of greater than 40) above and below the Visqueen. Slabs on the proposed walkways and patio areas should be a minimum of 4 inches in thickness and reinforced with No.3 bars at 18 inches on-center, each-way. Sawcuts (or cold joints) should be made at maximum of 10 feet intervals each way, with a maximum length to width ratio of'2, on exterior slabs.

6.6 Retaining Walls

6.6.1 Passive Pressure

Passive earth pressure may be computed as an equivalent fluid having a density of 350 pounds per cubic foot (pct), witi.1 a maximum earth pressure of 1800 psf. An allowable coefficient of friction between soil and concrete of 0.35 may be used with dead load forces. When combining passive pressure and friction resistance, the passive pressure component should be reduced by one-third. All of the footings should be a minimum of 18 inches into competent. bedrock, to be approved by project engineer and engineering geologist.

6.6.2 Active Earth Pressure

Active earth pressure may be computed as a11 equivalent fluid having a density of 40 pcf and 54 pcf for level and not steeper than 2Horizontal:1Vertical slope backfill respectively. All of the retaining walls should be designed to resist any adjacent structural surcharge load, in addition to the active or at rest pressure

6.6.3 At Rest Pressure

When movement on top of the retaining wall is restricted (Pinlled or Fixed), at rest pressure may be computed as an equivalent fluid having a density of 58 pounds per cubic foot. For backfill specifics, refer to 6.6.1. Water proofing design and inspection of the retaining structures is beyond the scope of our work.

6.7 Settlement

Subject to implementation of recommendations contained herein, structures may be expected to settle a maximum of three quarters of an inch with a differential settlement of less than one-eighth of an inch over 20 feet horizontal distance. Most of settlement may be expected to occur during construction.

6.8 Type of Cement

Cement to be used in the concrete that is in contact with on-site soils should be determined after the completion of grading operations. In lieu of water-soluble sulfate testing, sulfate resistant cement consisting of Type V cement with minimum compressive strength of 4500 psi and a maximum water to cement ratio of 0.45 should be specified (Table 19-A-4 of Uniform Building Code).

6.9 Temporary Shoring/Bt·acing

For shoring/bracing of temporary cut surfaces steeper than lH: 1V higher than 6 feet, we recommend trapezoidal/triangular distribution of earth pressure. For design detail, please refer to Appendix C, Fig. C-2.

6.10 Surface Drainage Provisions

Positive surface gradients should be maintained away from planned structures, benn areas, etc., such that water is not allowed to flow uncontained on site, and should be contained in approved drainage devices. All pad drainage should be conveyed to approve drainage areas.

7.0 CLOSURE

7.1 Uniformity of Conditions

Tue recommendations and opinions expressed in this report reflect P.A. & Associates best estimate of the project requirements based on an evaluation of the subsurface soil conditions encountered at the subsurface exploration locations and the assumption that the soil conditions do not deviate appreciably from those encountered. It should be recognized that the performance of the foundations and/or cut and fill slopes may be influenced by undisclosed and unforeseen variations in the soil conditions that may occur in intennediate and unexplored subsurface areas. Any unusual conditions not covered in this report that may be encountered during grading and construction should be brought to the immediate attention of the Soils Engineer and/or Engineering Geologist so that we may make modifications to our recommendations if necess;iry.

7.2 Time Limitations

Tue findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the state-of-the-art and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a period of one year without a review by us verifying the validity of the herein contained conclusions and recommendations.

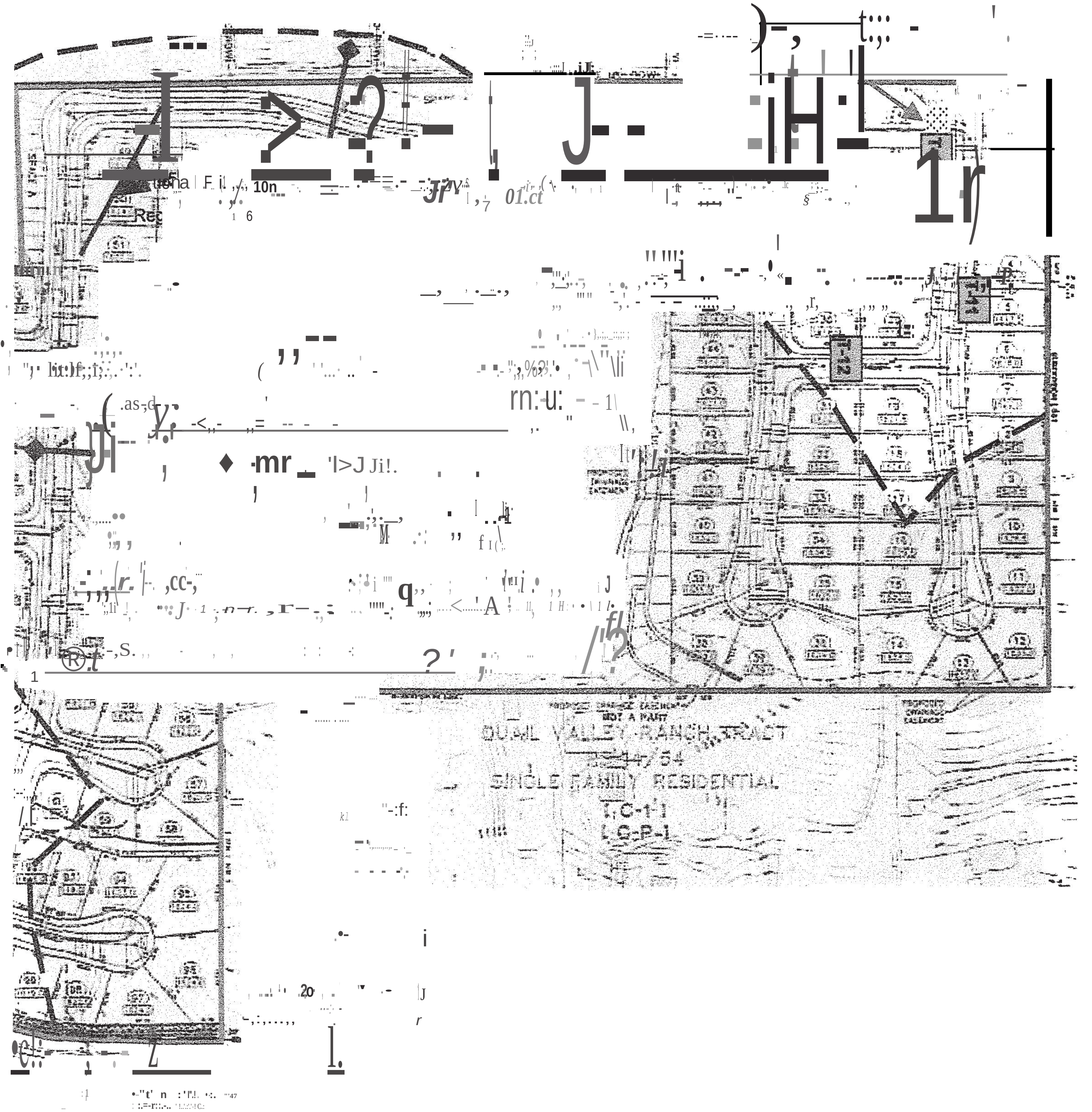
7.3 Professional Standard

In the perfonnance of our professional services, P.A. & Associates complies with the standard of care and skill nonnally exercised under similar circumstances by members of our profession currently practicing under similar conditions in the same or similar localities. Tue client recognizes that subsurface conditions may vary from those encountered at the locations where our borings, surveys and explorations are made? and that P.A. & Associates data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data, interpretations and recommendations, but shall not be responsible for the interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty is expressed, implied, or intended in connection with the work performed by us, by the furnishing of oral or written reports or findings.

TRENCH LOCATIONS
&
CROSS SECTION

APPENDIX A

TRENCH LOGS



Reference: Site Plan by NORRIS-REPKE Engineers & Land Surveyors, Tustin, CA

Scale: 0 400 (Approx.)

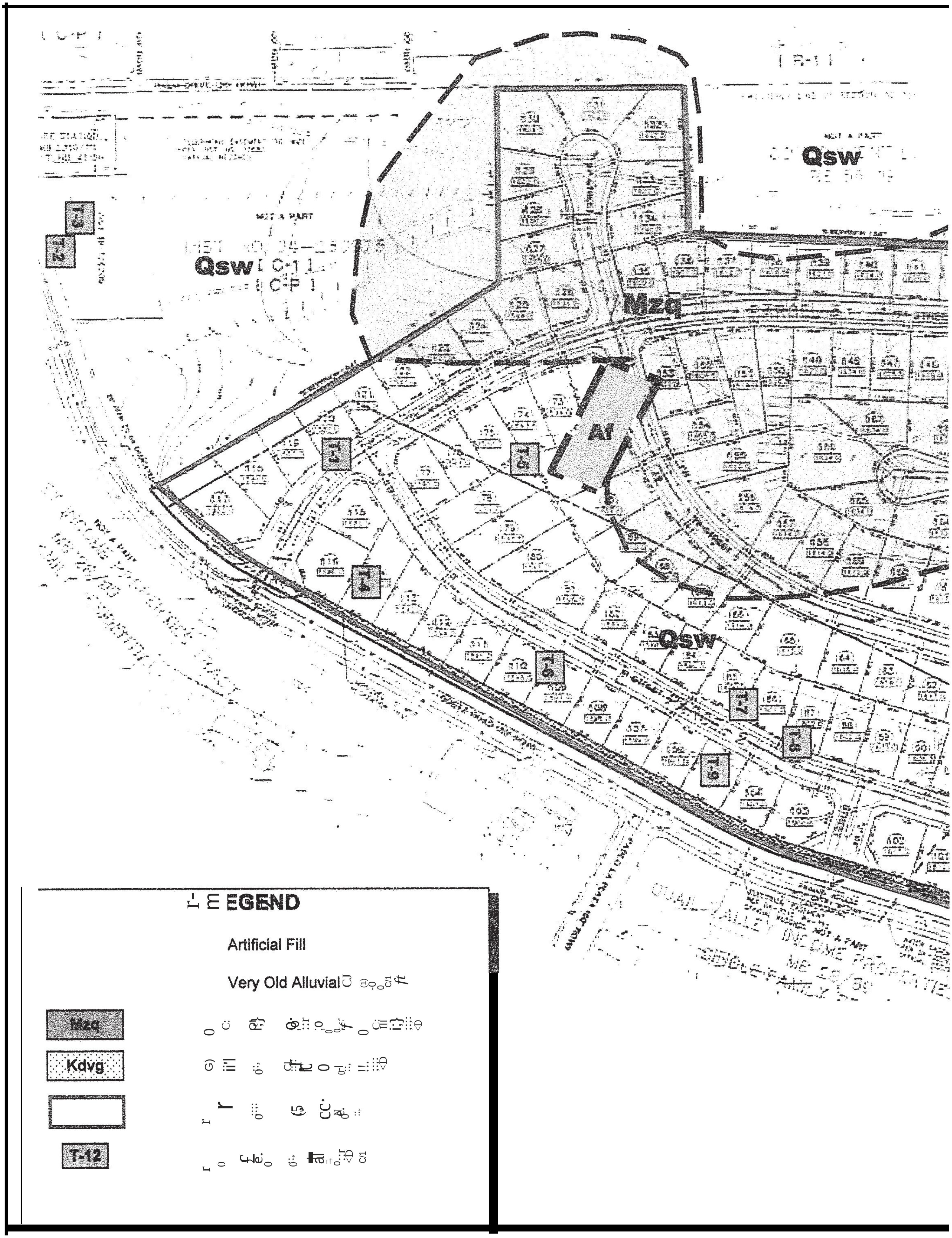
N

P. A & ASSOCIATES, INC.

TITLE:	**GEOLOGICAL MAP**		
PROJECT:	Quail Valley Site No. 2, Riverside County, CA		
PROJECT NO:	**24131-102**	DATE: **11/30/05**	BY: **MM**

FIGURE NO.:

A-1-1



Qsw
Qsw
Qsw
Mzq
Af
T-1
T-2
T-3
T-4
T-5
T-6
T-7
T-8
T-9
NOT A PART
LEGEND
Artificial Fill
Very Old Alluvial
Mzq
Kdvg
T-12

Follat;or (Refe,e,ce 4)

m is er.countered during grading.

-r-

I

ided by Norris-Repke, Engineers and Land Surveyors

rox.)

FIGURE NO.:

OTECHNICAL CROSS SECTIONS

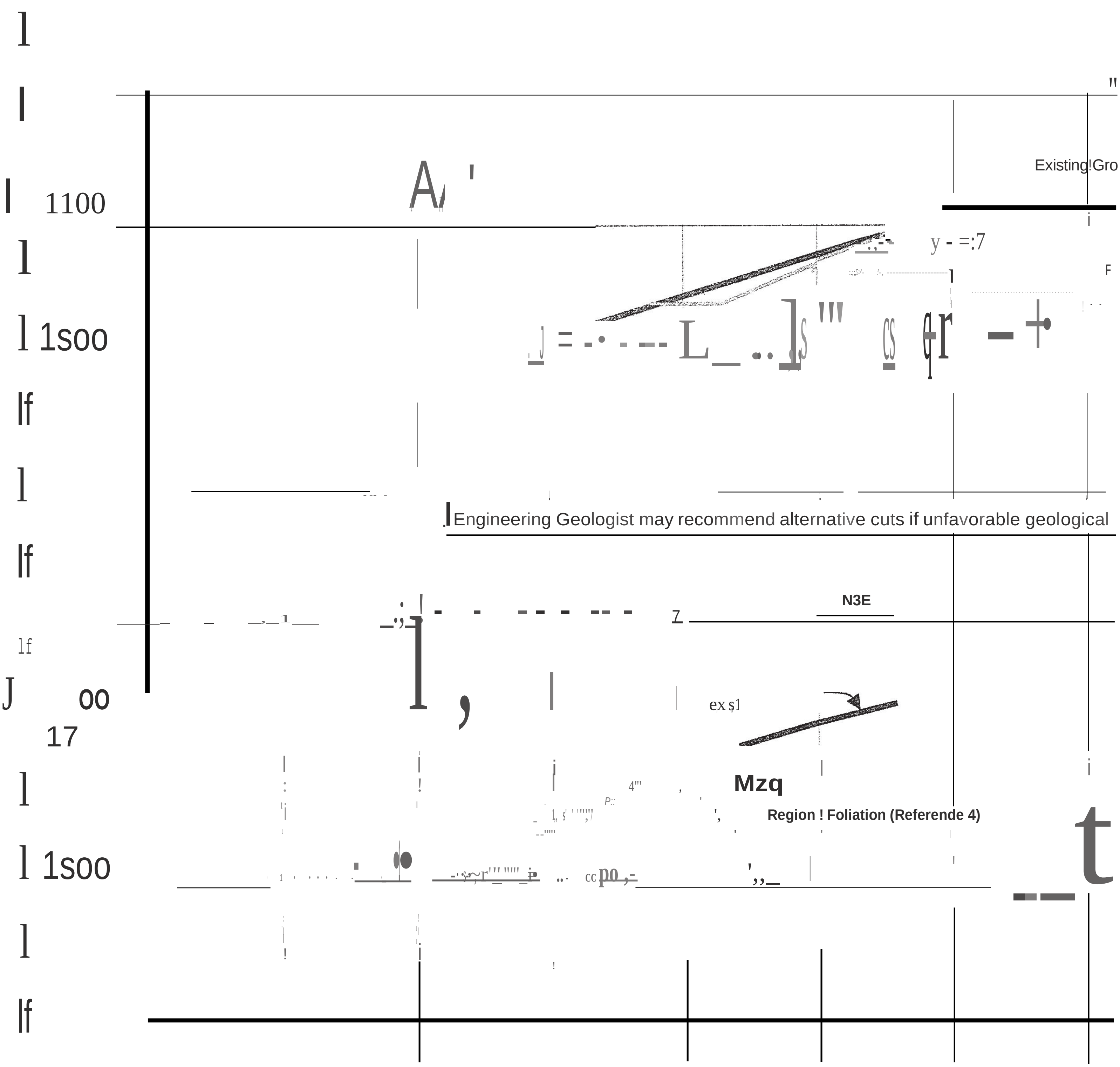
I Valley Site No. 2, Riverside County, CA

A-1-2

-102

DATE: 11/30/2005

BY: JR



LEGEND

SEE FIGURE A-1-1

Reference:	**Site Plan p**
Scale:	**1" =100 ft. (**
TITLE:	(
PROJECT:	
PROJECT NO:	12,

APPENDIX A-1

FIELD EXPLORATION

Subsurface Exploration

The site exploration program was perfonned on the dates shown on the accompanying record of field exploration log sheets. Subsurface exploration was conducted in order to visually identify subgrade conditions, sample in-situ moisture and density, and other salient properties. Excavation locations were selected based on the proposed development concept relevance and necessity of subsurface data, and accessibility. The mnnber and depth of these excavations are considered adequate for estimation of subsurface conditions and characteristics, based on the development concept discussed in the text of the accompanying report.

Excavation Log Sheets

Exploration borings are graphically shown on the following log sheets. Each log shows the total depth achieved, the materials encountered, their observed engineering properties, results of correlative laboratory tests, and the presence, if any, of groundwater, and the relative competency of excavation walls.

Classification

Earth materials encountered in the excavations were described in accordance with A.S.T.M. Test Designation D- 2487, visual classification of soils or aggregate rock mixtures, per the Unified Soil Classification System (U.S.C.S.). This classification system is explained on Page A-2 of Appendix A.

Sampling

Selected samples from these excavations were collected on site and transported to the laboratory in sealed containers in order to preserve field conditions. Relatively undisturbed E:nnples for in-place soil moisture, density, shear strength, swell and/or consolidation potential were contained utilizing driven steel tubes or brass rings. Bulk samples were also obtained for determination of maximum density and optimum moisture, as well as for preparation of removed samples for selected laboratory tests. Laboratory testing procedures are described in Appendix B-1. Laboratory test results are shown on the accompanying log sheets, commencing with Figure A-3, and are shown in table fonnat beginning with Figure B-2 in Appendix B.

Use of Logs

Subsurface data depicted on the accompanyfr1g logs represent subgrade conditions relevant to the specific location and date shown on Figure A-1-1 and the log sheets, respectively. Between exploratory excavations, subsurface conditions can and do change with respect to vertical and lateral extent, subsequent precipitation, land use, and other conditions. Interpretation of these logs by others is solely at the risk of the user. These logs document conditions which were used, in part, to form the basis of findings, conclusions and recommendations presented in the text of the accompanying report, and may have no relevance to other applications.

APPENDIX A-2

UNIFIED SOIL CLASSIFICATION SYSTEM

COARSE GRAINED SOILS (More than 50 percent of material is LAR.GER than No. 200 sieve size.)

GW Well-graded gravel, gravel-sand mixtures, little or no fines

GP Poorly graded gravel or gravel-sand mixtures, little or no fines

GM Silty gravel, gravel-sand-silt mixtures

GC Clayey gravel, gravel-sand-clay mixtures

SW Well-graded sands, gravelly sands, little or no fines

SP Poorly graded sands or gravelly sands, Iit'Je or no fines

SM Silty sands, sand-silt mixtures

SC Clayey sands, sand-clay mixtures

FINE GRAINED SOILS (More thaIJ 50 percent of material is S?v1ALLER than '.200 sieve size)

:ML Inorganic Silts and very fine sands, rock flmir, silty or clayey fine sands or clayey silts with slight plasticity

CL Inorganic clays oflow to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

OL Organic silts and organic silty clays of low plasticity

MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts

CH Inorganic clays of high plasticity, fat clays

OH Organic clays of high plasticity, organic silts

Pt Peat and other highly organic soils

Boundary Classifications: Soils possessing characteristics of two groups are designated by combinations of group symbols.

Particle Size Limits

< No. 200	Silt or Clay
No. 200 to No. 40	Fine Sand
No. 40 to No. IO	Medium Sand
No. 10 to No. 4	Coarse Sand
No. 4 to 3/4 inch	Fine Gravel
3/4 inch to 3 inch	Coarse Gravel
3 inch to 12 inch	Cobbles
> 12 inches	Boulders

Date:	9/19/2005	Logged By:	JR	Equipment:	Backhoe	Sheet:	1 of 1	Trench No:	T-1
Location:	see Fig. A-1-1	Engineer:	PA	Hammer:	NA	Groundwater:	Not Encountered	Total Depth:	2 ft.

ri !:: S=e M :re Dry i°! :\}:/{)\f{) :} ¥:ti #:f#.@i i#:{) :}} {))) :}}

Laboratory Test Results

·:-; SM Slopewash-Sllty Sand w/some Gravel, reddish brown, damp, loose, fine-grained, some roots.

jBedrock -**Quartzite,** red.dish brown, damp. hard, highly fractured.

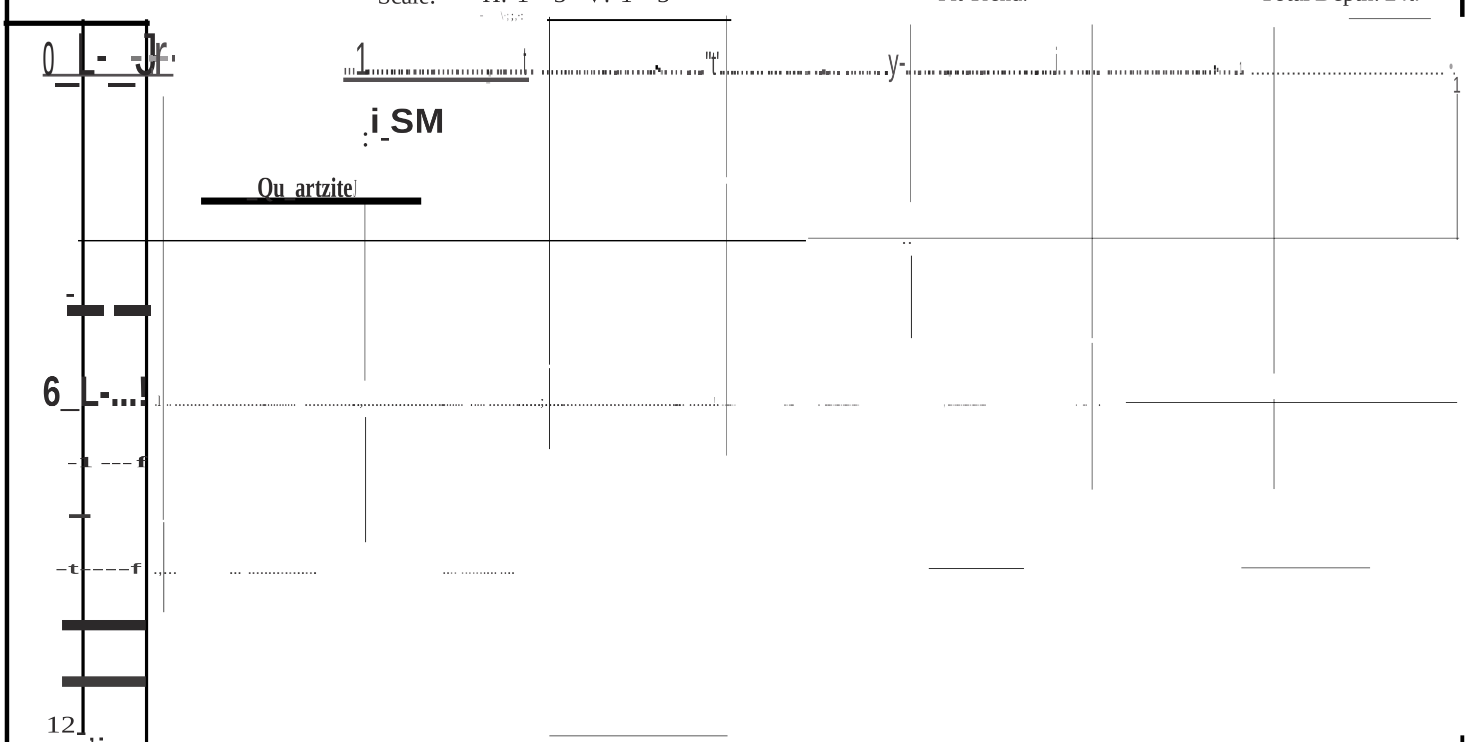
5

10

Scale: H: 1"=3' V: 1"=3'

Pit Trend:

Total Depth: 2 ft.



NOTE: Please refer to Figure A-2 for Explanation of symbols.

P A & ASSOCIATES, INC.

TITLE: LOG OF EXPLORATORY TRENCH

PROJECT: Quail Valley Site No. 2 Riverside County, CA

PROJECT NO: 24t3t to DATE: t0/26/20 lsv: JR

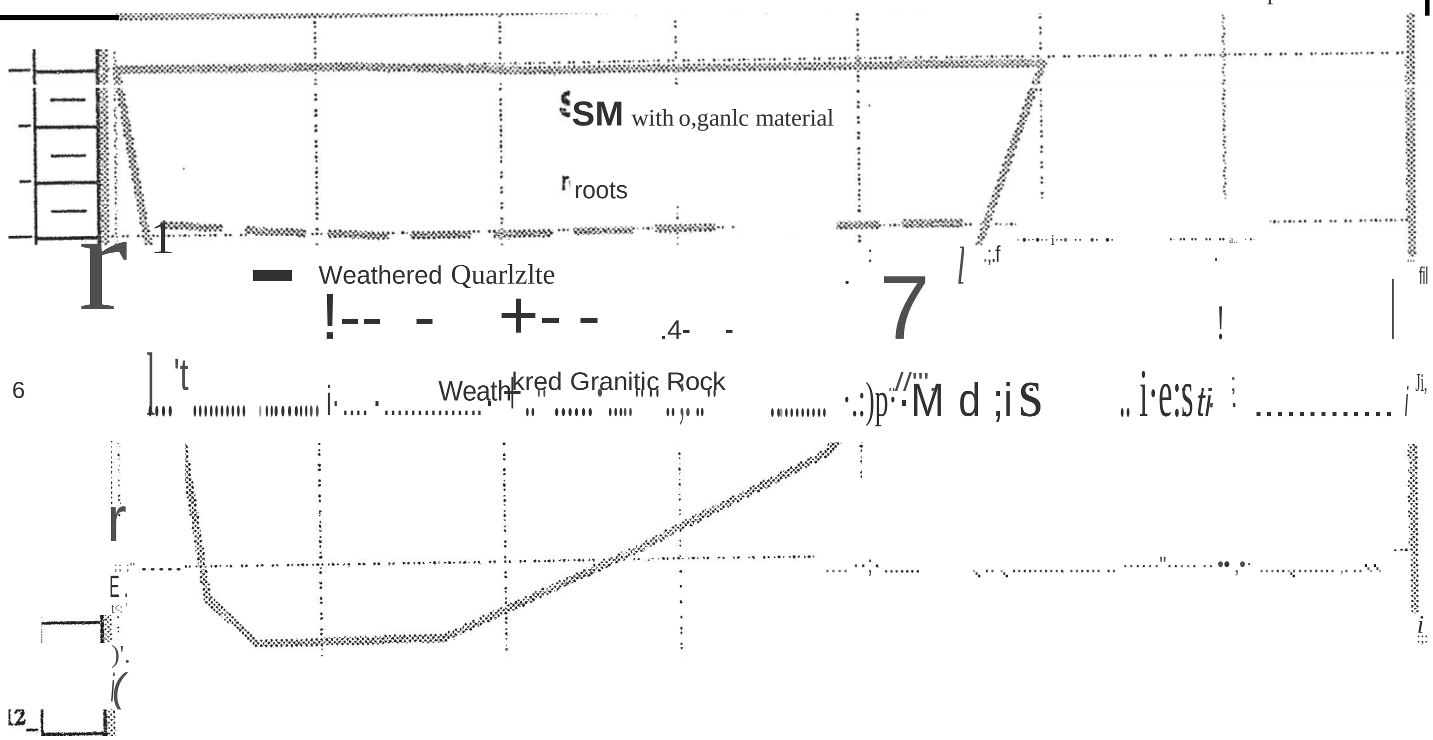
FIGURE NO.:

A-3

Date: 9/19/2005	Logged By: JR	Equipment: Backhoe	Sheet: 1 of 1	Trench No: T-2
Location: see Fig. A-1	Engineer: PA	Hammer: NA	Groundwater: Seepage @ 6.5 ft.	Total Depth: 10.5 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	Soil Class	Description	Laboratory Test Results
						SM	Alluvium - Silty Sand, dark brown, moist, loose, fine-grained, some roots, organic content	
							Bedrock - weathered Quartzite, reddish brown, moist, hard, highly fractured.	
5							Highly weathered Granitic Rock, light gray, medium grained, moist to very moist.	
							moderate seepage at 6.5 ft.	
10								
							Refusal at 10.5 ft.	

Scale: H: 1" =3' V: 1" =3' Pit Trend: E-W Total Depth: 10.5 ft.



NOTE: Please refer to Figure A 2 for Explanation of symbols.

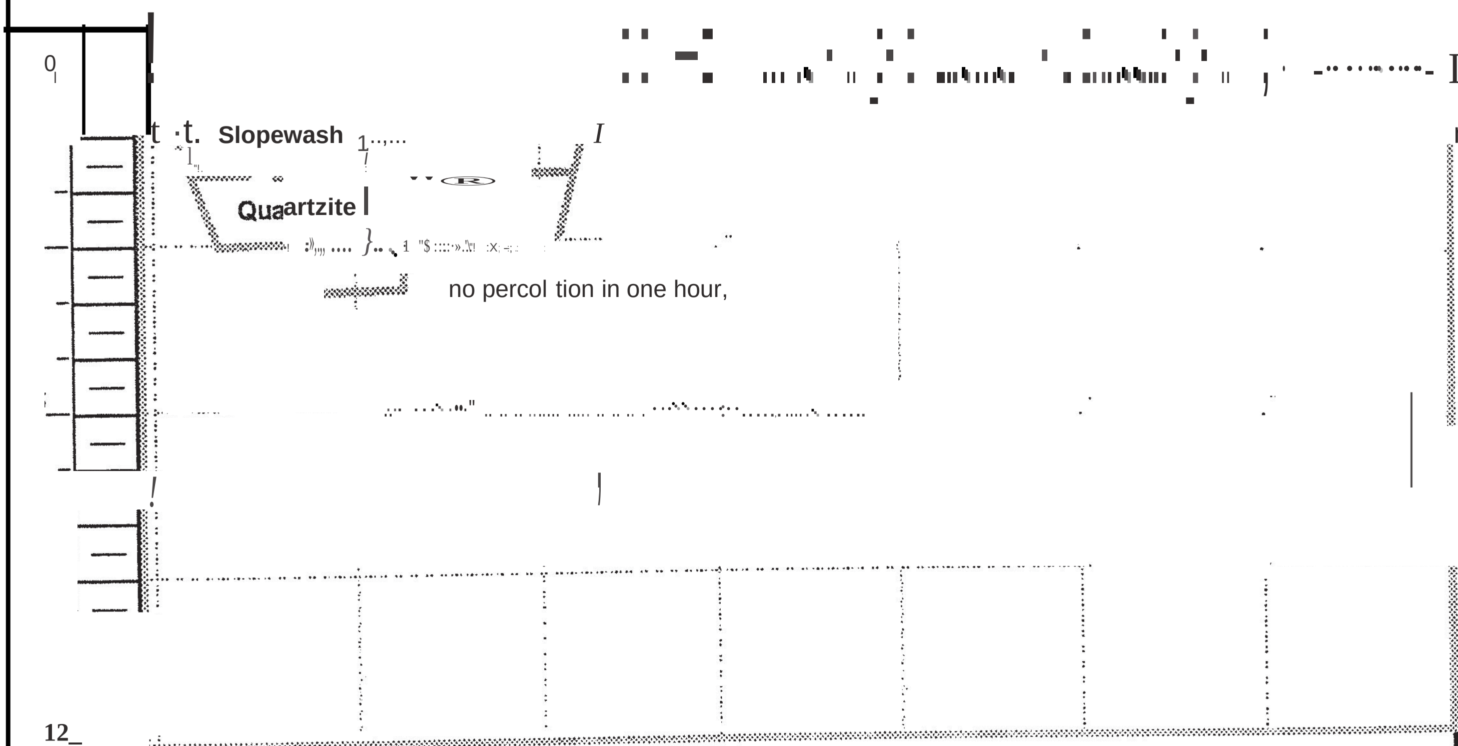
P A & ASSOCIATES, INC.

TITLE:	LOG OF EXPLORATORY TRENCH	FIGURE NO.:
PROJECT:	Quail Valley Site No. 2, Riverside County, CA	A-4
PROJECT NO:	24131-IOZ DATE: 10/26/2005 BY: JR	

Date:	JR	Equipment: Backhoe	Sheet: 1 of 1	Trench No: T-3
Location: .. e Fig. A-1-1	Engineer: PA	Hammer: NA	Groundwater: Not Encountered	Total Dep_th: 4 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	Soil Class	Description	Laboratory Test Results
						SM	Slopewash - Silty Sand w/some Gravel, reddish brown, damp, loose, fine-grained, some roots.	
							Bedrock - **Quartzite,** reddish brown, damp, hard, highly fractured.	
5								
10								

Scale: H: 1" =3' V: 1" =3' Pit Trend: Total Depth: 4 ft.



NOTE: Please refer to Figure A-2 for Explanation of symbols.

P A & ASSOCIATES, INC	TITLE: LOG OF EXPLOR.i.\.TORY TRENCH	FIGURE NO.: A-5
	PROJECT: Quail Valley Site No. 2, Riverside County, CA	
	PROJECT NO: 24131-102 DATE: 10/26/2005 BY: JR	

Date: /19/2005	Logged By: JR	Equipment: Backhoe	Sheet: 1 of 1	Trench No: T-4
Location: Fig. A-1	Engineer: PA	Hammer: NA	Groundwater: Not Encountered	Total Depth: 1 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	Soil Description	Laboratory Test Results
						SM Slopewash **-Silty Sand w/some Gravel,** reddish brown, damp, loose, fine-grained, some roots.	
						Bedrock - **Quartzite,** reddish brown, damp, hard, highly fractured.	
5							
10							

Scale: H: 1" =3' V: 1" =3' Pit Trend: Total Depth: 1 ft.

0

Slopewash

5

12

NOTE: Please refer to Figure A-2 for explanation of symbols.

TITLE:	**LOG OF EXPLORATORY TRENCH**	FIGURE NO.:
PROJECT:	Quail Valley Site No. 2, Riverside County, CA	A-6
PROJECT NO:	24131-102 DATE: 10/26/2005 BY: JR	

P A & ASSOCIATES, INC

Date: 9/19/2005	Logged By: JR	Equipment: Backhoe	Sheet: 1 of 1	Trench No: T-5
Location: see Fig. A-11	Engineer: PA	Hammer: NA	Groundwater: Not Encountered	Total Depth: 2 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log		Description	Laboratory Test Results
						SM	Slopewash - **Silty Sand w/soma Gravel,** reddish brown, damp, loose, fine-grained, some roots.	
							Bedrock - Quartzite, reddish brown, damp, hard, highly fractured.	
5								
10								

Scale: H: 1" =3' V: 1" =3'

Pit Trend:

Total Depth: 2 ft.

0

Quartzite

6

12

NOTE : Please refer to Figure A-2 for Explanatiotl of symbols.

P A & ASSOCIATES, INC.

TITLE:	LOG OF EXPLORATORY TRENCH	FIGURE NO.: A-7
PROJECT:	Quail Valley Site No. 2, Riverside County, CA	
PROJECT NO:	24131-102 DATE: 10/26/2005 BY: JR	

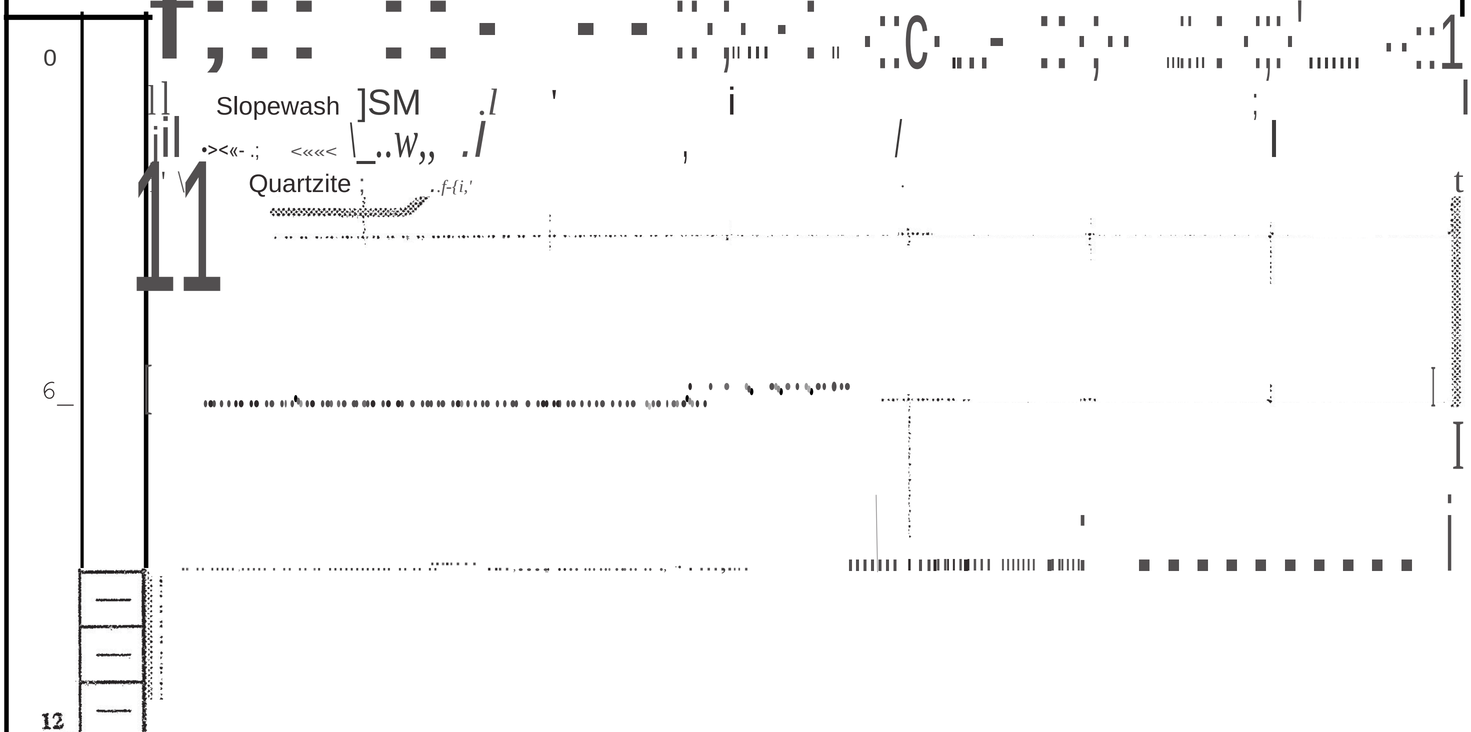
Date:	JR	Equipment:	Backhoe	Sheet:	1 of 1	Trench No:	T-6
Location: see Fig. A-1-1	Engineer: PA	Hammer:	NA	Groundwater:	Not Encountered	Total Depth:	2.5 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	USCS	Description	Laboratory Test Results
						SM	Slopewash - Slity Sand, reddish brown, damp, loose, fine-grained, some roots.	
							Bedrock - Quartzite, reddish brown, damp, hard, highly fractured.	
5								
10								

Scale: H: 1" .3• V: 1" =3'

Pit Trend:

Total Depth: 2.5 ft.



NOTE: Please refer to Figure A-2 for Explanation of symbols.

	TITLE:	LOG OF EXPLORATORY TRENCH	FIGURE NO.:
P A & ASSOCIATES, INC	PROJECT:	Quail Valley Site No. 2, Riverside County, CA	A-8
	PROJECT NO:	24131-102 DATE: 10/26/2005 BY: JR	

Date: 9/19/2005	Logged By: JR	Equipment: Backhoe	Sheet: 1 of 1	Trench No: T-7
Location: Fig. A-1-1	Engineer: PA	Hammer: NA	Groundwater: Not Encountered	Total Depth: 2 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log		Laboratory Test Results
						SM	Slopewash - **Silty Sand,** reddish brown, damp, loose, fine-grained, some roots.
							Bedrock- Quartzite, reddish brown, damp, hard, highly fractured.
5							
10							

Scale: H: 1" =3' V: 1" =3'

Pit Trend:

Total Depth: 2 ft.

0

Slopewash :SM

6

12

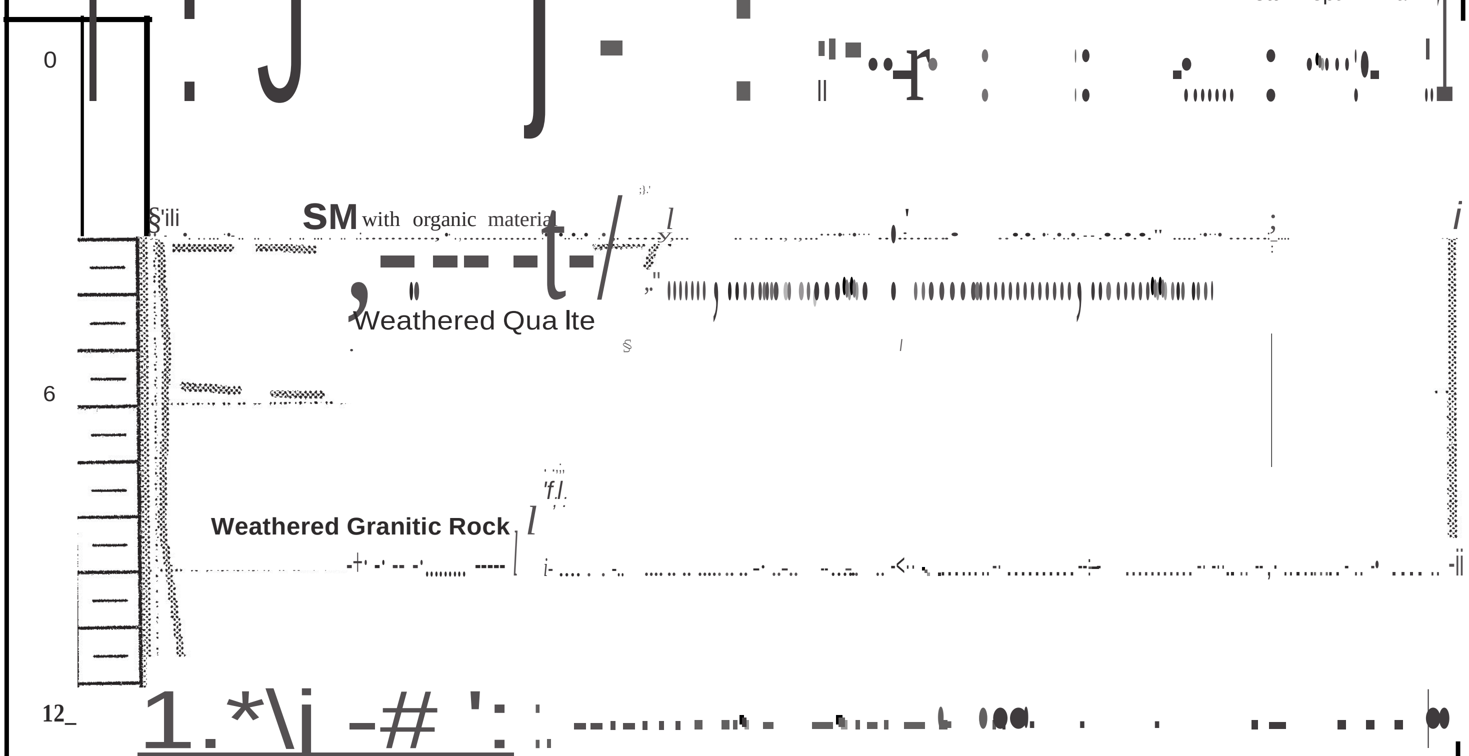
NOTE: Please refer to Figure A-2 for Explanation of symbols.

			FIGURE NO.:
P A & ASSOCIATES, INC	TITLE:	LOG OF EXPLORATORY TRENCH	A-9
	PROJECT:	Quail Valley Site No. 2, Riverside County, CA	
	PROJECT NO:	24131-102 DATE: 10/26/2005 BY: JR	

Date: JR	EQUipment: Backhoe	Sheet: 1 of 1	Trench No: T-8
Location: see Fig. A-H / Engineer: PA	H r: NA	Groundwater: Not Encountered	Total Depth: 12 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	Soil Class	Description	Laboratory Test Results
						SM	Alluvium - Silty Sand, dark brown, moist, loose, fine-grained, some roots, organic content.	
5							Bedrock • weathered Quartzite, reddish brown, moist, hard, highly fractured.	
							Highly weathered Granitic Rock, light gray, medium grained, moist.	
10							Refusal at 12 ft.	

Scale: H: 1" =3' V: 1" =3'   Pit Trend: E-W   Total Depth: 12 ft.



NOTE: Please refer to Figure A-2 for Explanation of symbol.

P A & ASSOCIATES, INC.

TITLE:	LOG OF EXPLORATORY TRENCH	FIGURE NO.:
PROJECT:	Quail Valley Site No. 2, Riverside County, CA	A-10
PROJECT NO:	24131-102 DATE: 10/26/1,005 BY: JR	

Date: '19/2005	Logged By: JR	Equipment: Backhoe	Sheet: 1 of 1	Trench No: T-9
Location: ... Fig. A-1	Engineer: PA	Hammer: NA	Groundwater: Not Encountered	Total Depth: 4 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	S C	Description	Laboratory Test Results
						SM	Slopewash -Silty Sand, reddish brown, damp, loose, fine-grained, some roots.	
							Bedrock - Quartzite, reddish brown, damp, hard, highly fractured.	
5								
10								

Scale: H: 1" =3' V: l" =3'

Pit Trend:

Total Depth: 4 ft.

0

1 no percolation iM one hour

6

12

NOTE: Please refer to Figure A-2 for Explanation of symbols.

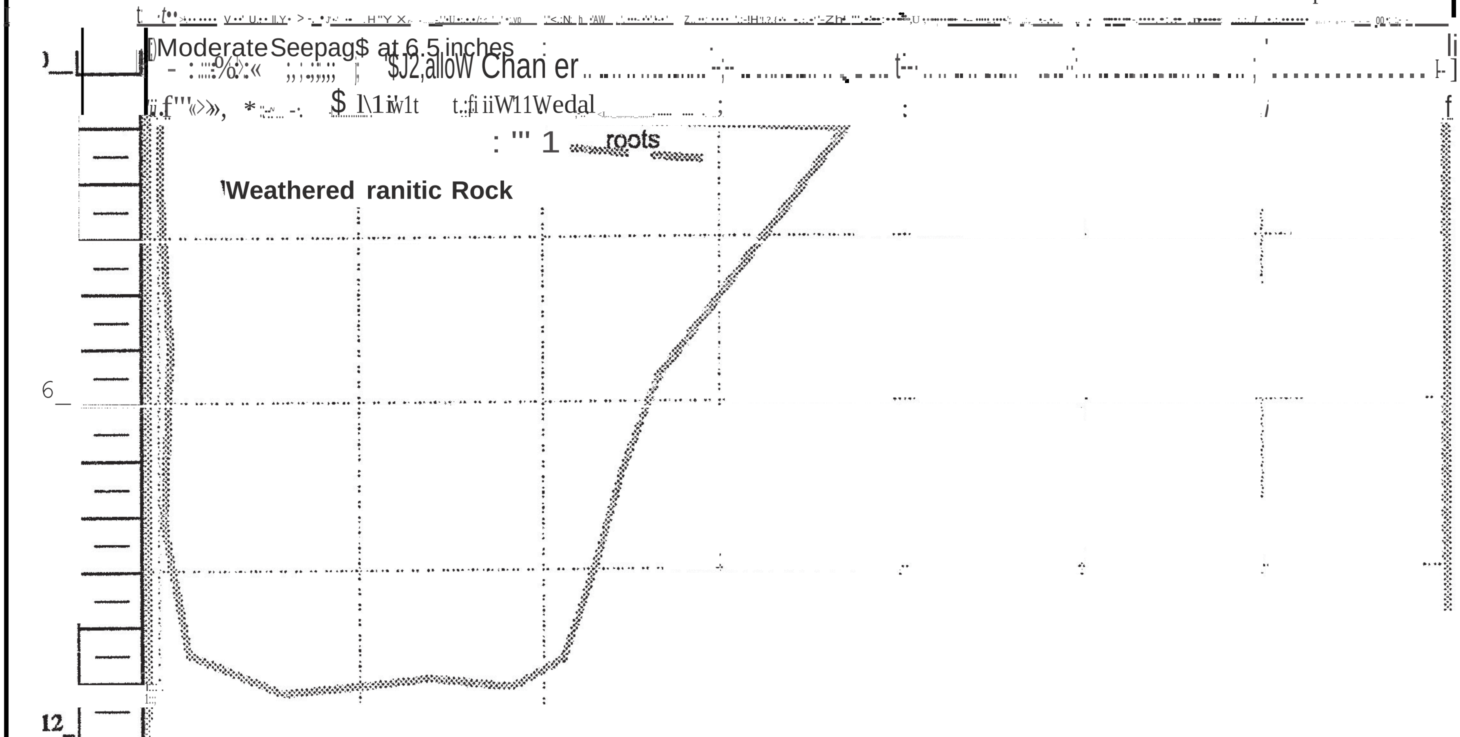
P A & ASSOCIATES, INC.

TITLE:	LOG OF EXPLORATORY TRENCH	FIGURE NO.:
PROJECT:	Quail Valley Site No. 2, Riverside County, CA	A-11
PROJECT NO:	24131-102 DATE: 10/26/2005 BY: JR	

Date:	9/19/2005	Logged By:	JR	Equipment:	Backhoe	Sheet:	1 of1	Trench No:	T-10
Location:	see Fig. A-1-1	Engineer:	PA	Hammer:	NA	Groundwater:	Seepage @ 6 inche	Total Depth:	11 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	USCS	Material Description	Laboratory Test Results
						SM	Alluvium **-Silty Sand,** dark brown, moist, loose, fine-grained, some roots, c content.	
5							Bedrock - Highly weathered Granitic Rock, light gray, medium grained, moist.	
10							Refusal at 11 ft.	

Scale: H: 1" =3' V: 1" =3' Pit Trend: E-W Total Depth: 11 ft.



NOTE: Please refer to Figure A-2 for Explanation of symbols.

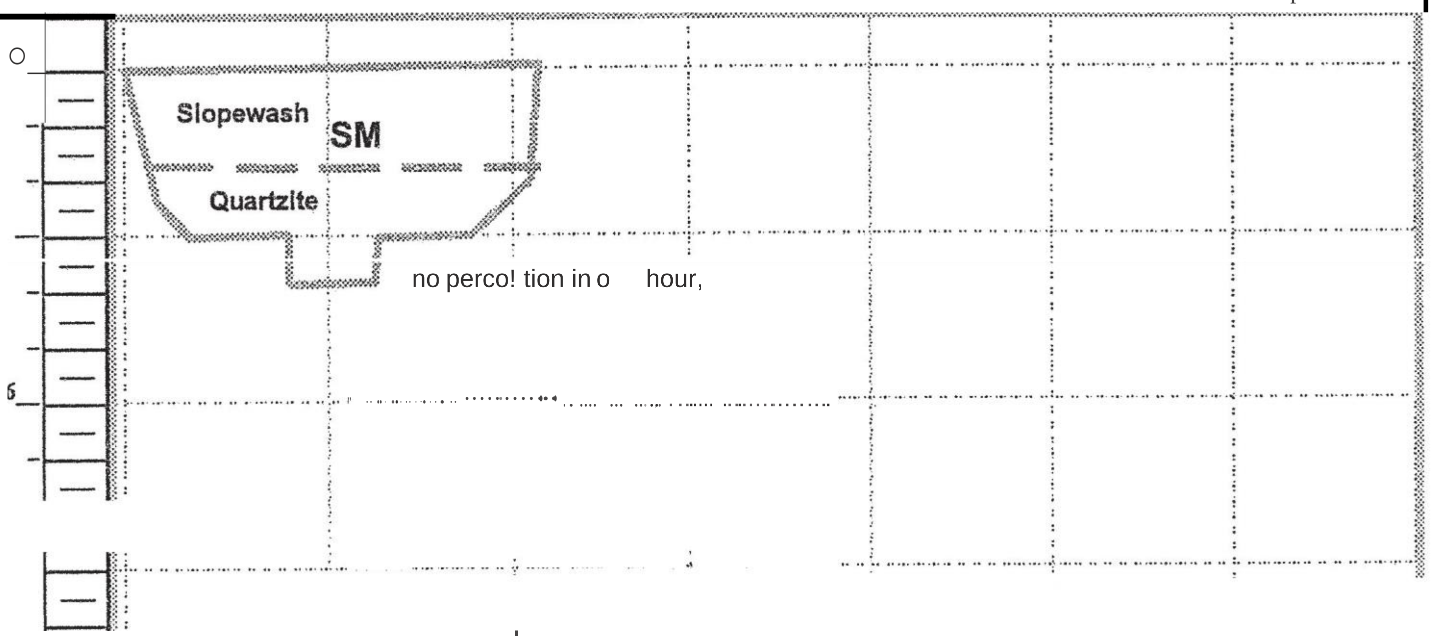
P A & ASSOCIATES, INC

TITLE:	LOG OF EXPLORATORY TRENCH		FIGURE NO.:
PROJECT:	Quail Valley Site No. 2, Riverside County, CA		A-12
PROJECT NO:	24131-102	DATE: 10/26/2005 BY: JR	

Date:	JR	Equipment: Backhoe	Sheet: 1 of 1	Trench No: T-11
Location: see Fig. A•l•l	Engineer: PA	Hammer: NA	Groundwater: Not Encountered	Total Dei-ith.: 4ft.

Depth (ft.)	Blow Count	Sample Type	Moi5ture (%)	Dry Density	Visual Log	Description	Laboratory Test Results
						SM SI -Silty Sand w/some Gravel, reddish brown, damp, loose, fine-grained, some roots.	
						Bedrock - Quartzite, reddish brown, damp, hard, highly fractured.	
5							
10							

Scale: H: l" =3' V: 1" =3' Pit Trend: Total Depth: 4 ft.



12

NOTE: Please refer to Figure A-2 for Explanation of symbols.

P A & ASSOCIATES, INC

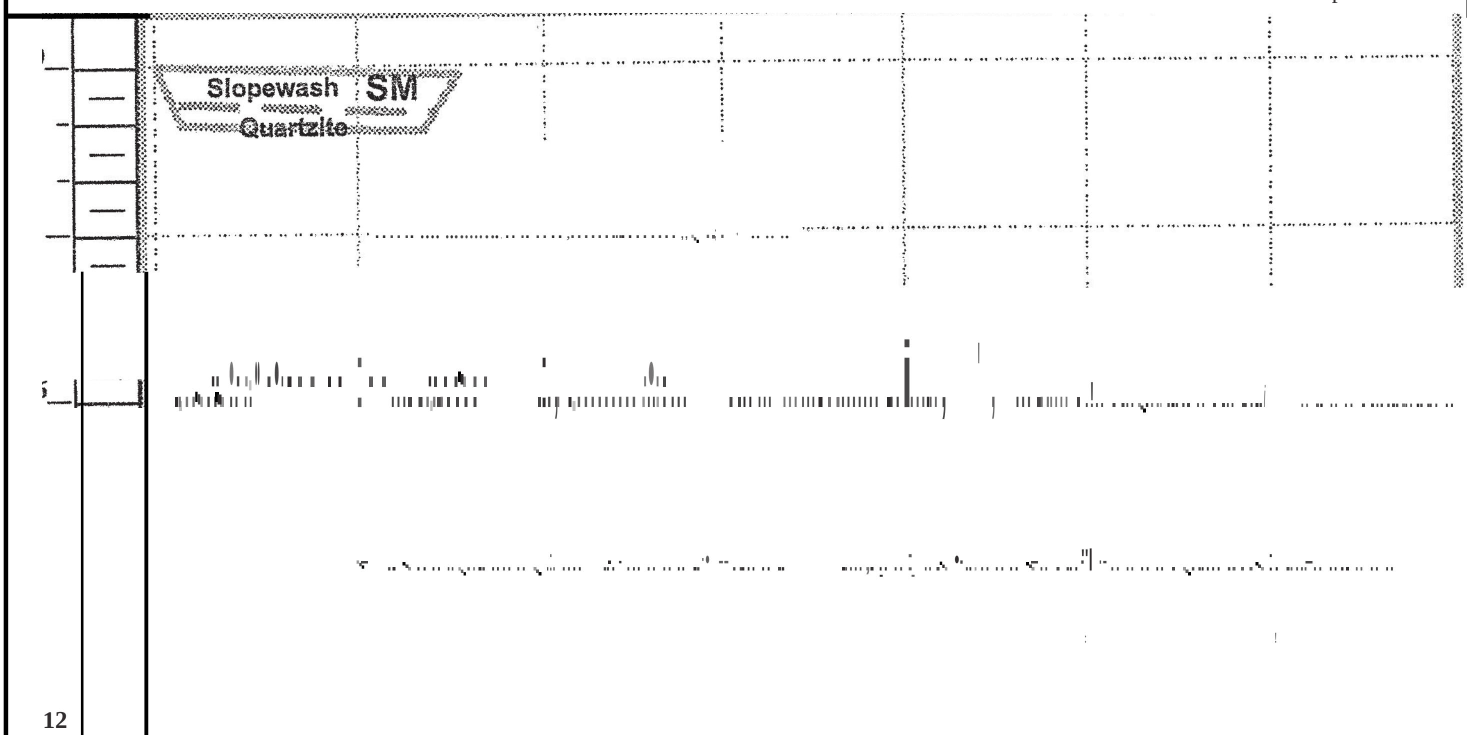
TITLE:	LOG OF EXPLORATORY TRENCH
PROJECT:	Quail Valley Site No. 2, Riverside County, CA
PROJECT NO:	24131-102 DATE: 10/26/200S BY: JR

FIGURE NO.: A-13

Date:	JR	Equipment: Backhoe	Sheet: .1 of l	!Trench No: T-12
Location: see Fig. A-1-1	Engineer: PA	Hammer: NA	Groundwater: Not Encountered	l'I'o_tll Depth: 1 ft.

Depth (ft.)	Blow Count	Sample Type	Moisture (%)	Dry Density	Visual Log	S C	i:s \:/ }!:{{ }}}}[) f f i §#. #?{ /}}\}}} }/i\1	Laboratory Test Results
						SM	Slopewash -Silty Sand w/some Gravel, reddish brown, damp, loose, fine-grained, some roots.	
							Bedrock - Quartzite, reddish brown, damp, hard, highly fractured.	
5								
10								

Scale: H: l" =3' V: 1" =3' Pit Trend: Total Depth: 1 ft.



12

NOTE: Please refer to Figure A-2 for Ex!)laoation of symbols.

P A & ASSOCIATES, INC.

TITLE:	LOG OF EXPLOR.4..TORY TRENCH	FIGURE NO.:
PROJECT:	Quail Valley Site No. 2, Riverside County, CA	A-14
PROJECT NO:	24131-102 DATE: 10/26/2005 BY: JR	

APPENDIXB

LABORATORY TESTING

APPE:f\4'DIX B-1

LABORATORY TESTING PROGRAM

Laboratory tests were performed on selected samples in accordance with one or more of the standard testing methods shown below. A summary of laboratory test results follows, beginning with Appendix B-2. Discussion, conclusions a.11d recommendations pertaining to these results may be found in the text of the accompanying report.

Unified Building Code

No. 18-2 Expansion Potential

State of California
Department of Transportation
(CALTRANS)

No. 216 In-Place Soil Density
No. 301 Resistance (R-Value)

American Standards
for Tesfu1g and Materials
(A.S.T.M)

D-420-98(2003) Collection of Field Samples
D-421-85(2002) Grain Size Analysis - Mechanical Method
D-422-63(2002) Grain Site Analysis - Hydrometer Method
D-698-00a Moisture, Density
D-854-02 Specific Gravity
D-1556-00 fu-Place Soil Density - Sand Cone
D-1557-02 Maximum Density and Optimum Moisture
D-1883-99 California Beariiig Ratio
D-4254-00 Relative Density
D-2166-00 Unconfined Compression
D-2216-98 Water Content Detennination
D-2419-79 Sand Equivalence Testing
D-2435-04 Consolidation Testing
D-2487-00 Unified Soil Classification System
D-2937-04 In-Place Soil Density- Driven Tube
D-3080-04 Direct Shear
D-4318-00 Liquid and Plastic Limits and Plasticity Index
D-4253-00 Maximum Index Density

APPENDIX B-2

LABORATORY TEST SUMMARY
(REFERENCE 1)

Maximum Dry Density - Optimum Moisture

Location	Depth	Soil Description (Feet)	Maximum Dry Density	Optimum Moisture
T-1	0-1	Silty fine Sand with trace gravel light reddish brown	118.0 pcf	12.0%

Direct Shear Test

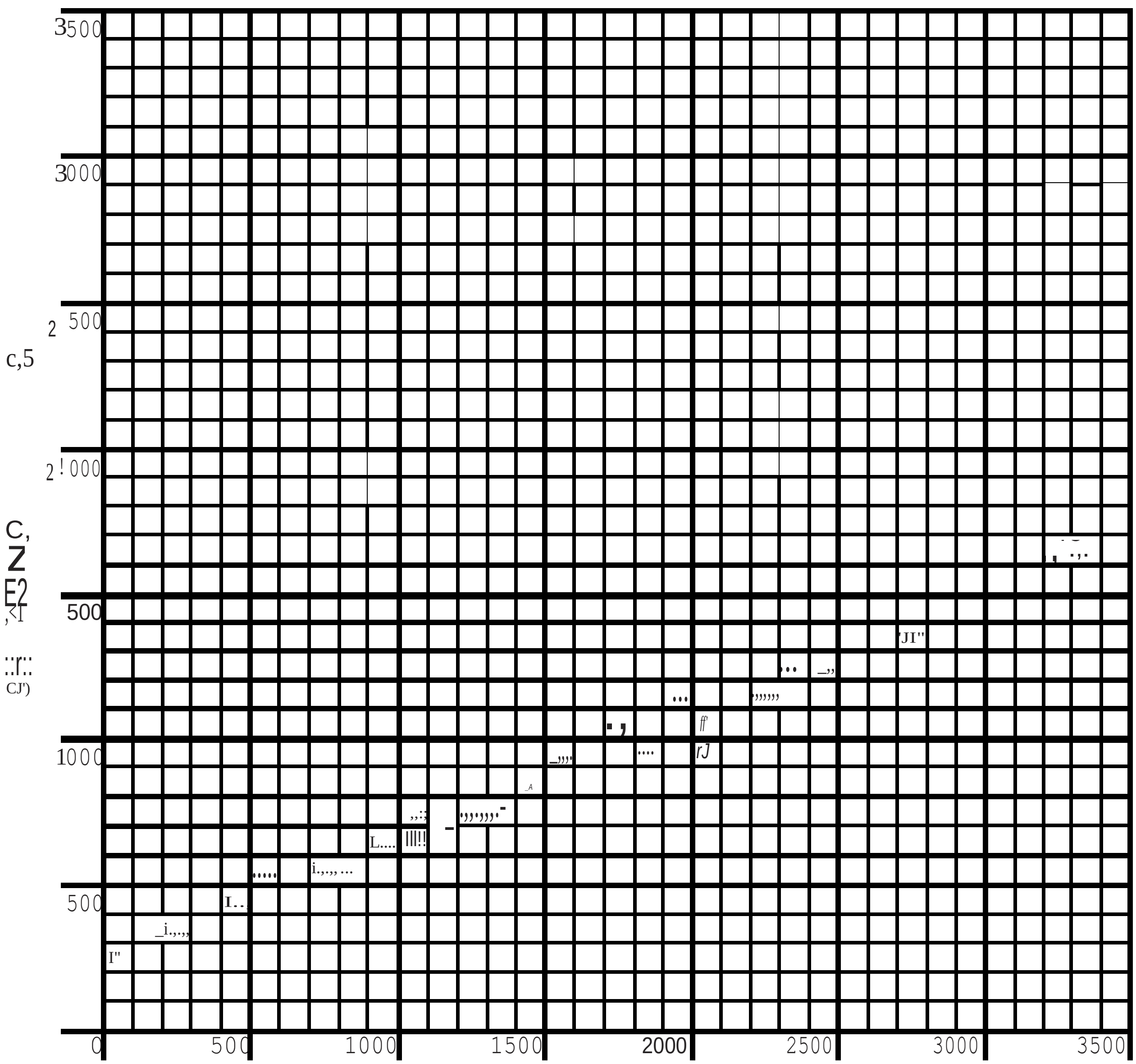
Location	**Depth** (ft)	**Soil Type**	**Internal Friction Angle**	**Cohesion (psi)**
T-1	0-1	Silty fine Sand with trace gravel lt. reddish brown	23 degrees	250
T-1	1-2	Quartzite, lt. reddish brown /gray	38 degrees	200
T-2	5-6	decomposed granitic rock, mediW11	39 degrees	0

Expansion Test Results

Location	**Depth (Feet)**	**Soil Type**	**Expansion Index**	**Expansion Potential**
T-1	0-1	Silty fine Sand with trace gravel lt. reddish brown	8	V.Low

PLATE B-3

DIRECT SHEAR SUMMARY



NORMAL LOAD, P.S.F.

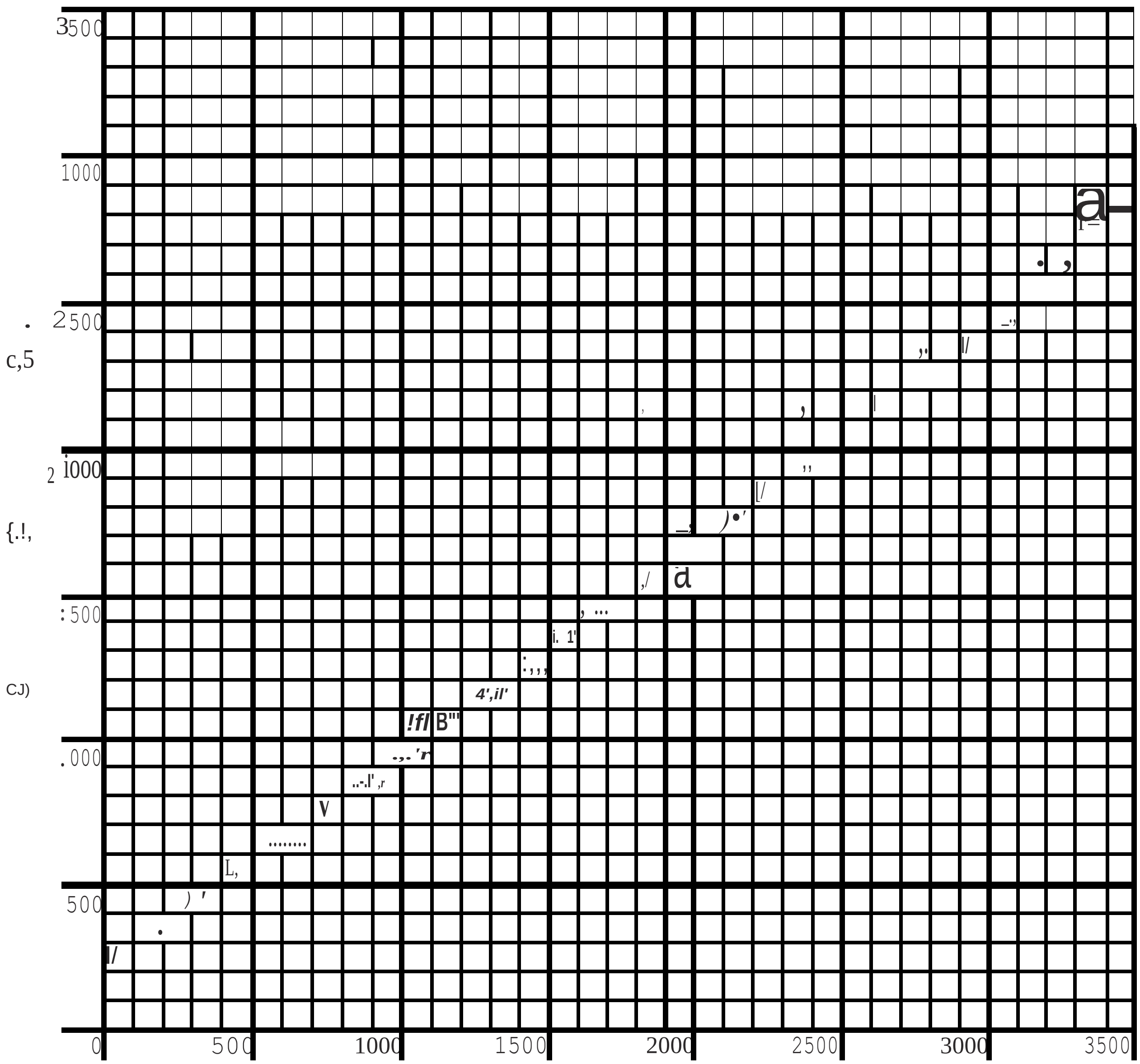
PROJECT NO. 24131-102
CLIENT NAME Norris-Repke
BORING NO. T-1
DEPTH 0 1 ft.
SATURATED NO YES X
UNDISTURBED
REMOLDED TO 9ff%

P. A & ASSOCIATES, INC"

INTERNAL FRICTION ANGLE 23°
COHESION 250 P.S.F.

PLATE B-4

DIRECT SHEARSUMMARY



PROJECT NO. 24131-102
CLIBNTNAME Norris-Repke
BORING NO. T-1
DEPTH 1-2 ft.
SATURATED NO YES x
UNDISTURBED
REMOLDED TO 90%

EI,_A_&_ASSOCIATES, INC.

INTERNAL FRICTION ANGLE 38°
COHESION 200 P.S.F.

APPENDIXC

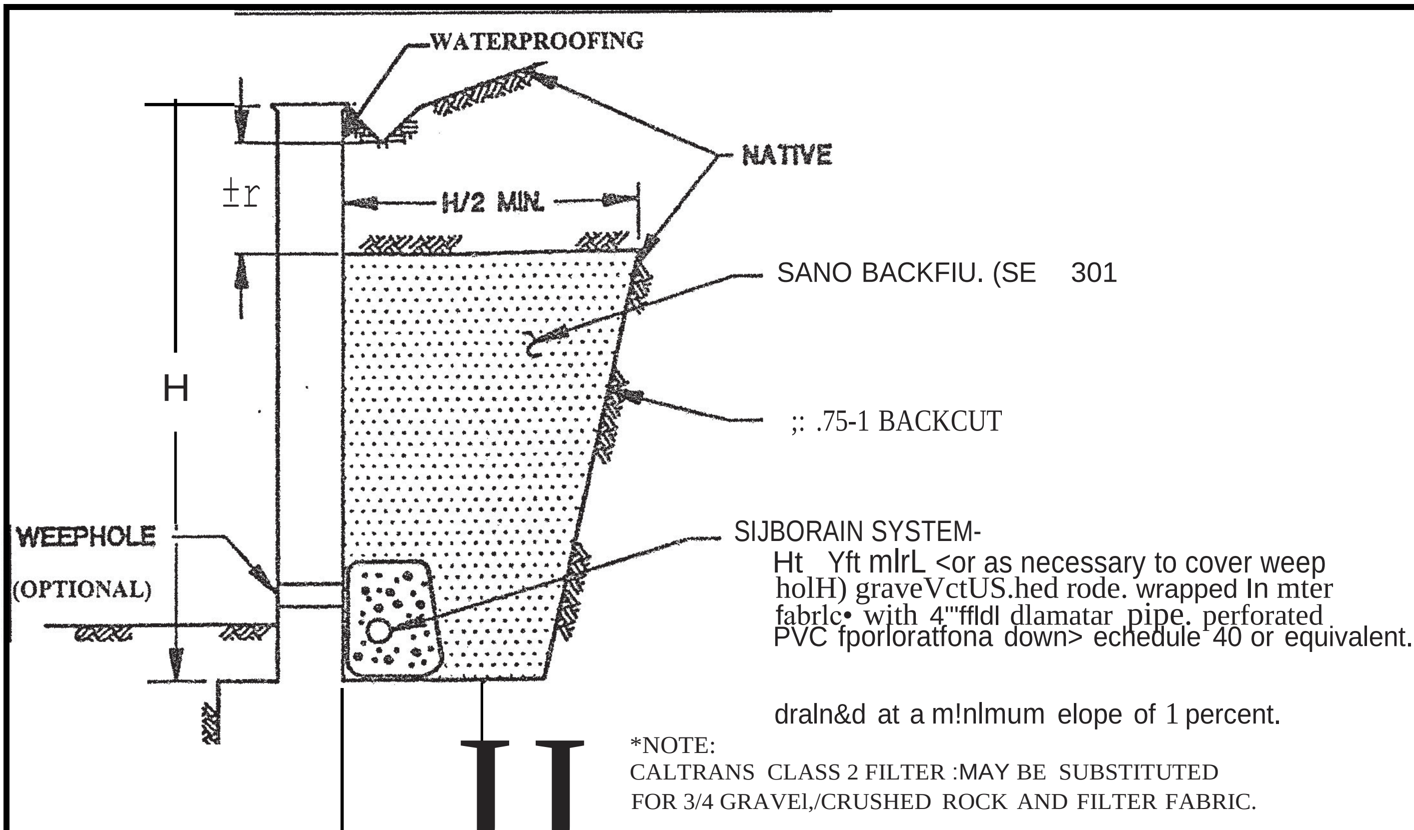
TYPICAL RETAINING WALL BACKFILL DETAIL

&

TEMPORARY SHORING AND BRACING DESIGN

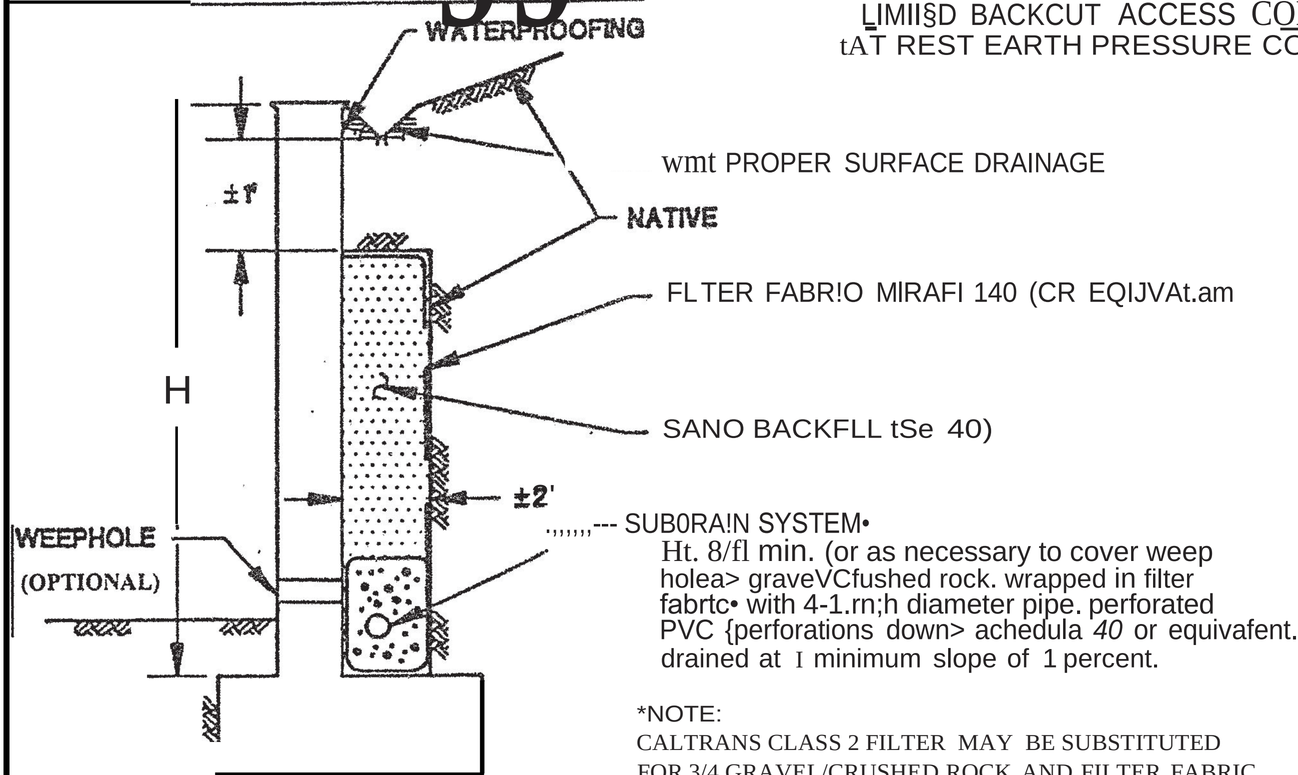
&

OVER SIZE MATERIAL PLACEMENT



*NOTE:
CALTRANS CLASS 2 FILTER :MAY BE SUBSTITUTED
FOR 3/4 GRAVEl,/CRUSHED ROCK AND FILTER FABRIC.

LIMII§D BACKCUT ACCESS CONDITION
tAT REST EARTH PRESSURE CONDITIONI

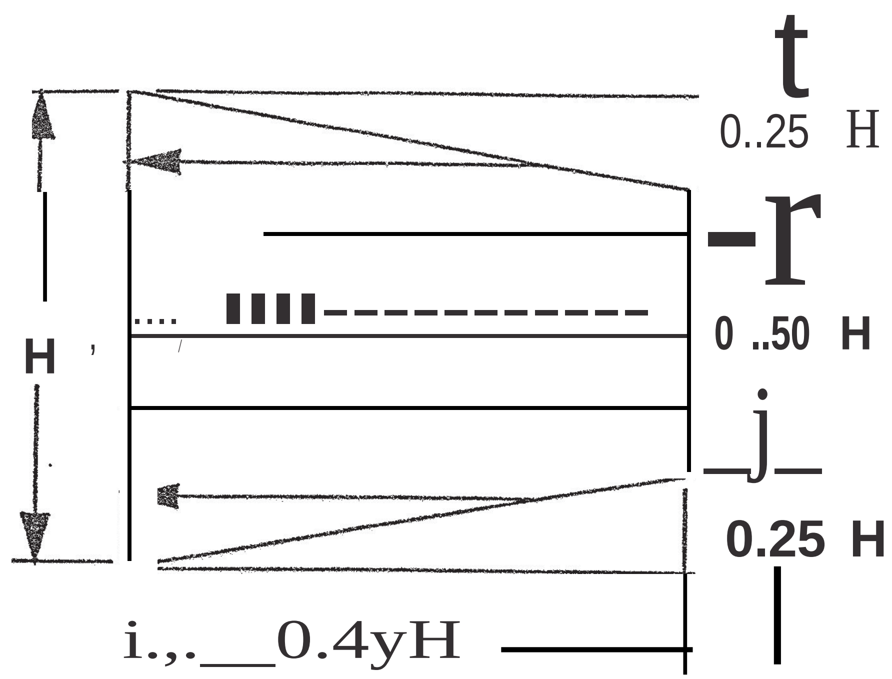


*NOTE:
CALTRANS CLASS 2 FILTER MAY BE SUBSTITUTED
FOR 3/4 GRAVEL/CRUSHED ROCK AND FILTER FABRIC.

INfORI.!ATIOO DEPICTED ON lHIS DETAIL IS FOR TIPICAL C(I,JD!IIONS ANO SIIB.£CT 10 CHANGE BY nil: GfOTECHNICAL CONSULTANT.

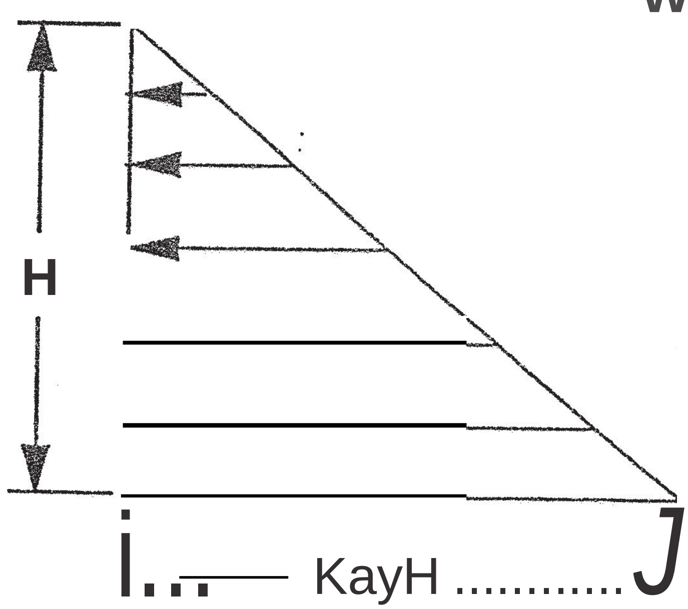
P A & ASSOCIAre.§. INC.

TITLE: RETAINING WALL DETAILS		FIGURE NO.:
PROJECT: Quail Valley Site No. 2, Riverside County, CA		C-1
PROJECT NO: 24131-102	DATE: 11/30/05 !BY: MM	



(1) Braced

Where:
Ka=0.26
Y=125 pcf



(2) Shored

P A & ASSOCIATES, INC.	TITLE: TEMPORARY SHORING & BRACING DESIGN	FIGURE NO.: C-2
	PROJECT: Quail Valley Site No. 2, ruverside County, CA	
	PROJECT NO: 24131-102 !DATE: 11/30/05 IBY: MM	

ROCK DISPOSAL DETAIL

Finlslld!d Orode

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5' 1-12· -l

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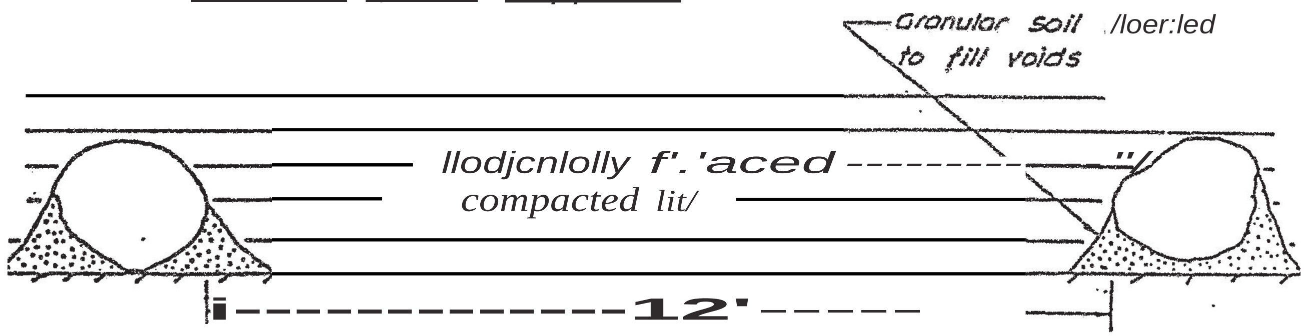
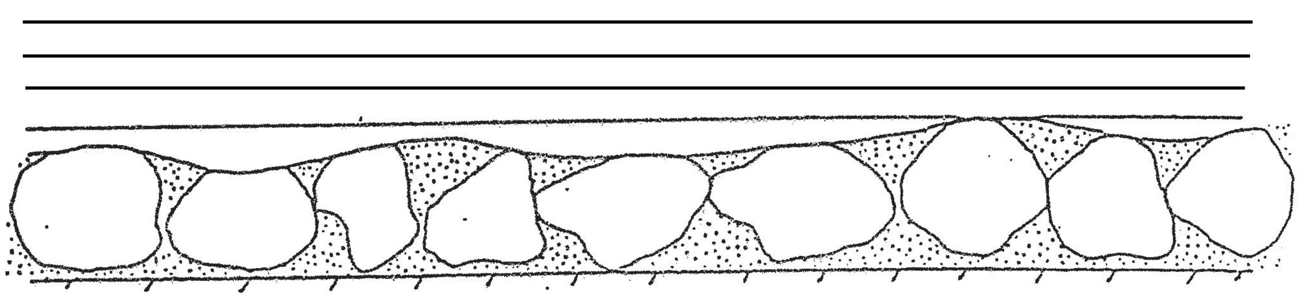
Windrow

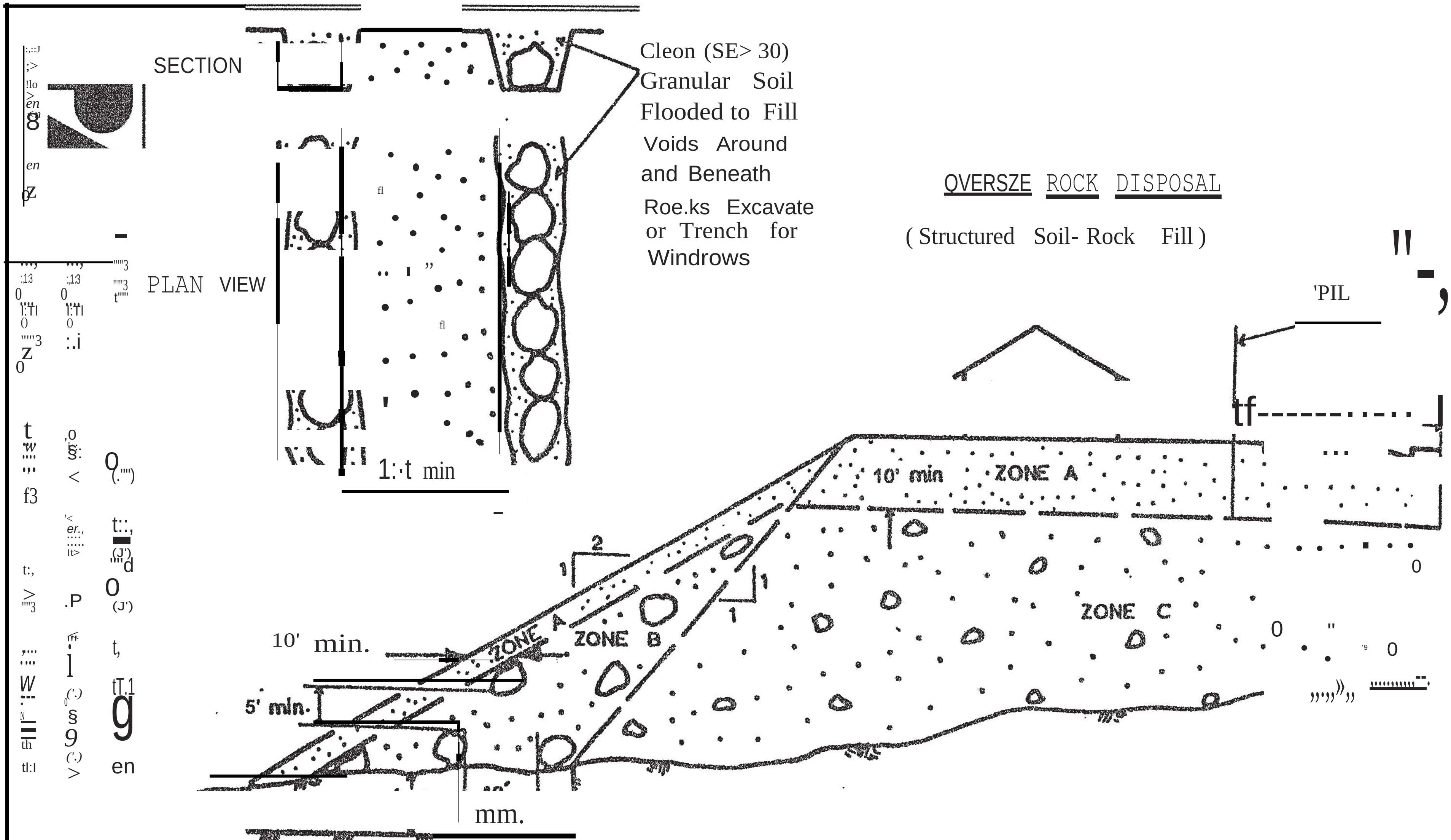
TYPICAL WLUDROW Q,ETAIL f,!qq.,!!J!.,



PROEILE VIEW



P A &_A_§SOC!h_"I§. INC.	TITLE: ROCK DISPOSAL DETAILS	FIGURE NO.:
	PROJECT: Quail Valley Site No. 2, Riverside County, CA	C-3
	PROJECT NO: 24131-102 IDAT:E: 11/30/2005 IBY: JR	



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ZONE C: R0t:t1 6 lnchtl to Z feet In f.lAalaHll dllllleflslon unlfor•lt distribu-ted .Affd well ipued IA (OlilplCtH 1011 flll COllforalnt to ION£ A.

lOHE O: Required for •II Hhl1119 &lopes 6:l &net Uecpff'• tol alnl- ,;0<1119,ct h11,. ZO!d: A. a, or C Mater Ial ••l tio used for Z0'4[o.

APPENDIXD

RECOMlVIENDED GRADING SPECIFICATIONS
GENERAL **PROVISIONS**

63.6 ACRES HOUSING DEVELOPJVIENT
AMENDED N0.2 TENTATIVE TRACT MAP NO. 32794
QUAIL VALLEY, RIVERSIDE COUNTY, CALIFORNIA

HECQMME:NDED GRADING 8PECIFTCATTQNS: GENERAL PRQVTSIQNS

GENERAL INTENT

The intent of these specifications is to establish procedures for clearing and compacting natural ground, preparing areas to be filled, and placing and corripacting fill soils to the grades shown on the grading plans currently in preparation. The recommendations contained in this preliminary Geotechnical Investigation are a part of the Recommended Grading Specifications and shall supersede the provisions contained hereafter in case of conflict. These specifications shall only be used in conjunction with the geotechnical report for which they are a part. No deviation from these specifications will be allowed, except where specified in the geotechnical report or in other written communication signed by the Soils Engineer and Engineering Geoiogist.

OBSERVATION AND TESTING

It is recommended that P.A. and Associates be retained as the Geotechnical Consultant to observe and test the earthwork in accordance with these specifications. It is necessary that the Soils Engineer and/or Engineering Geologist or his representative provide adequate observations so that he may provide an opinion as to whether the work was or was not accomplished as specified. Therefore, it shall be the responsibility of the contractor to assist us and to keep them apprised of work schedules, changes, new information, and other relevant data so that they may provide these op1mons. In the event that any unusual conditions not covered by these provisions or the Preliminary Geotechnical Investigation are encountered during the grading operations, the Soils Engineer and/or Engineering Geologist shall be contacted for further recommendations.

If in the opinion of this firm, substandard conditions are encountered, such as: questionable or unsuitable soil, unacceptable moisture content, inadequate compaction, adverse weather, etc., construction shall be temporarily halted until the conditions are remedied or corrected or we shall recommend rejection of this work in accordance with the clients wishes.

Test methods used to determine the degree of compaction shall be perfonned in accordance with the following American Society for Testing and Materials (ASTM) test methods:

Maximum D nsity & Optimum Moisture Content - ASTM D-1557.
Density of Soil In-Place -ASTM D-1557 or ASTM D-2992.

All densities shall be expressed in tenns of Relative Compaction as detennined by the foregoing ASTM testing procedures.

PREPARATION OF ft..REAS TO RECEIVE FILL

All vegetation, brush and debris derived from clearing operations shall be removed, and legally disposed of off-site. All areas disturbed by site grading should be left in a neat and finished appearance, free from unsightly debris.

After clearing or benching, the natural ground in areas to be filled shall be scarified to a depth of 6 inches for the minimum degree of compaction as set forth in our preliminary geotechnical report. All loose soils should be removed to firm natural ground which shall be determined by the field Engineer/Geologist.

When the slope of the natural ground-receiving fill exceeds 20% or 5:1 (horizontal to vertical), the original ground shall be stepped or benched. Benches shall be cut to a firm competent soil condition. The key at the top of the slope shall be at least 15 feet wide or 1-1/2 times the equivalent width, whichever is greater, and shall be sloped back into the hillside at a gradient of not less than two (2) percent. All other benches should be at least IO feet v..ride. The horizontal portion of each bench shall be compacted prior to receiving fill as specified herein for compacted natural ground. Vertical separations between benches shall be at least 3 feet. Ground slopes flatter than 20% shall be benched when considered necessary by our on-site representative.

Any abandoned structures encountered during grading operations should be totally removed. All underground utilities to be abandoned beneath any proposed structure and/or surface improvement should be removed from within 10 feet of the structure or improvement and be properly capped off. The resulting depressions from the described procedures should be backfilled with acceptable soil that is compacted to the requirements of the Soils Engineer. This includes, but is not limited to, septic tanks, fuel tanks, sewer lines or leach lines, storm drains, water lines or other utilities. Any buried structures or utilities not to be abandoned should be brought to the immediate attention of the Soils Engineer, so that he may determine if any Special Recommendations will be necessary.

FILL MATERIAL

Materials to be placed in the fill shall be approved by the Soils Engineer and/or Engineering Geologist and shall be free of vegetable matter and other deleterious substances. Granular soil shall contain sufficient fine material to fill the voids. The definition and disposition of oversized rocks, expansive and/or detrimental soils are covered in the geotechnical report if expected. Expansive soils, soils of poor gradation, or soils -with low strength characteristics may be thoroughly mixed with other soils to provide satisfactory fill material, but only with the explicit consent of the Soils Engineer. Any import material shall be approved by the Soils Engineer and/or Engineering Geologist before being brought to the site.

PLACING AND COMPACTION OF FILL

Approved fill material shall be placed in areas prepared to receive fill in layers not to exceed 6 inches in compacted thickness. Each layer shall have a un.ifonn moisture content in the range that will allow the compaction effort to be efficiently applied to receive the specified degree of compaction. Each layer shall be uniformly compacted to a minimum specified degree of compaction with equipment of adequate size to economically compact the layer. Compaction equipment should either be specifically designed for soil compaction or be of proven reliability. The minimum degree of compaction to be achieved is specified in the recommendations contained in this report.

Wnen the structural fill material includes rocks, no rocks will be allo\ved to nest and all voids must be carefully filled with soil such that the minimum degree of compaction recommended in the Special Provisions is achieved. The maximum size and spacing of rock pennitted in structural fills and in non structural fills, if allowed, are discussed in the geotechnical report, when applicable.

Field observation and compaction tests to estimate the degree of compaction of the fill will be taken by the Soils Engineer or his representative. The location and frequency of the tests shall be at the Soils Engineer's discretion. When the compaction test indicates that a particular layer is less than the required degree of compaction, the layer shall be reworked to the satisfaction of the Soils Engineer or his on-SITE representative and until foe desired relative compaction has been obtained.

Fill slopes shall be compacted by means of sheepsfoot rollers or ofaer suitable equipment. Compaction by sheepsfoot rollers shall be at vertical intervals of not greater than four feet. In addition, fill slopes at ratios of two horizontal to one vertical unit or flatter, should be gridrolled or track walked. Steeper fill slopes, which have been specifically approved by the governing agency and this office, shall be over-built and cut-back to finish contours after the slope has been constructed. Slope compaction operations shall result in all fill material which has been approved by the governing agency having a relative compaction of at least 90% of maximum dry density or that specified in the attached report.

The compaction operation of the slopes shall be continued until the Soils Engineer is of the opinion that the slopes will be stable with regard to surficial stability.

Slope tests will be made by the Soils Engineer or his on-SITE representative during construction of the slopes to determine if the required compaction is being achieved. Where failing tests or other field problems arise, the Contractor will be notified immediately of such conditions by written communication from the Soils Engineer or his representative in the fonn of a daily field report.

If the method of achieving the required slope compaction selected by the Contractor fails to produce the necessary results, the Contractor shall rework or rebuild such slopes until the required degree of compaction is obtained, at no cost to the client or P.A. & Associ tes.

ENGINEERING OBSERVATION

Field observation by the Soils Engineer or his representative shall be made during the filling and compacting operations so that he can express his opinion regarding the conformance of the grading with acceptable standards of practice. The presence of the Soils Engineer or his representative for the observation and testing shall not release the Grading Contractor from his duty to compact all fill material to the specified degree of compaction.

SEASON LIMITS

Fill shall not be placed during unfavorable weather conditions, When work is interrupted by heavy rain, filling operations shall not be resumed until the proper moisture content and density of the fill materials can be achieved. Damaged site conditions resulting from weather or acts of God shall be repaired before acceptance of work by P.A. and Associates.

APPENDIXE

REFERENCES

REFERENCES

1. Geotechnical Feasibility Study, 70.55± Acres Vacant Land, Quail Valley Site No. 2 Riverside County, California, by P.A. & Associates, Inc., Project, No. 24131-101, dated July 19,2004.

2. Feasibility Study, Quail Valley Site No. 2, 70.55± Acres Vacant Land, Riverside County, California, by J.P. Davidson Associates, Inc., Project, No. 8911656.

3. CDMG, February 1998, Maps of Knovm Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, International Conference of Building Officials.

4. Morton, D.M., February 1991, 1995, 1996, Geologic Map of the Romoland Quadrangle, Riverside County, California, USGS Open File Report 03-102.

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Appendix E Preliminary Drainage Study

PRELIMINARY DRAINAGE STUDY

FOR:

Tract Map 32794
City of Menifee

PREPARED FOR:

Arroyo Vista Partners, LLC
556 S. Fair Oaks Avenue, Suite #337
Pasadena, California 91105
(626) 263-4205

PREPARED BY:

PROACTIVE
ENGINEERING CONSULTANTS
200 South Main Street, Suite 300 ●Corona, CA 92882
PH: 951-280-3300 FAX: 951-280-0279

DATE PREPARED:

FEBRUARY 01, 2020

TABLE OF CONTENTS

APPENDICES

PROACTIVE
ENGINEERING CONSULTANTS
WWW.PROACTIVEENGINEERING.NET
200 South Main Street, Corona, CA 92882 Suite 300
951•280•3300

I. INTRODUCTION

A. PURPOSE OF DRAINAGE STUDY

The proposed storm drain improvements are located in the City of Menifee County of Riverside, California. See Vicinity Maps in Appendix F. Tract No. 32794 Project will consist of single-family residential housing. The purpose of this report is to compute the developed and existing condition hydrology and demonstrate the developed condition flows do not existing flows.

The proposed development is generally bound by an undeveloped property to the north, an existing residential tract to the west, Goetz Road to the east and Briggs Road to the east and an undeveloped property to the south. Existing access to the site is currently provided from Goetz Road and Williams Drive.

This report provides hydrology, detention basin and spillway design calculations, a summary of runoff estimates for the existing and developed condition, and an overview of impacts to existing drainage facilities.

Hydrology calculations for the 2-year, 5-year, 10-year and 100-year storms (1-hr, 3-hr, 6-hr and 24-hr) are included in this report. A proposed detention basin is being proposed to mitigate developed flows. The detention basin ensures the total runoff discharged to Goetz Road remains the same as the existing condition flows.

B. PROJECT OBJECTIVES

The following objectives will be addressed in this drainage study:

- A description of the physical setting of Tract No. 32794, and the potential for flooding in this area.
- Discussion of existing drainage facilities.
- Watershed storm water runoff analysis utilizing Rational Method, Unit Hydrograph and Flood Routing hydrology calculations.
- Develop in-tract drainage storm drain system layout for Tract No. 32794.

C. PROJECT DESCRIPTION

The Tract No. 32794 Project drainage boundary encompasses approximately 45 acres. The proposed development will build 132 single family homes, sidewalks, streets, a tot lot area, a Detention Basin/Sand Filter Basin, and a storm drain network system to convey offsite and onsite runoff.

In the developed condition, a proposed storm drain system will convey runoff from the proposed residential development, drainage area A, to the proposed Detention Basin/Sand Filter Basin. The Detention Basin/Sand Filter Basin will control outlet flows and provide runoff treatment. The proposed Detention Basin/Sand Filter Basin will have a bottom section that will be utilized as a Sand Filter Basin to treat the Design Capture Volume (DCV). Runoff will pond 1.25' in the Sand Filter Basin to allow runoff to receive treatment. An outlet structure will be provided within Detention Basin/Sand Filter Basin with orifice openings at 1.25' above the sand filter basin to outlet 2-year, 5-year, 10-year and 100-year storms to Goetz Road. The outlet structure will be designed to decrease developed flows before discharging runoff to Goetz Road.

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Detention sizing calculations for the Detention Basin/Sand Filter Basin are provided in this report. Water Quality and DCV sizing calculations for the Detention Basin/Sand Filter Basin are provided in the separately submitted Water Quality Management Plan (WQMP) for Tract No. 32794.

In the existing condition drainage areas A, B, C, D & O discharge runoff to Williams Drive. In the developed condition drainage area C is conveyed by a system perimeter concrete ditches which ultimately discharge to Williams Drive. This study will demonstrate developed condition flows from the site to Williams Drive remain the same or less as it is in the existing condition.

Existing land use consists of vacant land. Site elevations within the project boundary range from approximately 1773' to 1558'.

See Exhibits in Appendix A for drainage areas and location of proposed drainage facilities.

1. Existing Land Uses

The existing land uses are based on aerial topography of watershed areas. The site is undeveloped land, and the existing land cover consists of natural native grass based on aerial photography.

2. Existing Drainage Facilities

There are no existing drainage facilities within the project limits. Existing flow patterns from drainage areas A, B, C, D & O sheet flow in a southwest direction towards Williams Drive. Existing flow patterns from drainage areas E, G, H, I, & K sheet flow in a southeast direction towards Goetz Road.

3. Proposed Drainage Facilities

The proposed storm drain improvements in Tract No. 32794 will include the construction of new drainage facilities. The new drainage facilities will consist of storm drain mains, laterals. catch basins, concrete ditches, and a spillway and Detention/Sand Filter Basin. A proposed concrete ditch system will convey runoff from Area C to Williams Drive. The two proposed concrete ditches will include rip rap at their outlets to decrease outlet velocities and prevent erosion. The concrete ditch system will allow flows to sheet flow to Williams Drive simulating the existing condition flows. Rip rap sizing calculations will be provided during final engineering.

A proposed storm drain network will convey in-tract runoff from Drainage Area B to the proposed Detention Basin/Sand Filter Basin. The proposed Detention Basin/Sand Filter Basin will have an outlet structure and underdrain PVC pipe system as part of the Sand Filter Basin configuration. The outlet structure and underdrain PVC pipe system will discharge flows to Goetz Road though a storm drain pipe and parkway culvert. Storm drain pipe and parkway culvert calculations will be provided during final engineering.

Runoff from Area B will sheet flow along Goetz Road and small water quality flows be conveyed to a proposed curb type Modular Wetland System (MWS) Unit adjacent to Goetz Road to treat pollutants. Large storm events will bypass the MWS Unit and will continue to flow along Goetz Road. Refer to Water Quality Management Plan Study submitted for Tract No. 32794 for details and sizing calculations for the MWS Unit.

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See Exhibits in Appendix A for drainage areas and location of proposed drainage facilities. Refer to Water Quality Management Plan Study submitted for Tract No. 32794 for details and location of water quality facilities.

II. HYDROLOGY

A. GENERAL GUIDELINES

Hydrologic Calculations were prepared using methodology outlined by the RCFC&WCD Hydrology Manual dated April, 1978. Onsite hydrology was computed using the Rational Method. The Rational Method is commonly used for determining peak discharge from relatively small drainage areas. For areas in excess of 300 to 500-acres, the Synthetic Unit Hydrograph Method should normally be used. Unit hydrograph calculations and flood routing calculations were computed for the existing and developed conditions to evaluate impacts to downstream facilities and to size the proposed detention/bioretention basin. Detailed calculations are provided in Appendix C.

Rational Method includes the effects of infiltration caused by land use and soil surface characteristics. The Hydrologic Soils Map from the RCFC&WCD Hydrology Manual, plate C-1.42. indicates that the project study area consists of soil type D. Hydrologic soil ratings are based on a scale of A through D, where D is the least pervious, providing the greatest runoff. The type of vegetation, percent ground cover, and percentage of impervious surfaces also affect the infiltration rate.

Per criteria from the RCFC&WCD Hydrology Manual, Antecedent Moisture Condition (AMC) III was used for the 100-year analysis that reflects the degree of ground saturation from previous rainfall events. An AMC III was used for the 100-year to design drainage structures in sump areas as well as a proposed spillway in the detention basin. AMC I was used for the 2-year, 5-year and AMC II for 10-year analysis. The AMC value can range from I to III, with condition III being the most severe, allowing for greater runoff and low infiltration. AMC were selected as indicated in the Riverside County Hydrology Manual Section C.

1-hour, 3-hour, 6-hour and 24-hour storm unit hydrograph calculations for existing and developed conditions were prepared for the 2-year, 5-year and 10-year storms to demonstrate the proposed improvements do not impact downstream facilities. 1-hour, 3-hour, 6-hour and 24-hour storm unit hydrograph calculations were calculated for the developed condition only to ensure the proposed detention/bioretention basin and storm drain system can safely bypass 100-year storms. All developed condition unit hydrograph calculation models were routed through the detention basin to determine outflow peak flow rates and detention/bioretention basin water surface elevations.

B. RATIONAL METHOD HYDROLOGY CALCULATION

To properly design onsite storm drain facilities, the Rational Method was utilized to compute the 100-year peak discharges for the developed and existing condition. A technical description of the rational method is provided in the RCFC&WCD Hydrology Manual dated April, 1978. The Rational Method is an empirical computation procedure for developing a peak runoff rate (discharge) for small watershed for storms of a specified recurrence interval. The rational method equation is based on the assumption that the peak flow rate is directly proportional to the drainage area, rainfall intensity and a loss coefficient, which describes the effects of land use and soil type. The hydrology maps for the are included in Appendix A.

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The hydrology map for the developed condition shows existing and proposed contours, elevations for streets, and proposed storm drain facilities for Tract No. Watershed boundaries are ridgelines where identified, with watershed areas are divided into subareas. Flow paths and proposed drainage systems were laid out, and then drainage areas and flow path lengths were estimated. The portion of the soil map from the RCFC&WCD Hydrology Manual, plate C-1.42, was overlaid and the soil map indicated that the study area consists of soil type D. Precipitation data for the project location was taken from Plates in the RCFC&WCD Hydrology Manual and are provided in Appendix H of this report.

CivildCadd/CivilDesign Hydrology – Hydraulics Software by CivilDesign Corporation and Joseph E. Bonadiman and Associates, Incorporated was used to compute hydrology calculations. The peak discharges and time of concentration at specified nodes are shown on the hydrology map. To compute Rational Method Calculations, hydrologic information was entered into the CivildCadd/CivilDesign Hydrology – Hydraulics Software. The computer files for the 100-year calculations are included in Appendix B.

C. SYNTHETIC UNIT HYDROGRAPH METHOD CALCULATION

The Synthetic Unit Hydrograph, a computational procedure for developing peak runoff and discharge for storms of a specified recurrence interval, is used in watersheds larger than 300 acres. This procedure calculates effective rainfall, which is the portion of the total rainfall that appears as surface runoff, at a specific concentration point. Because no two drainage basins have the same physical characteristics, the appropriate adjustments must be accounted for 100-year storm frequencies for each of the 1-hour, 3-hour, 6-hour, and 24-hour durations were analyzed. The Synthetic Unit Hydrograph Method calculations were utilized to conduct Detention Basin Routing calculations. The CivildCadd/CivilDesign Hydrology – Hydraulics Software was used to compute Synthetic Unit Hydrograph calculations. The computer files are included in Appendix C.

D. HYDROGRAPH ROUTING METHOD CALCULATION

1. Detention Basin Routing Guidelines

The following assumptions/guidelines were applied in the use of the Detention Basin Routing:

- The Modified Pul's (Storage Indication) Method is used for the detention basin routing studies. The basin routing relationships are based upon the following formula:

  $I - O = \Delta S / \Delta t$

  Where:

  I = basin inflow rate (cfs)
  O = basin outflow rate (cfs)
  ΔS = change in basin storage during the time step (cubic feet)
  Δt = time step (sec)

- The basin inflow rates are based on the Unit Hydrograph files (See Appendix C).

- Depth-Storage-Discharge Curve is based on Basin Volume and Stage Discharge Rating. See calculations in Appendix D.

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- The procedure is repeated for each time step until the basin inflow hydrograph has been completely analyzed and basin outflow becomes negligible.

2. Hydrograph Routing Calculation Software

The Detention Basin Routing (Modified Pul's) Method outlined above were performed using the CivildCadd/CivilDesign Hydrology – Hydraulics Software. Routing calculations were performed for the proposed detention basin. The computer files for the 2-year, 5-year, 10-year and 100-year storm frequencies for each of the 1-hour, 3-hour, 6-hour, and 24-hour durations are included in Appendix D.

E. FLOOD ASSESSMENT

The Federal Emergency Management Agent (FEMA) publishes Flood Insurance Rate Maps (FIRMs) that identify areas where there is flooding potential. The FIRM that applies to Tract No. 32794 is Riverside County Map Number 06065C2055H, dated August 18, 2014. The entire project site is within Flood Hazard Zone "X" (Other Areas) – an area to be outside the 0.2% annual chance floodplain. A portion of the map applicable to this project has been included in Appendix H.

III. HYDRAULICS

A. SPILLWAY

The proposed spillway structure is a modified catch basin that sets above the proposed top of riser elevation. The spillway is designed to outlet the nonrouted 100-yr storm runoff in the basin to Goetz Road. The emergency spillway is designed to protect the basin and adjacent property should the proposed basin outlet structure fail. Hydraulic calculations for the emergency spillway were performed using Bentley FlowMaster, Bentley Systems Inc. See Appendix G for detailed calculations.

B. STREET CAPACITY

Hydraulic calculations for the proposed in-tract streets and Goetz Road were prepared as part of this study. The hydraulic calculations were prepared based on typical street sections at the shallowest street slope which the least capacity along streets. A hydraulic model was then prepared based on the maximum flow at any given street. This conservative approach was utilized to determine maximum normal depth within the proposed streets and improvements along Goetz Road. Hydraulic calculations for the streets were performed using Bentley FlowMaster, Bentley Systems Inc. See Appendix G for detailed calculations.

IV. SUMMARY OF RESULTS

Table 1 & Table 2 summarize the 100-year storm rational method calculations for the existing and developed condition hydrology.

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Table 3 & Table 4 summarize the 2-year, 5-year, 10-year and 100-year (1-hour, 3-hour, 6-hour and 24-hour) storm flow rates at the outlet points for the developed and existing condition unit hydrograph calculations.

A proposed drop inlet structure with orifice openings on its sides will be used to reduced developed flows and storm durations to existing conditions for the 2-year, 5-year, 10-year and 25-year and 100-year (1-hour, 3-hour, 6-hour and 24-hour) storm flow rates will be detained and routed though the proposed drop outlet structure as well. A preliminary orifice opening layout for the outlet structure and basin sizing calculations have been provided in Appendix D.

Table 5 summarizes the 1-hour, 2-year, 5-year, 10-year and 100-year (1-hour, 3-hour, 6-hour and 24-hour) storm flow rates which are the control flows for the two outlet points at Williams Drive and Goetz Road. Table 6 shows the developed flows for the two outlet points at Williams Drive and Goetz Road. Table 5 and Table 6 demonstrate the proposed improvements will decrease developed flows to be less than existing flows. Thus, the proposed development will not impact downstream facilities. Detailed Unit Hydrograph calculations are found in Appendix C. Detailed flood routing calculations are found in Appendix D.

A concrete lined spillway structure will be utilized to bypass 100-year storms. The spillway crest structure is 26' long with a finish surface elevation of 1580.00. The spillway structure will serve as an emergency overflow in the event the primary drop inlet structure becomes clogged. Detailed calculations are provided in Appendix G.

The hydraulic calculations for the proposed in-tract streets and Goetz Road showed the 100-year storm events will not overtop the top of curb of proposed streets. Therefore, the proposed streets have enough capacity to convey flows to proposed catch basins within the project site

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RATIONAL METHOD CALCULATIONS SUMMARY

TABLE 1

EXISTING FLOWS

DRAINAGE AREA ID	ACRES	TIME OF CONCENTRATION (TC) MINUTES	RAINFALL INTENSITY (IN/HR)	AVERAGED % PERVIOUS	100-YR STORM FLOWS (CFS)
ABCD	13.6	12.6	1.40	100	36.0
O	0.2	7.6	1.40	100	0.6
EF	6.3	14.5	1.40	100	15.5
G	2.8	10.9	1.40	100	7.3
HIK	20.1	12.7	1.40	100	51.3

TABLE 2

DEVELOPED FLOWS

DRAINAGE AREA ID	ACRES	TIME OF CONCENTRATION (TC) MINUTES	RAINFALL INTENSITY (IN/HR)	AVERAGED % PERVIOUS	100-YR STORM FLOWS (CFS)
AREA A	27.5	14.4	1.40	44	70.20
AREA B	3.4	7.5	1.40	24	7.50
AREA C	13.9	10.5	1.40	100	40.9

NOTES:

REFER TO APPENDIX B FOR DETAILED CALCULATIONS.

UNIT HYDROGRAPH CALCULATIONS SUMMARY

TABLE 3

EXISTING FLOWS

DRAINAGE AREA		RUNOFF INDEX	AVERAGED %	2-YR				5-YR				10-YR				100-YR			
ID	ACRES	(AVERAGED)	PERVIOUS	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR
ABCDO	15.3	89.0	100	12.88	7.63	6.90	0.42	19.14	12.02	10.81	2.11	26.11	17.57	16.01	5.33	43.1	29.9	27.2	10.8
TOTAL FLOWS TO WILLIAMS DR				12.9	7.6	6.9	0.4	19.1	12.0	10.8	2.1	26.1	17.6	16.0	5.3	43.1	29.9	27.2	10.8
EF	6.3	89.0	100	5.94	3.30	2.99	0.17	8.74	5.16	4.66	0.87	11.79	7.49	6.84	2.20	17.8	12.2	11.3	4.6
G	2.8	89.0	100	2.35	1.40	1.26	0.08	3.50	2.20	1.98	0.39	4.78	3.22	2.93	0.98	8.9	5.7	5.0	2.0
HIK	20.1	89.0	100	16.70	9.98	9.02	0.55	24.85	15.74	14.16	2.77	33.96	23.03	20.98	7.01	59.1	39.4	36.6	14.5
TOTAL FLOWS TO GOETZ RD				24.99	14.68	13.27	0.80	37.09	23.10	20.80	4.03	50.53	33.74	30.75	10.19	85.79	57.26	52.91	21.1

TABLE 4

DEVELOPED FLOWS

DRAINAGE AREA		RUNOFF INDEX	AVERAGED %	2-YR				5-YR				10-YR				100-YR			
ID	ACRES	(AVERAGED)	PERVIOUS	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR
AREA C	13.9	89.0	100	9.97	6.31	5.73	0.38	15.02	10.07	9.11	1.87	20.88	14.95	13.70	4.79	34.77	25.58	23.36	9.70
TOTAL FLOWS TO WILLIAMS DR				10.0	6.3	5.7	0.4	15.0	10.1	9.1	1.9	20.9	15.0	13.7	4.8	34.8	25.6	23.4	9.7
AREA A	27.5	76.2	44	25.43	15.01	13.00	1.75	37.05	22.92	19.83	4.83	48.55	31.61	27.70	9.50	79.74	53.45	46.84	18.96
TOTAL FLOWS TO DETENTION BASIN				25.4	15.0	13.0	1.8	37.1	22.9	19.8	4.8	48.6	31.6	27.7	9.5	79.7	53.5	46.8	19.0
AREA B	3.4	77.2	24	3.74	2.25	1.94	0.49	5.28	3.25	2.79	0.88	6.66	4.22	3.64	1.35	10.68	6.91	5.93	2.45
TOTAL FLOWS TO GOETZ RD				3.7	2.3	1.9	0.5	5.3	3.3	2.8	0.9	6.7	4.2	3.6	1.4	10.7	6.9	5.9	2.5

NOTES:

REFER TO APPENDIX C FOR DETAILED CALCULATIONS

PEAK OUTLET FLOW SUMMARY

TABLE 5

EXISTING FLOWS (CONTROL FLOWS)

DRAINAGE AREA		2-YR				5-YR				10-YR				100-YR			
ID	ACRES	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR
ABCDO	15.3	12.88	7.63	6.90	0.42	19.14	12.02	10.81	2.11	26.11	17.57	16.01	5.33	43.13	29.90	27.15	10.75
TOTAL FLOWS TO WILLIAMS DR		12.9	7.6	6.9	0.4	19.1	12.0	10.8	2.1	26.1	17.6	16.0	5.3	43.1	29.9	27.2	10.8
EF	6.3	5.94	3.30	2.99	0.17	8.74	5.16	4.66	0.87	11.79	7.49	6.84	2.20	17.83	12.17	11.32	4.55
G	2.8	2.35	1.40	1.26	0.08	3.50	2.20	1.98	0.39	4.78	3.22	2.93	0.98	8.90	5.65	4.95	2.02
HIK	20.1	16.70	9.98	9.02	0.55	24.85	15.74	14.16	2.77	33.96	23.03	20.98	7.01	59.06	39.44	36.64	14.52
TOTAL FLOWS TO GOETZ RD		25.0	14.7	13.3	0.8	37.1	23.1	20.8	4.0	50.5	33.7	30.8	10.2	85.8	57.3	52.9	21.1

TABLE 6

DEVELOPED FLOWS

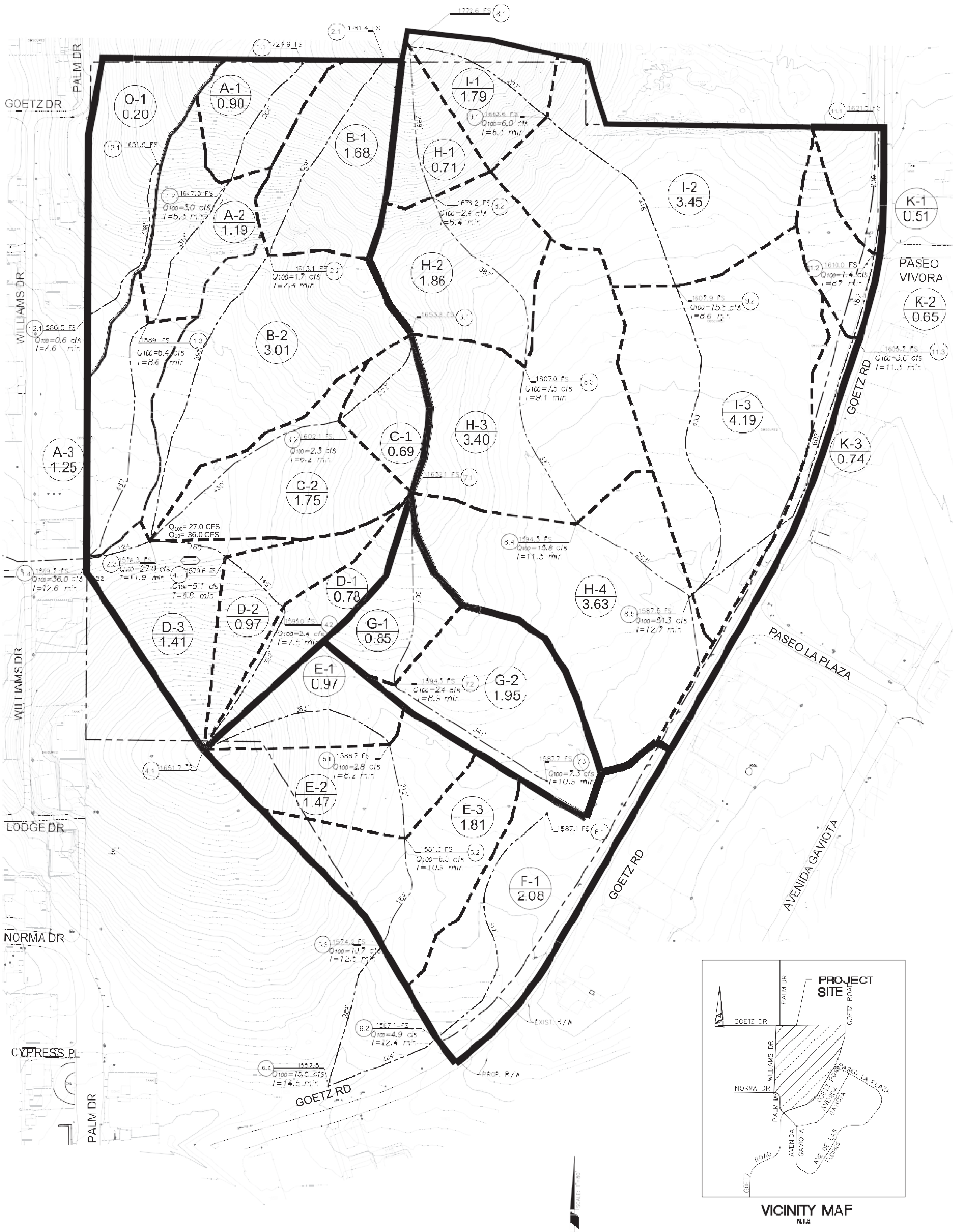
DRAINAGE AREA		2-YR				5-YR				10-YR				100-YR			
ID	ACRES	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR	1-HR	3-HR	6-HR	24-HR
AREA C	13.9	9.97	6.31	5.73	0.38	15.02	10.07	9.11	1.87	20.88	14.95	13.70	4.79	34.77	25.58	23.36	9.70
TOTAL FLOWS TO WILLIAMS DR		10.0	6.3	5.7	0.4	15.0	10.1	9.1	1.9	20.9	15.0	13.7	4.8	34.8	25.6	23.4	9.7
AREA A**	27.5	0.42	0.71	0.44	0.3	0.63	0.72	0.89	0.54	1.62	2.64	2.94	2.93	3.56	25.98	32.62	17.22
AREA B	3.4	3.74	2.25	1.94	0.5	5.28	3.25	2.79	0.88	6.66	4.22	3.64	1.35	10.68	6.91	5.93	2.45
TOTAL FLOWS TO GOETZ RD		4.2	3.0	2.4	0.7	5.9	4.0	3.7	1.4	8.3	6.9	6.6	4.3	14.2	32.9	38.6	19.7

NOTES

**REFER TO APPENDIX D FOR DETAILED CALCULATIONS

Appendix A

Hydrology Maps



LEGEND

- A / 0.9 — SUBAREA NO. / SUBAREA AREA – Acre
- 32 — NODE NO. & ELEVATION
- FLOW LINE
- AREA TRIBUTARY BOUNDARY
- SUBAREA TRIBUTARY BOUNDARY

QUAIL HILLS
HYDROLOGY MAP
EXISTING CONDITION

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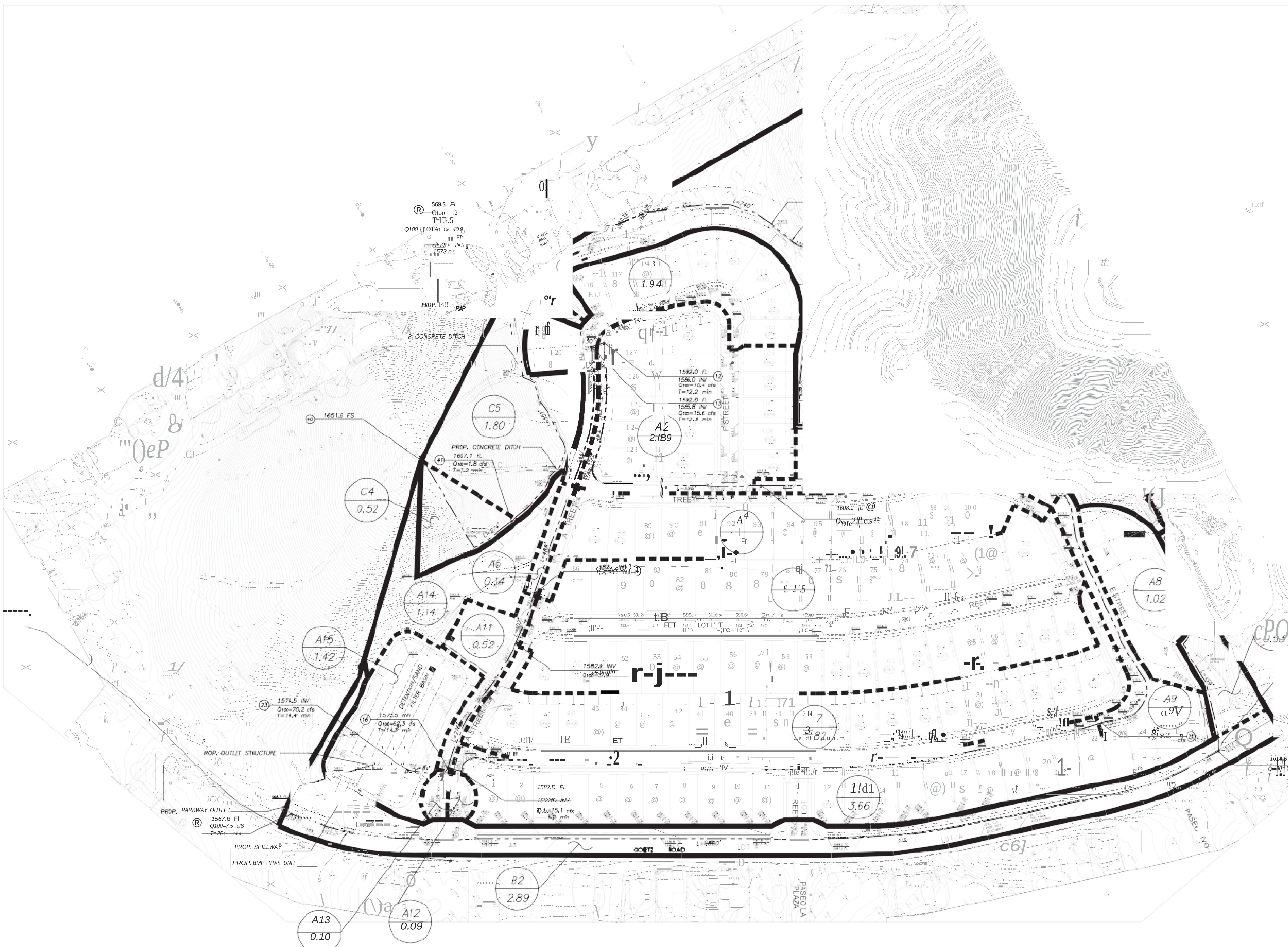

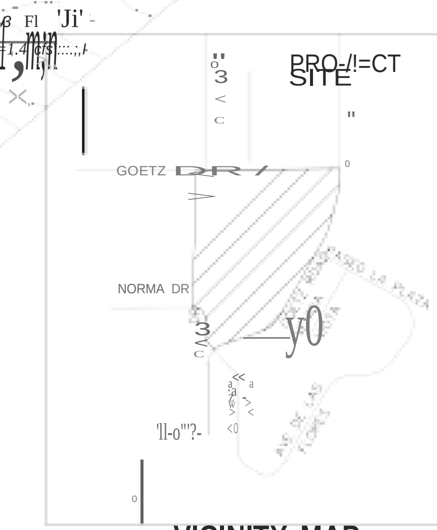

VICINITY MAP

N.T.S.

LEGEND

A / 0.9 — SUB AREA NO. / SUB AREA AREA - Acre

NODE NO. & ELEVATION

FLOW LINE

AREA TRIBUTARY BOUNDARY

SUB AREA TRIBUTARY BOUNDARY

SCALE: 1" = 60'

QUAIL HILLS
HYDROLOGY MAP
DEVELOPED CONDITION

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Appendix F Preliminary Water Quality Report

OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for **JPMB Investments, LLC** by **Proactive Engineering Consultants Inc.** for **the Quail Hills, TTM 32794** Development project.

This PWQMP is intended to comply with the requirements of City of Menifee per County of Riverside for Ordinance No. 754.2 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under **City of Menifee, County of Riverside** Water Quality Ordinance (Municipal Code Section 754.2).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature	Date
Atefeh Eskandari	Principal Project Manager
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

Table of Contents

List of Tables

List of Appendices

Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Residential Development
Planning Area:	N/A
Community Name:	Quail Hills
Development Name:	Quail Hills, TTM 32794
PROJECT LOCATION	
Latitude & Longitude (DMS): 33°42'17.76"N, 117°14'19.52"W	
Project Watershed and Sub-Watershed: Santa Ana Watershed, San Jacinto Sub-Watershed	
Gross Acres: 44.8 (Area Analyzed as part of this study)	
APN(s): 341-060-002, 341-060-007, 341-060-009, 341-040-049	
Map Book and Page No.:	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Residential
Proposed or Potential SIC Code(s)	1521
Area of Impervious Project Footprint (SF)	Park/Tot lot – 10% Impervious Roofs – 100% Impervious Concrete/Asphalt – 90% Impervious Natural D Soil – 40% Impervious See Table C.1 for breakdown.
Total Area of <u>proposed</u> Impervious Surfaces within the Project Footprint (SF)/or Replacement	913,433
Does the project consist of offsite road improvements?	☒ Y ☐ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the Project limits Footprint (SF)	0 SF
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	Type D
What is the Water Quality Design Storm Depth for the project?	D85 = 0.61

<u>Project Description:</u>
TTM 32794- Quail Hills project area, includes +/- 44.8 acres of the project located at the northeastern corner of Goetz Road and Palm Drive, east of Canyon Lake and west of 215 Freeway in the City of Menifee, County of Riverside.

<u>Existing Condition:</u>

The project site drainage area is approximately 44.8 acres of vacant land which is covered by seasonal grasses, shrugs and bushes. The site is bounded by Goetz Rd on the southeast and Palm Drive on the west. Rocky ridges can be seen throughout the site with the largest located on the most northern corner of the project site. The site currently consists of multiple smaller drainage courses. Ultimately, there are two outlet locations. A portion of the site drains to Williams Drive while the section of the project site drains to Goetz Road.

These two outlet locations and drainage patterns are beings preserved in the developed condition. See hydrology exhibits included in Appendix 7.

Developed Condition:

The project is divided into three main Drainage Management Areas (DMA) A, B and C.

DMA A consists of proposed residential lots, a tot lot, a proposed Detention/Sand Filter Basin private streets and sidewalks. A private storm drain pipe network will capture flows via curb opening inlets and discharge runoff into the Detention/Sand Filter Basin. The proposed Detention/Sand Filter Basin will capture and treat the Design Capture Volume (DCV) while allowing the bypass of larger storms at control flow rates. Detailed calculations for the bypass of large storm events can be found in the separately submitted Drainage Report for this project. The Detention/Sand Filter Basin will treat runoff using a sand filter layer with a perforated PVC pipe network encased in gravel. The perforated PVC pipe network will connect to an outlet structure which will then take runoff to Goetz Road through a proposed storm drain pipe and parkway culvert.

DMA B consists of an undeveloped area, landscaping, and pavement areas from Goetz Road. Runoff from an undeveloped area is conveyed to Goetz Road through a proposed parkway culvert. Runoff from Goetz Road and this undeveloped area will flow along a proposed curb and gutter along Goetz Road, where the water quality QBMP will be intercepted by a proposed Modular Wetland System (MWS). Large storm events will bypass the MWS Unit and will continue to flow along Goetz Road.

DMA C consists of an undeveloped area (natural terrain), Runoff from this area will be captured and conveyed by a network of concrete ditches which discharge to Williams Drive. The drainage area from this DMA is considered to Self-Treating Areas and therefore no BMP is being proposed for this area.

The project site will consist of 142 residential units and a park/tot lot. The project is located at the Latitude & Longitude 33°42'17.76"N, 117°14'19.52"W respectively.

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling
- BMP Locations (Lat/Long)

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Canyon Lake	Pathogens Unknown Toxicity Polychlorinated Biphenyls Nutrients	MUN, AGR, GWR, REC1, REC2, WARM, WILD	N/A
San Jacinto River Reach 1	Pathogens Nutrients	MUN, AGR, GWR, REC1, REC2, WARM, WILD	N/A
Lake Elsinore	Pathogens Unknown Toxicity Polychlorinated Biphenyls Sediment Toxicity Nutrients Organic Enrichment Low Dissolved Oxygen	REC1, REC2, WARM, WILD	N/A

AGR: Agricultural Supply; MUN: Municipal and Domestic Supply; GWR: Groundwater Recharge; IND-Industrial Service Supply, POW – Hydropower generation, REC1: Water Contact Recreation; REC2: Non-Contact Water Recreation; WARM: Warm Freshwater Habitat; LWARM: Limited Warm Freshwater Habitat, COLD - Cold freshwater habitat, WILD: Wildlife Habitat, RARE – Rare threatened or endangered species. SPWN – Spawning, reproduction and development waters

Rec1: waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible.

REC2: waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible

WARM: waters support warm water ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.

WILD: waters support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and species used by waterfowl and other wildlife

ARG: waters are used for farming, horticulture or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.

GWR: waters are used for natural or artificial recharge of groundwater for purposes that may include but are not limited to, future extraction, maintaining water quality or halting saltwater intrusion into freshwater aquifers.

RARE: waters support the habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened or endangered.

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* Grading Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

All applicable permits will be included in the Final WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e. no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Existing drainage patterns are preserved. Currently the runoff produced within the project site drains towards the south in most areas with various high points located throughout the site. Rational method calculations and hydrology maps were prepared to identify existing drainage patterns within the project limits. In the existing conditions the project site drains to two locations, Williams Drive and Goetz Road. In the developed condition DMA A and DMA B will outlet runoff to Goetz while DMA C will outlet runoff to Williams Drive; thus, preserving existing drainage patterns. Copies of the existing and developed hydrology maps have been included in Appendix 7. Detailed hydrology calculations can be found in the separately submitted drainage report for this project.

Did you identify and protect existing vegetation? If so, how? If not, why?

The proposed development is being processed and reviewed through the City of Menifee, Riverside County to implement the subdivision of the residential homes. The hillside terrain and natural patterns were carefully considered when developing a design for the proposed development. The site is undeveloped, and vegetation is minimal consisting primarily of native species consisting of thick brush, trees adjacent to

Goetz Rd which will be cleared for construction purposes. Vegetation within the project limits was determined on filed visits and aerial photography.

Vegetation within DMA A will be cleared and removed to allow the construction of this project.

Some vegetation within DMA B will be cleared and removed to allow for the roadway improvements of Goetz Road.

Vegetation within DMA C will be preserved as there will be no construction activity within this area.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Infiltration capacity was identified by a soils engineer. A report was prepared to document existing infiltration capacity within the site. The infiltration capacity within the project limits was deemed to be low. In order to maximize on-site permeable areas to preserve natural infiltration capacity, the project site will utilize minimum street widths and ornamental landscape in areas feasible to allow natural infiltration to occur. The proposed Detention/San Filter Basin will have a pervious bottom which will allow some infiltration to occur within the basin withing DMA A.

Did you identify and minimize impervious area? If so, how? If not, why?

Impervious areas within DMA A were minimized to the maximum extent practicable by providing landscape areas within lots, adjacent to streets, providing minimum roadway widths and an open space park/tot lot area with pervious cover.

Proposed impervious within DMA B are minimized by providing the minimum roadway width and by providing landscape areas adjacent to the street.

No impervious areas have been added within DMA C.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

DMA A runoff from building roofs will be dispersed to adjacent landscape areas. Runoff from DMA A streets and pavement areas will be routed to the proposed Detention/Sand Filter Basin.

DMA B runoff from the proposed roadway improvements cannot be routed to adjacent landscape areas. The alignment of Goetz Road does not allow to discharge runoff to landscape areas.

DMA C does not have any impervious areas to be routed to pervious areas.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1][2]	Area (Sq. Ft.)	DMA Type
A-1	Roofs	343200	*D*
A-2	Concrete or Asphalt	331501	D
A-3	Ornamental Landscaping	366936	D
A-4	Ornamental Landscaping	44369	D
A-5	Ornamental Landscaping	61866	D
A-6	Natural (D SOIL)	49521	D
B-1	Concrete or Asphalt	82453	D
B-2	Natural (D SOIL)	25210	D
B-3	Ornamental Landscaping	41466	D

[1]*Reference Table 2-1 in the WQMP Guidance Document to populate this column*
[2]*If multi-surface provide back-up*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
C-1	605,227	Natural Undisturbed Soil Cover	None

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				**Type 'C' DMAs that are draining to the Self-Retaining Area**		
DMA Name/ ID	Post-project surface type	Area (square feet)	Storm Depth (inches)	DMA Name / ID	[C] from Table C.4 =	Required Retention Depth (inches)
		[A]	[B]		[C]	[D]
N/A						

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Impervious Fraction	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]
N/A							

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
A	Detention/Sand Filter Basin
B	MWS Unit

<u>Note</u>: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	**YES**	**NO**
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: DMA F		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?	X	
Describe here: Infiltration Test by Geotek Inc. dated January 8, 2019; the results indicate that the project site is not suitable for infiltration BMPs, infiltration rate is less than 0.1 in/hr after applying a safety factor of 3.0 per the County of Riverside *Low Impact Development BMP Design Handbook.*		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

Due to infiltration being infeasible, the project intends to utilize a single sand filter basin to treat and reduce the runoff discharge via outlet control.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 8.40 AC

Type of Landscaping (Conservation Design or Active Turf): Conservation Design

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 16.35 AC

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 0.79

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 12.92 AC

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	**Available Irrigated Landscape (Step 1)**
12.92	8.40

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users:

Project Type: Residential

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 16.35

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 101

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 1,652

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	**Projected number of toilet users (Step 1)**
1,652	580

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☐ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

The 2010 SAR MS4 permit further requires that LID Retention BMPs (Infiltration or Harvest and Use) be used unless it can be shown that those BMPs are infeasible.

A Detention/Sand Filter Basin is being proposed for treat runoff from area DMA A. A proposed MWS Unit in Goetz Road will treat runoff from DMA B.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
"A"	☐	☐	☐	☐	☒
"B"	☐	☐	☐	☐	☒
"C"	☐	☐	☐	☐	☒

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

The infiltration rate throughout the project site is poor. The infiltration after applying a safety factor of 3.0 is less than 0.1 in/hr. See attached soils report in Appendix 3.

Based on the LID BMP Prioritization and Feasibility Flow Chart, a Detention/Sand Filter basin was selected as an appropriate treatment BMP for DMA A.

Based on the LID BMP Prioritization and Feasibility Flow Chart and current Goetz Road roadway constraints, an MWS Unit was selected as an appropriate treatment BMP for DMA B.

No BMP is provided for DMA C as this area is considered a self-treating area.

DMA A

A Biotreatment Basin is not feasible within DMA A as the tributary area would exceed the maximum allowed tributary area of 10 acres. Therefore, a privately maintained Detention/Sand Filter Basin is being proposed for this project.

The Quail Hills Water Quality Treatment Control BMP as mentioned previously will be a Detention/Sand Filter Basin located at the southern section of the site adjacent to Goetz Rd that will capture, control, and treat the required Design Capture Volume (DCV). The basin will be utilized by capturing, filtering, and temporarily detaining surface runoff from storm event, non-storm events and nuisance flows. With regular maintenance, the basin will drain naturally via an underground PVC pipe system and outlet structure. Refer to WQMP Site Plan in Appendix 1 for location of drainage facilities.

DMA B

A Biotreatment Basin is not feasible within DMA B as there is not enough area to provide biotreatment or bioretention basin. An MWS Unit will be installed to treat the water quality QBMP. The QBMP will be intercepted by a proposed Modular Wetland System (MWS). Large storm events will bypass the MWS Unit and will continue to flow along Goetz Road. Refer to WQMP Site Plan in Appendix 1 for location of MWS Unit.

DMA C

The remaining area within DMA C of the site boundary which are defined as the limits outside of the project site will remain undeveloped. The area considered to be undeveloped will continue to allow runoff sheet flow along its natural watercourse. Refer to WQMP Site Plan in Appendix 1 for drainage patterns for DMA C.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Detention/Sand Filter Basin*		
	[A]		[B]	[C]	[A] x [C]			
						Design Storm Depth (in) [E]	*Design Capture Volume,* V_{BMP} *(cubic feet)* $[F] = \frac{[D]x[E]}{12}$	*Proposed Volume on Plans (cubic feet)* [G]
A-1	*343,200*	*Roofs*	*1.00*	*0.89*	*306134.4*	0.61	*33954.1*	*33,960*
A-2	*331,501*	*Concrete or Asphalt*	*1.00*	*0.89*	*295698.9*			
A-3	*366,936*	*Ornamental Landscaping*	*0.10*	*0.11*	*40531*			
A-4	*44,369*	*Ornamental Landscaping*	*0.10*	*0.11*	*4900.9*			
A-5	*6,1866*	*Ornamental Landscaping*	*0.10*	*0.11*	*6833.6*			
A-6	*49,521*	*Natural (D Soil)*	*0.40*	*0.28*	*13851.6*			
	1,197,393				Σ= [D] 667950.4			

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. **No alternative compliance measures are required** for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☒ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☐ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft²)	P	N	N	N	N	N	P	P
☒ Hillside Development (>5,000 ft²)	P	N	P	P	N	P	P	P
☐ Parking Lots (>5,000 ft²)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☐	☒	☒	☐	☒	☒	☒

P = Potential
N = Not Potential
(1) *A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected*
(2) *A potential Pollutant if the project includes uncovered parking areas; otherwise not expected*
(3) *A potential Pollutant is land use involving animal waste*
(4) *Specifically petroleum hydrocarbons*
(5) *Specifically solvents*
(6) *Bacterial indicators are routinely detected in pavement runoff*

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	N/A
Total Credit Percentage[1]	

[1]Cannot Exceed 50%
[2]Obtain corresponding data from Table 3-8 in the WQMP Guidance Document

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Area x Runoff Factor		*Enter BMP Name / Identifier Here*		
	[A]		[B]	[C]	[A] x [C]				
N/A	N/A	N/A	N/A	N/A	N/A	*Design Storm Depth (in)*	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	$A_T = \Sigma[A]$	***N/A***			$\Sigma = [D]$	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
N/A	N/A	N/A

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration			
Volume (Cubic Feet)			

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

A proposed Detention/Sand Filter Basin is being proposed to mitigate the 2-year storm developed flows. The proposed Detention/Sand Filter Basin decreases the 2-year storm developed flows to equal or less than existing flows. See Hydrology Calculations in Appendix 7. Therefore, the project will not create an HCOC.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and “housekeeping”, that must be implemented by the site’s occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources***: Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit***: Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative***: Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-Site Strom Drain Inlets	• Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	• Maintain and periodically repaint or replace inlet markings • Provide Stormwater pollution prevention information to new site owners, lessees, or operators. • See applicable optional BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com • Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Landscape/ Outdoor Pesticide Use	State that final landscape plans will accomplish all of the following. • Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. • Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. • Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant to saturated soil conditions. • Consider using pest-resistant plants, especially adjacent to hardscape. • To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	• Maintain landscaping using minimum or no pesticides. • See applicable operational BMPs in "What you should know for…. Landscape and Gardening" at http://rcflood.org/stormwater/ • Provide IPM information to new owners, lessees, and operators.
Pools, Spas, Ponds, Decorative Fountains, and other water features	• If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	• See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
Roofing, gutters, and trim	• Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	
Plazas, Sidewalks, and Parking Lots, Streets		• HOA will set a sweeping schedule for, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleansing agent or degreaser and discharge to the sanitary sewer not to a storm drain. • Street Sweeping (N5)
Man-made & irrigated slopes and landscaped areas	• Protect slopes and channels (S5) • Hillside Landscaping (S12) • Irrigation systems and landscape design should follow as a guide the specifications and recommendations of the Water Conservation Act of 2006, AB1881 (Laird) and conform to the standards	• Irrigation System and Landscape Management (N3) • Inspect landscape areas twice annually (before and after the rainy season) and the irrigation system quarterly for proper functioning.

	and requirements of the City’ landscape requirements. Irrigation systems shall employ control systems and be designed to conserve water. The landscape design shall incorporate native and drought tolerant vegetation with low irrigation requirements. See CASQA SD-10 and SD-12 BMP Fact Sheets in and other landscape literature in WQMP for additional information. • Irrigation and landscape maintenance should be performed on a regular basis throughout the year. See CASQA SC-41 or SD-10 and SD-12BMP Fact Sheets in WQMP for additional information	• Maintenance should be performed every 2 weeks or as needed. • Landscape maintenance should include mowing, weeding, trimming, removal of trash & debris, repair of erosion, re-vegetation, and removal of cut & dead vegetation. • Irrigation maintenance should include the repair of leaky or broken sprinkler heads, the maintaining of timing apparatus accuracy, and the maintaining of shut off valves in
Park Site	• Efficient Irrigation (S4)	• Common Area Litter Control (N4)
Detention/Sand Filter Basin	• Inspect landscape areas twice annually (before and after the rainy season) and the irrigation system quarterly for proper functioning. • Maintenance should be performed every 2 weeks or as needed. Landscape maintenance should include mowing, weeding, trimming, removal of trash & debris, repair of erosion, re-vegetation, and removal of cut & dead vegetation. • Irrigation maintenance should include the repair of leaky or broken sprinkler heads, the maintaining of timing apparatus accuracy, and the maintaining of shut off valves in control basins shall be inspected and maintained on a regular basis to insure their operational adequacy. See CASQA SC-44 BMP Fact Sheet in WQMP for additional information.	• before the onset of the rainy season (Oct 1 to May 1), once during the rainy season, and once after the rainy season. • Maintenance should include removal of trash, debris, & sediment and the repair of any deficiencies or damage that may impact water quality. • The property owner will assume the responsibility for all on-site drainage facility inspection, maintenance, and funding.

See additional information on Source Control BMPs (Appendix 8) and Operation & Maintenance (Appendix 9).

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)
DMA A	DETENTION /SAND FILTER BASIN	SEE ATTACHED TENTATIVE MAP	33°42'8.66"N 117°14'18.93"W
DMA B	MWS Unit	SEE ATTACHED TENTATIVE MAP	33°42'8.81"N 117°14'16.72"W

Will be updated and completed when final Construction Plans are prepared during Final Engineering

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: Home Owners' Association (HOA)

Will the proposed BMPs be maintained by a Homeowners' Association (HOA) or Property Owners Association (POA)?

☒ Y ☐ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

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Appendix G Noise and Vibration Background and Modeling Data

Fundamentals of Noise

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Maximum Sound Level (L_{max}).** The highest RMS sound level measured during the measurement period.

- **Root Mean Square Sound Level (RMS).** The square root of the average of the square of the sound pressure over the measurement period.

- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.

- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.

- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Barely perceptible increase
± 5 dB	Readily perceptible increase
± 10 dB	Twice or half as loud
± 20 dB	Four times or one-quarter as loud

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2020, April. *Transportation and Construction Vibration Guidance Manual*. Prepared by ICF International.

LOCAL REGULATIONS AND STANDARDS

Action	Topic	Implementation Action	Responsible Department	Timing	Resources Required to Complete
Action S-65	Disaster Response	Require all essential and critical facilities (including but not limited to essential City offices and buildings, medical facilities, schools, child care centers, and nursing homes) in or within 200 feet of Flood Zones A, AE and X, or within the dam inundation pathways, to develop disaster response and evacuation plans that address the actions that will be taken in the event of flooding or inundation due to catastrophic failure of a dam.	Community Development and Public Works Departments, Office of Emergency Management, school districts, individual facilities	Short to Long Term, within five years	
Action S-66	Disaster Response	Require that dependent care facilities have all flood-vulnerable electrical circuitry flood-proofed.	Building and Safety Department	Ongoing	Adequate staffing
Action S-67	Disaster Response	Coordinate with the Riverside County Airport Land Use Commission to review the Airport Land Use Plans for March Air Reserve Base and Perris Valley Airport and incorporate applicable disaster preparedness, response, and recovery measures into City disaster planning efforts. The City will consult with the March Inland Port Airport Authority, March Air Reserve Base, and Perris Valley Airport management as to the airports' roles in disaster response and recovery.	Office of Emergency Management	Short Term (in the next 1 to 5 years)	Adequate staffing
Action S-68	Disaster Response	Evaluate proposals for new critical facilities to ensure they are outside of hazardous areas. If the facility must be located in a hazardous area, ensure that the project implements appropriate mitigation measures to protect the facility in the case of damage or disaster.	Community Development and Building and Safety Departments	Ongoing	Adequate staffing
Action S-69	Disaster Response	Coordinate with the Public Utilities Commission (PUC) and/or utilize the Capital Improvement Program, to strengthen, relocate, or take other appropriate measures to safeguard high-voltage lines; water, sewer, natural gas and petroleum pipelines; and trunk electrical and telephone conduits that extend through areas of high liquefaction potential, cross active faults, or traverse earth cracks or landslides.	Public Works and Building and Safety Departments and Utility Providers	Ongoing	Adequate staffing

Noise Implementation Actions

Action	Topic	Implementation Action	Responsible Department	Timing	Resources Required to Complete
Policy and Regulation					
Action N-1	Policy and Reg	Require subdivisions adjacent to developed/occupied noise-sensitive land uses to submit a construction-related noise mitigation plan to the City for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of methods such as: • Temporary noise attenuation fences; • Preferential location of equipment • Current noise suppression technology and equipment.	Community Development and Public Works Departments	Ongoing	Adequate staffing
Action N-2	Policy and Reg	Prepare and adopt a Local Noise Ordinance and include, at a minimum, the following components: • Noise level measurement criteria • Exterior and interior noise standards • Standards for residential noise sources such as, but not limited to, leaf blowers, mobile vendors, mobile stereos and stationary noise sources such as home appliances, air conditioners, and swimming pool equipment • Regulation and enforcement of nuisances • Manner for enforcement of noise violations	Community Development Department	2 years	Adequate staffing
Action N-3	Policy and Reg	Require that a noise analysis be conducted by an acoustical specialist for all proposed noise-sensitive projects. Identify specific structural and site design features that will adequately mitigate noise impacts of nearby noise-generating uses or proposed noise-generating uses. Mitigation strategies could include setbacks, enclosures, sound walls, or natural barriers and landscaping, including hills, berms, boulders, and dense vegetation.	Community Development Department	Ongoing	Adequate staffing

Action	Topic	Implementation Action	Responsible Department	Timing	Resources Required to Complete
Action N-4	Policy and Reg	Require that a noise analysis be conducted by an acoustical specialist for all proposed projects that are potential major noise producers, including, but not limited to industrial, manufacturing, commercial uses, water treatment facilities, and schools. Identify structural and site design features that will adequately mitigate noise impacts if the project is either within proximity of a noise-sensitive land use, or on land designated for noise-sensitive land uses. Mitigation strategies could include selection of quieter equipment, setbacks, building design, enclosures, sound walls, or natural barriers and landscaping, including hills, berms, boulders, and dense vegetation.	Community Development and Building and Safety Departments	Ongoing	Adequate staffing
Action N-5	Policy and Reg	Require applicants proposing the development of new noise-sensitive uses in areas exposed to ambient noise levels greater than 60 dBA CNEL to provide an acoustical study to demonstrate that the proposed uses will meet applicable noise standards and include mitigation strategies.	Community Development Department	Ongoing	Adequate staffing
Action N-6	Policy and Reg	As part of any approvals of noise-sensitive projects where reduction of exterior noise to 65 dBA CNEL is not reasonably feasible, the developer shall be required to issue disclosure statements to be identified on all real estate transfers associated with the affected property that identifies regular exposure to noise.	Community Development and Public Works Departments	Ongoing	Adequate staffing
Action N-7	Policy and Reg	Enforce Right-to-Farm Ordinance to protect Menifee's agricultural resources from noise complaints.	Community Development Department	Ongoing	Adequate staffing
Siting and Design					
Action N-8	Siting and Design	Assist the efforts of local homeowners living in high noise areas to noise attenuate their homes through funding assistance and retrofitting program development, as feasible.	Community Development and Building and Safety Departments	Short term (within 5 years)	Adequate staffing
Transportation Noise					
Action N-9	Transportation	Work with Caltrans to evaluate the potential need for sound barriers and/or other mitigation strategies along segments of I-215 that abut existing noise-sensitive land uses.	Community Development and Public Works Departments	Short term (within 5 years)	Adequate staffing, funding to share costs associated with mitigation strategies
Action N-10	Transportation	Work with the Southern California Rail Authority and Union Pacific Railroad to construct noise barriers and implement quiet zones in areas where noise-sensitive uses exist or are proposed adjacent to railroad tracks, where feasible.	Community Development and Public Works Departments	Short term (within 5 years)	Adequate staffing, funding to share costs associated with mitigation strategies
Action N-11	Transportation	Implement quiet zone standards for new railroad crossings.	Community Development and Public Works Departments	Short term (within 5 years)	Adequate staffing
Action N-13	Transportation	Evaluate existing roadways and repair paving in sections that need improvement.	Community Development and Public Works Departments	Short term (within 5 years)	Adequate staffing, funding to repair areas in need of improvement
Action N-14	Transportation	Encourage and facilitate the use of nonmotorized and electric vehicles.	Community Development and Public Works Departments	Ongoing	Adequate staffing
Noise Spillover					
Action N-15	Siting and Design	Require that the parking structures, terminals, and loading docks of commercial, industrial, office, and other noise-generating land uses be designed and managed to minimize the potential noise impacts of vehicles on site as well as on adjacent land uses.	Community Development Department	Ongoing	Adequate staffing

Any existing or proposed use that constitutes or may be considered a nuisance or hazard on any adjacent property due to emittance of excessive light or glare from mechanical or chemical processes or from reflective materials used or stored on the site shall be shielded or otherwise modified to prevent such emissions.

9.210.060 Noise Control Regulations

A. Intent. At certain levels, sound becomes noise and may jeopardize the health, safety or general welfare of city residents and degrade their quality of life. Pursuant to its police power, the City Council hereby declares that noise shall be regulated in the manner described herein. This chapter is intended to establish citywide standards regulating noise. This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act (CEQA), and no such thresholds are hereby established.

B. General Exemptions. Sound emanating from the following sources are exempt from the provisions of this chapter:

1. Facilities owned or operated by or for a governmental agency.
2. Capital improvement projects of a governmental agency.
3. The maintenance or repair of public properties.
4. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile.
5. Public and private schools and school-sponsored activities.
6. Agricultural operations on land designated Agriculture in the City's General Plan, or land zoned AG (Agriculture), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile.
7. Wind energy conversion systems (WECS), provided such systems comply with the noise provisions of the Menifee Municipal Code.
8. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.
9. Motor vehicles (factory equipped), other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems.
10. Heating and air conditioning equipment in proper repair.
11. Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety and welfare.
12. The discharge of firearms consistent with all state laws.
13. Bars, nightclubs, cocktail lounges, cabarets, billiards/pool halls, restaurants, drive-ins and eating establishments that have a Conditional Use Permit for on-site alcohol sales and live entertainment (interior noise). Outdoor patios and similar areas shall be subject

to the requirements of this chapter, unless conditioned otherwise under Conditional Use Permit review.

C. Construction-Related Exemptions. Exceptions may be requested from the standards set forth in Section 9.210.060 of this chapter and may be characterized as construction-related, single event or continuous events exceptions.

1. Private construction projects, with or without a Building Permit, located one-quarter of a mile or more from an inhabited dwelling.

2. Private construction projects, with or without a building permit, located within one-quarter of a mile from an inhabited dwelling, shall be permitted Monday through Saturday, except nationally recognized holidays, 6:30 a.m. to 7:00 p.m., or specified in Section 8.01.010. There shall be no construction permitted on Sunday or nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer.

3. Construction-related exceptions. If construction occurs during off hours or exceeds noise thresholds, an application for a construction-related exception shall be made using the temporary use application provided by the Community Development Director in Chapter 9.105 of this Title. For construction activities on Sunday or nationally recognized holidays, Section 8.01.010 of this Code shall prevail.

D. General Sound Level Standards. No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior and interior sound level on any other occupied property to exceed the sound level standards set forth in Table 9.210.060-1, Stationary Source Noise Standards.

Table 9.210.060-1 Stationary Source Noise Standards		
Land Use	Interior Standards	Exterior Standards
10:00 p.m. to 7:00 a.m.	40 L_{eq} (10-minute)	45 L_{eq} (10-minute)
7:00 a.m. to 10:00 p.m.	55 L_{eq} (10-minute)	65 L_{eq} (10-minute)

E. Sound Level Measurement Methodology. Sound level measurements may be made anywhere within the boundaries of an occupied property. The actual location of a sound level measurement shall be at the discretion of the enforcement officials identified in Section 9.210.060.G. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be reverified. Sound level meters and calibration equipment shall be certified annually.

F. Special Sound Level Measurement Methodology. The general sound level standards set forth in Section 9.210.060.E apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards; failure to comply with these standards constitutes separate violations of this chapter.

1. Motor vehicles.

a. Off-highway vehicles.

i. No person shall operate an off-highway vehicle unless it is equipped with a USDA-qualified spark arrester and a constantly operating and properly maintained muffler. A muffler is not considered constantly operating and properly maintained if it is equipped with a cutout, bypass or similar device.

ii. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than 96 dBA if the vehicle was manufactured on or after January 1, 1986, or is not more than 101 dBA if the vehicle was manufactured before January 1, 1986. For purposes of this division, emitted noise shall be measured a distance of 20 inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.

b. Sound systems. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of 10:00 p.m. and 8:00 a.m. the following morning, such that the sound system is audible to the human ear inside any inhabited dwelling. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, at any other time such that the sound system is audible to the human ear at a distance greater than 100 feet from the vehicle.

2. Power tools and equipment. No person shall operate any power tools or equipment as specified in Section 8.01.010, such that the power tools or equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than 100 feet from the power tools or equipment.

3. Audio equipment. No person shall operate any audio equipment, whether portable or not, between the hours of 10:00 p.m. and 8:00 a.m. the following morning such that the equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the equipment may be located. No person shall operate any audio equipment, whether portable or not, at any other time such that the equipment is audible to the human ear at a distance greater than 100 feet from the equipment.

4. Sound-amplifying equipment and live music. No person shall install, use or operate sound-amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control.

a. Sound-amplifying equipment or live music is prohibited between the hours of 10:00 p.m. and 8:00 a.m. the following morning on Sunday through Thursday and between the hours of 11:00 p.m. and 8:00 a.m. the following morning on Friday and Saturday.

b. Sound emanating from sound-amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than 200 feet from the equipment or music.

G. Duty to Cooperate. No person shall refuse to cooperate with, or obstruct, any peace officer or code enforcement officer when he or she is engaged in the process of enforcing the provisions of this chapter. This duty to cooperate may require a person to extinguish a sound source so that it can be determined whether sound emanating from the source violates the provisions of this chapter.

9.210.070 Vibrations

All uses shall be so operated so as not to generate vibration discernible without instruments by the average person while on or beyond the lot upon which the source is located or within an adjoining enclosed space if more than one establishment occupies a structure. Vibration caused by motor vehicles, trains and temporary construction is exempted from this standard.

9.210.080 Property Maintenance

A. Maintenance required. Buildings, structures, yards and other improvements shall be maintained in a manner that does not detract from the appearance of the immediate neighborhood.

B. Prohibited conditions. The following conditions shall be prohibited:

   1. Dilapidated, deteriorating or unrepaired structures (e.g., fences, roofs, doors, walls, windows).
   2. Scrap lumber, junk, trash or debris.
   3. Abandoned, discarded or unused objects or equipment (e.g., automobiles, automobile parts, furniture, stoves, refrigerators, cans, containers).
   4. Stagnant water or excavations, including pools and spas.

C. Applicable regulations. Other applicable regulations on property maintenance include Chapter 11.40 (Abatement of Graffiti), Chapter 6.10 (Illegal Dumping), and Chapter 8.20 Nuisances Generally (Nuisances) of this Code.

9.210.090 Hazardous Materials

The following standards are intended to ensure that the use, handling, storage and transportation of hazardous substances comply with the Menifee General Plan Safety Element S-5: Hazardous Materials, and all applicable state laws (Government Code Section 65850.2 and Health and Safety Code Section 25505, et seq.) and that appropriate information is reported to the City.

A Conditional Use Permit is required pursuant to Chapter 9.40 (Conditional Use Permits) for the storage of hazardous materials in conjunction with an on-site primary use where quantities are in excess of the threshold specified in the Uniform Building Code.

For the purposes of this section, "hazardous substances" shall include all substances on the comprehensive master list of hazardous substances compiled and maintained by the California Department of Toxic Substances Control.

A. Reporting Requirements. All businesses required by state law (Health and Safety Code Chapter 6.95) to prepare hazardous materials release response plans shall submit copies of these plans, including any revisions, to the Community Development Director at the same time these plans are submitted to the Fire Department.

B. Underground Storage. Underground storage of hazardous substances shall comply with all applicable requirements of state law (Health and Safety Code Chapter 6.7, and Section 79.1 13(a) of the Uniform Fire Code). Businesses that use underground storage tanks shall comply with the following notification procedures:

   1. Notify the Fire Department of any unauthorized release of hazardous substances immediately and take steps necessary to control the release; and

Wall Sign. Any sign which is attached to, painted on or erected upon the exterior wall of a building or structure including the parapet, with the display surface of the sign parallel to the building wall.

Window Sign. Any sign painted, attached, glued or otherwise affixed to the interior or exterior surfaces of a window or located within 5 feet of the interior side of a window for the primary purpose of being visible from the exterior of the building.

Wind-Driven Sign. A single or series of pennants or other similar objects which are fastened together at intervals by wire, rope, cord, string or by any other means and which are designed to move and attract attention upon being subjected to pressure by wind or breeze. Certain flags and flag signs may not be considered a wind-driven sign.

9.305.060 Noise Control Regulations

A-Weighted Decibel (dBA). The standard A-weighted frequency response of a sound level meter, which de-emphasizes low and high frequencies of sound in a manner similar to the human ear for moderate sounds.

Audio Equipment. A television, stereo, radio, tape player, compact disc player, MP3 player, iPod, music equipment/instrument or other similar device.

Decibel (dB). A unit for measuring the relative amplitude of a sound equal approximately to the smallest difference normally detectable by the human ear, the range of which includes approximately 130 decibels on a scale beginning with zero decibels for the faintest detectable sound. Decibels are measured with a sound level meter using different methodologies as defined below.

Equivalent Continuous Noise Level (Leq). The noise level energy averaged over the measurement period. For example, a 10-minute Leq would be averaged over a 10-minute period.

Motor Vehicle Sound System. A television, stereo, radio, tape player, compact disc player, MP3 player, iPod, music equipment/ instrument or another similar device attached to or installed within the vehicle.

Noise. Any loud, discordant or disagreeable sound.

Occupied Property. Property upon which is located a residence, business or industrial or manufacturing use. Property where a residential, commercial, business, industrial, manufacturing or storage activity is taking place.

Off-Highway Vehicle. A motor vehicle as defined in California Vehicle Code Section 38006, including without limitation off-highway motorcycle, sand buggy, dune buggy, all-terrain vehicle or jeep.

Sensitive Receptor. A living organism or land use that is identified as sensitive to noise in the Noise Element of the City's General Plan, including, but not limited to, residences, schools, hospitals, churches, rest homes, cemeteries or public libraries.

Sound-Amplifying Equipment. A loudspeaker, microphone, megaphone or other similar device.

Sound-Generating Equipment. A musical instrument/device, motor, generator or other mechanical equipment or device capable of generating sound not otherwise defined herein.

CONSTRUCTION NOISE MODELING

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/27/2021
Case Description: COMN-05

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Asphalt Demolition	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.6	85.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/27/2021
Case Description: COMN-05

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site Preperation	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.0	84.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/27/2021
Case Description: COMN-05

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Rough Grading	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50.0	0.0
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Scraper	No	40		83.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	86.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/27/2021
Case Description: COMN-05

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Fine Grading	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Scraper	No	40		83.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	85.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/27/2021
Case Description: COMN-05

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building Construction	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	50.0	0.0
Generator	No	50		80.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	74.0	70.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.0	83.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/27/2021
Case Description: COMN-05

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Paving	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	50.0	0.0
Pavement Scarafier	No	20		89.5	50.0	0.0
Roller	No	20		80.0	50.0	0.0
Roller	No	20		80.0	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	77.2	74.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	89.5	82.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.5	83.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/10/2021
Case Description: COMN-05

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Utility Trenching	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/10/2021
Case Description: COMN-05

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Architectrual Coating	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

COMN-05 Construction Noise Modeling Attenuation Calculations

Phase	RCNM Reference Noise Level	Residences to the East	Residences to the West
		Levels in dBA Leq	
Distance in feet	*50*	*645*	*715*
Site Preparation	84	62	61
Rough Grading	87	64	63
Fine Grading	86	64	63
Distance in feet	*50*	*130*	*90*
Building Construction	83	75	78
Distance in feet	*50*	*200*	*170*
Paving	84	72	73
Distance in feet	*50*	*80*	*160*
Architectural Coating	74	70	64
Distance in feet	*50*	*50*	*50*
Utility Trenching	77	77	77

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

COMN-05 Vibration Annoyance Attenuation Calculations

Levels in in/sec PPV

Distance in feet	**Vibration Reference Level at *25 feet***	**Residential West** *25*	**Residential West** *40*	**Residential East** *55*
Vibratory Roller	0.21	-	0.104	0.064
Hoe Ram	0.089	0.089	-	0.027
Large Bulldozer	0.089	0.089	-	0.027
Caisson Drilling	0.089	0.089	-	0.027
Loaded Trucks	0.076	0.076	-	0.023
Jackhammer	0.035	0.035	-	0.011
Small Bulldozer	0.003	0.003	-	0.001

TRAFFIC NOISE INCREASE CALCULATIONS

Traffic Noise Calculator: FHWA 77-108 **Project Title: Existing COMN-05**

	Output						Inputs													
	dBA at 50 feet			Distance to CNEL Contour																
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	64.3	67.8	68.3	34	108	341	Goetz Road - north of Street B/Paseo La Plaza		5,646	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
2	64.3	67.8	68.3	34	107	337	Goetz Road - South of street B/Paseo La Plaza		5,588	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
3	49.8	52.9	53.5	1	4	11	Street B/Paseo La Plaza - east of Goetz Road		886	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
5	64.3	67.8	68.3	34	107	337	Goetz Road - north of A street		5,588	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
6	64.3	67.8	68.3	34	107	337	Goetz Road - south of A street		5,588	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
9	67.8	71.3	71.8	76	239	755	Goetz Road - north of Audie Murphy Road North		12,520	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
10	67.4	70.8	71.4	68	216	683	Goetz Road - south of Audie Murphy Road North		11,324	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
11	54.7	57.8	58.4	3	11	35	Audie Murphy Road North - east of Goetz Road		1,915	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
12	44.9	48.4	48.9	0	1	4	Audie Murphy Road North - west of Goetz Road		100	35	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
13	67.4	70.8	71.4	68	216	683	Goetz Road - north of Audie Murphy Road South		11,324	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
14	69.9	73.4	73.9	122	385	1219	Goetz Road - south of Audie Murphy Road South		20,210	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
15	59.7	62.8	63.4	11	35	110	Audie Murphy South - east of Goetz Road		6,074	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
16	60.9	64.0	64.6	14	45	144	Audie Murphy South - west of Goetz Road		7,961	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
17	69.9	73.4	73.9	124	391	1237	Goetz Road - north of Railroard Canyon Road		20,510	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
18	53.7	57.2	57.7	3	9	29	Goetz Road - south of Railroard Canyon Road		486	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
19	73.6	77.1	77.6	290	917	2900	Railroad Canyon - east of Goetz Road		30,787	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
20	74.0	77.4	78.0	313	989	3127	Railroad Canyon - west of Goetz Road		33,202	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
21	63.0	66.1	66.7	23	74	233	Berea Road - north fo Newport Road		9,347	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
22	59.7	62.8	63.4	11	34	109	Berea Road - south fo Newport Road		4,359	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
23	74.4	77.9	78.4	348	1101	3483	Newport Road - east of Berea Road		37,747	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
24	74.0	77.5	78.0	316	998	3157	Newport Road - west of Berea Road		34,217	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
25	67.2	70.7	71.2	66	208	658	Murrieta Road - north of Newport Road		13,221	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
26	67.3	70.8	71.3	67	213	673	Murrieta Road - south of Newport Road		13,521	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
27	74.4	77.9	78.4	347	1099	3475	Newport Road - east of Murrieta Road		37,661	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
28	74.3	77.7	78.2	334	1056	3339	Newport Road - west of Murrieta Road		36,189	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
29	55.7	58.8	59.4	4	14	43	Evans Road - north of Newport Road		2,401	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
30	55.5	58.6	59.2	4	13	42	Evans Road - south of Newport Road		2,301	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
31	74.6	78.1	78.6	365	1156	3654	Newport Road - east of Evans Road		39,605	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
32	74.5	78.0	78.5	356	1125	3558	Newport Road - west of Evans Road		38,562	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
33	64.7	67.8	68.3	34	108	342	Brandley Road - north of Newport Road		18,952	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
34	63.7	66.7	67.3	27	85	270	Brandley Road - south of Newport Road		14,979	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
35	75.5	78.9	79.5	441	1395	4410	Newport Road - east of Bradley Road		47,795	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
36	74.7	78.2	78.7	370	1170	3700	Newport Road - west of Bradley Road		40,105	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
37	54.4	57.5	58.1	3	10	32	Avenida De Cortez - north of Newport Road		2,573	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
38	58.6	61.7	62.3	8	27	84	Avenida De Cortez - south of Newport Road		6,689	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
39	75.9	79.3	79.9	483	1529	4834	Newport Road - east of Avenida De Cortez		52,397	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
40	75.5	79.0	79.5	443	1400	4428	Newport Road - west of Avenida De Cortez		47,995	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
41	63.3	66.4	67.0	25	79	249	Haun Road - north of Newport Road		13,807	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
42	70.1	73.2	73.8	119	376	1189	Haun Road - south of Newport Road		35,546	45	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
43	77.3	80.8	81.3	671	2123	6712	Newport Road - east of Haun Road		72,746	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
44	75.6	79.1	79.6	456	1441	4556	Newport Road - west of Haun Road		49,381	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
45	74.1	77.6	78.1	322	1017	3216	I-215 SB Ramps - north of Newport Road		25,441	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
46	68.3	71.8	72.3	84	267	844	I-215 SB Ramps - south of Newport Road		6,675	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
47	77.2	80.6	81.2	653	2066	6533	Newport Road - east of I-215 SB Ramps		70,806	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
48	77.3	80.8	81.3	671	2123	6712	Newport Road - west of I-215 SB Ramps		72,746	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
49	67.6	71.1	71.6	73	230	728	I-215 NB Ramps - north of Newport Road		5,760	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
50	73.9	77.3	77.9	305	965	3052	I-215 NB Ramps - south of Newport Road		24,140	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
51	77.5	80.9	81.5	699	2209	6985	Newport Road - east of I-215 NB Ramps		75,709	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
52	77.2	80.6	81.1	652	2060	6516	Newport Road - west of I-215 NB Ramps		70,620	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50

Traffic Noise Calculator: FHWA 77-108 **Project Title: Existing Plus Project COMN-05**

	Output						Inputs												
	dBA at 50 feet			Distance to CNEL Contour															
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	64.5	68.0	68.5	36	113	357	Goetz Road - north of Street B/Paseo La Plaza	5,920	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
2	64.8	68.3	68.8	38	120	378	Goetz Road - South of street B/Paseo La Plaza	6,272	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
3	49.8	52.9	53.5	1	4	11	Street B/Paseo La Plaza - east of Goetz Road	886	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
5	64.8	68.3	68.8	38	120	378	Goetz Road - north of A street	6,272	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
6	65.1	68.5	69.1	40	127	403	Goetz Road - south of A street	6,684	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
9	68.2	71.6	72.2	82	260	821	Goetz Road - north of Audie Murphy Road North	13,616	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
10	67.8	71.2	71.8	75	237	749	Goetz Road - south of Audie Murphy Road North	12,420	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
11	54.7	57.8	58.4	3	11	35	Audie Murphy Road North - east of Goetz Road	1,915	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
12	44.9	48.4	48.9	0	1	4	Audie Murphy Road North - west of Goetz Road	100	35	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
13	67.8	71.2	71.8	75	237	749	Goetz Road - north of Audie Murphy Road South	12,420	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
14	70.1	73.6	74.1	129	406	1285	Goetz Road - south of Audie Murphy Road South	21,306	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
15	59.7	62.8	63.4	11	35	110	Audie Murphy South - east of Goetz Road	6,074	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
16	60.9	64.0	64.6	14	45	144	Audie Murphy South - west of Goetz Road	7,961	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
17	70.2	73.6	74.2	130	412	1303	Goetz Road - north of Railroard Canyon Road	21,608	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
18	53.7	57.2	57.7	3	9	29	Goetz Road - south of Railroard Canyon Road	486	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
19	73.7	77.2	77.7	296	937	2964	Railroad Canyon - east of Goetz Road	31,473	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
20	74.0	77.5	78.0	317	1001	3166	Railroad Canyon - west of Goetz Road	33,614	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
21	63.0	66.1	66.7	23	74	233	Berea Road - north fo Newport Road	9,347	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
22	59.7	62.8	63.4	11	34	109	Berea Road - south fo Newport Road	4,359	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
23	74.5	78.0	78.5	355	1121	3546	Newport Road - east of Berea Road	38,433	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
24	74.1	77.6	78.1	322	1018	3220	Newport Road - west of Berea Road	34,903	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
25	67.2	70.7	71.2	66	208	658	Murrieta Road - north of Newport Road	13,221	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
26	67.3	70.8	71.3	67	213	673	Murrieta Road - south of Newport Road	13,521	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
27	74.5	78.0	78.5	354	1119	3538	Newport Road - east of Murrieta Road	38,347	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
28	74.3	77.8	78.3	340	1076	3402	Newport Road - west of Murrieta Road	36,875	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
29	55.7	58.8	59.4	4	14	43	Evans Road - north of Newport Road	2,401	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
30	55.5	58.6	59.2	4	13	42	Evans Road - south of Newport Road	2,301	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
31	74.7	78.2	78.7	372	1176	3717	Newport Road - east of Evans Road	40,291	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
32	74.6	78.1	78.6	362	1145	3621	Newport Road - west of Evans Road	39,248	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
33	64.7	67.8	68.3	34	108	342	Brandley Road - north of Newport Road	18,952	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
34	63.7	66.7	67.3	27	85	270	Brandley Road - south of Newport Road	14,979	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
35	75.5	79.0	79.5	447	1415	4473	Newport Road - east of Bradley Road	48,481	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
36	74.8	78.2	78.8	376	1190	3764	Newport Road - west of Bradley Road	40,791	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
37	54.4	57.5	58.1	3	10	32	Avenida De Cortez - north of Newport Road	2,573	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
38	58.6	61.7	62.3	8	27	84	Avenida De Cortez - south of Newport Road	6,689	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
39	75.9	79.4	79.9	490	1549	4898	Newport Road - east of Avenida De Cortez	53,083	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
40	75.5	79.0	79.5	449	1420	4492	Newport Road - west of Avenida De Cortez	48,681	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
41	63.3	66.4	67.0	25	79	249	Haun Road - north of Newport Road	13,807	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
42	70.1	73.2	73.8	119	377	1192	Haun Road - south of Newport Road	35,614	45	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
43	77.3	80.8	81.3	677	2140	6769	Newport Road - east of Haun Road	73,362	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
44	75.7	79.1	79.7	462	1461	4619	Newport Road - west of Haun Road	50,065	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
45	74.1	77.6	78.1	323	1021	3229	I-215 SB Ramps - north of Newport Road	25,544	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
46	68.4	71.9	72.4	87	274	865	I-215 SB Ramps - south of Newport Road	6,846	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
47	77.2	80.7	81.2	656	2076	6565	Newport Road - east of I-215 SB Ramps	71,149	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
48	77.3	80.8	81.3	677	2141	6769	Newport Road - west of I-215 SB Ramps	73,363	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
49	67.6	71.1	71.6	73	230	728	I-215 NB Ramps - north of Newport Road	5,760	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
50	73.9	77.4	77.9	309	976	3086	I-215 NB Ramps - south of Newport Road	24,414	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
51	77.5	80.9	81.5	699	2211	6992	Newport Road - east of I-215 NB Ramps	75,777	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
52	77.2	80.7	81.2	655	2070	6547	Newport Road - west of I-215 NB Ramps	70,962	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50

Traffic Noise Calculator: FHWA 77-108 **Project Title: Future NP COMN-05**

	Output						Inputs												
	dBA at 50 feet			Distance to CNEL Contour															
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	65.0	68.5	69.0	40	125	396	Goetz Road - north of Street B/Paseo La Plaza	6,573	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
2	65.0	68.4	69.0	39	124	393	Goetz Road - South of street B/Paseo La Plaza	6,511	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
3	50.2	53.2	53.8	1	4	12	Street B/Paseo La Plaza - east of Goetz Road	959	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
5	65.0	68.4	69.0	39	124	393	Goetz Road - north of A street	6,511	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
6	65.0	68.4	69.0	39	124	393	Goetz Road - south of A street	6,511	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
9	68.6	72.1	72.6	91	288	911	Goetz Road - north of Audie Murphy Road North	15,103	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
10	68.5	72.0	72.5	90	283	895	Goetz Road - south of Audie Murphy Road North	14,842	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
11	55.8	58.9	59.5	4	14	44	Audie Murphy Road North - east of Goetz Road	2,443	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
12	54.6	58.1	58.6	4	12	36	Audie Murphy Road North - west of Goetz Road	935	35	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
13	68.5	72.0	72.5	90	283	895	Goetz Road - north of Audie Murphy Road South	14,839	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
14	70.8	74.3	74.8	151	476	1506	Goetz Road - south of Audie Murphy Road South	24,962	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
15	60.5	63.6	64.2	13	42	132	Audie Murphy South - east of Goetz Road	7,311	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
16	61.3	64.4	65.0	16	50	158	Audie Murphy South - west of Goetz Road	8,777	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
17	70.9	74.3	74.8	153	482	1525	Goetz Road - north of Railroard Canyon Road	25,287	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
18	55.2	58.7	59.2	4	13	41	Goetz Road - south of Railroard Canyon Road	686	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
19	74.3	77.8	78.3	339	1073	3392	Railroad Canyon - east of Goetz Road	36,018	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
20	74.6	78.1	78.6	361	1142	3611	Railroad Canyon - west of Goetz Road	38,339	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
21	63.7	66.7	67.3	27	86	271	Berea Road - north fo Newport Road	10,854	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
22	60.2	63.3	63.9	12	39	122	Berea Road - south fo Newport Road	4,889	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
23	75.1	78.6	79.1	407	1287	4071	Newport Road - east of Berea Road	44,119	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
24	74.7	78.1	78.7	367	1159	3666	Newport Road - west of Berea Road	39,731	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
25	68.5	72.0	72.5	89	281	889	Murrieta Road - north of Newport Road	17,861	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
26	68.4	71.8	72.3	86	272	859	Murrieta Road - south of Newport Road	17,253	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
27	75.6	79.1	79.6	454	1434	4536	Newport Road - east of Murrieta Road	49,162	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
28	74.9	78.4	78.9	392	1238	3915	Newport Road - west of Murrieta Road	42,432	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
29	57.9	61.0	61.6	7	23	72	Evans Road - north of Newport Road	3,975	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
30	56.9	60.0	60.6	6	18	57	Evans Road - south of Newport Road	3,167	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
31	76.0	79.5	80.0	503	1589	5026	Newport Road - east of Evans Road	54,472	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
32	75.9	79.3	79.8	482	1526	4825	Newport Road - west of Evans Road	52,290	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
33	66.4	69.4	70.0	50	159	503	Brandley Road - north of Newport Road	27,863	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
34	64.7	67.8	68.4	35	110	347	Brandley Road - south of Newport Road	19,251	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
35	76.8	80.3	80.8	606	1916	6059	Newport Road - east of Bradley Road	65,672	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
36	76.2	79.7	80.2	525	1659	5245	Newport Road - west of Bradley Road	56,851	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
37	55.3	58.3	58.9	4	12	39	Avenida De Cortez - north of Newport Road	3,103	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
38	59.7	62.7	63.3	11	34	108	Avenida De Cortez - south of Newport Road	8,550	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
39	77.1	80.6	81.1	646	2041	6456	Newport Road - east of Avenida De Cortez	69,967	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
40	76.8	80.3	80.8	604	1911	6042	Newport Road - west of Avenida De Cortez	65,480	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
41	64.7	67.8	68.3	34	108	342	Haun Road - north of Newport Road	18,933	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
42	71.4	74.5	75.0	160	505	1598	Haun Road - south of Newport Road	47,756	45	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
43	78.4	81.9	82.4	863	2730	8634	Newport Road - east of Haun Road	93,574	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
44	76.9	80.4	80.9	615	1946	6155	Newport Road - west of Haun Road	66,705	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
45	74.9	78.4	78.9	389	1230	3891	I-215 SB Ramps - north of Newport Road	30,780	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
46	69.3	72.8	73.3	108	340	1077	I-215 SB Ramps - south of Newport Road	8,516	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
47	78.2	81.6	82.1	819	2591	8194	Newport Road - east of I-215 SB Ramps	88,809	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
48	78.4	81.9	82.4	863	2730	8634	Newport Road - west of I-215 SB Ramps	93,574	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
49	69.6	73.1	73.6	115	362	1145	I-215 NB Ramps - north of Newport Road	9,060	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
50	74.5	78.0	78.5	352	1113	3519	I-215 NB Ramps - south of Newport Road	27,839	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
51	78.3	81.8	82.3	844	2668	8438	Newport Road - east of I-215 NB Ramps	91,449	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
52	78.1	81.6	82.1	818	2585	8175	Newport Road - west of I-215 NB Ramps	88,608	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50

Traffic Noise Calculator: FHWA 77-108 **Project Title: Existing COMN-05**

	Output						Inputs												
	dBA at 50 feet			Distance to CNEL Contour															
ID	$L_{eq-24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	65.2	68.7	69.2	41	131	413	Goetz Road - north of Street B/Paseo La Plaza	6,847	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
2	65.4	68.9	69.4	43	137	434	Goetz Road - South of street B/Paseo La Plaza	7,195	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
3	50.2	53.2	53.8	1	4	12	Street B/Paseo La Plaza - east of Goetz Road	959	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
5	65.4	68.9	69.4	43	137	434	Goetz Road - north of A street	7,195	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
6	65.6	69.1	69.6	46	145	459	Goetz Road - south of A street	7,607	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
9	68.9	72.4	72.9	98	309	977	Goetz Road - north of Audie Murphy Road North	16,199	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
10	68.8	72.3	72.8	96	304	961	Goetz Road - south of Audie Murphy Road North	15,938	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
11	55.8	58.9	59.5	4	14	44	Audie Murphy Road North - east of Goetz Road	2,443	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
12	54.6	58.1	58.6	4	12	36	Audie Murphy Road North - west of Goetz Road	935	35	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
13	68.8	72.3	72.8	96	304	961	Goetz Road - north of Audie Murphy Road South	15,935	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
14	71.0	74.5	75.0	157	497	1572	Goetz Road - south of Audie Murphy Road South	26,058	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
15	60.5	63.6	64.2	13	42	132	Audie Murphy South - east of Goetz Road	7,311	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
16	61.3	64.4	65.0	16	50	158	Audie Murphy South - west of Goetz Road	8,777	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
17	71.0	74.5	75.0	159	503	1591	Goetz Road - north of Railroard Canyon Road	26,385	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
18	55.2	58.7	59.2	4	13	41	Goetz Road - south of Railroard Canyon Road	686	45	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
19	74.4	77.9	78.4	346	1093	3457	Railroad Canyon - east of Goetz Road	36,704	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
20	74.6	78.1	78.6	365	1154	3650	Railroad Canyon - west of Goetz Road	38,751	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	6	Hard	50
21	63.7	66.7	67.3	27	86	271	Berea Road - north fo Newport Road	10,854	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
22	60.2	63.3	63.9	12	39	122	Berea Road - south fo Newport Road	4,889	40	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
23	75.2	78.7	79.2	413	1307	4134	Newport Road - east of Berea Road	44,805	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
24	74.7	78.2	78.7	373	1179	3729	Newport Road - west of Berea Road	40,417	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
25	68.5	72.0	72.5	89	281	889	Murrieta Road - north of Newport Road	17,861	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
26	68.4	71.8	72.3	86	272	859	Murrieta Road - south of Newport Road	17,253	40	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	4	Hard	50
27	75.6	79.1	79.6	460	1454	4599	Newport Road - east of Murrieta Road	49,848	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
28	75.0	78.5	79.0	398	1258	3978	Newport Road - west of Murrieta Road	43,118	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
29	57.9	61.0	61.6	7	23	72	Evans Road - north of Newport Road	3,975	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
30	56.9	60.0	60.6	6	18	57	Evans Road - south of Newport Road	3,167	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
31	76.1	79.6	80.1	509	1609	5089	Newport Road - east of Evans Road	55,158	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
32	75.9	79.4	79.9	489	1546	4888	Newport Road - west of Evans Road	52,976	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
33	66.4	69.4	70.0	50	159	503	Brandley Road - north of Newport Road	27,863	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
34	64.7	67.8	68.4	35	110	347	Brandley Road - south of Newport Road	19,251	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
35	76.9	80.4	80.9	612	1936	6123	Newport Road - east of Bradley Road	66,358	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
36	76.3	79.7	80.3	531	1679	5309	Newport Road - west of Bradley Road	57,537	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
37	55.3	58.3	58.9	4	12	39	Avenida De Cortez - north of Newport Road	3,103	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
38	59.7	62.7	63.3	11	34	108	Avenida De Cortez - south of Newport Road	8,550	30	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
39	77.2	80.6	81.2	652	2061	6519	Newport Road - east of Avenida De Cortez	70,653	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
40	76.9	80.3	80.9	610	1931	6105	Newport Road - west of Avenida De Cortez	66,166	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
41	64.7	67.8	68.3	34	108	342	Haun Road - north of Newport Road	18,933	35	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
42	71.4	74.5	75.1	160	506	1600	Haun Road - south of Newport Road	47,824	45	0.0%	97.4%	1.84%	0.74%	74.9%	13.7%	11.5%	2	Hard	50
43	78.4	81.9	82.4	869	2748	8690	Newport Road - east of Haun Road	94,190	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
44	77.0	80.4	80.9	622	1966	6218	Newport Road - west of Haun Road	67,389	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
45	74.9	78.4	78.9	390	1235	3904	I-215 SB Ramps - north of Newport Road	30,883	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
46	69.4	72.9	73.4	110	347	1098	I-215 SB Ramps - south of Newport Road	8,687	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
47	78.2	81.6	82.2	823	2601	8226	Newport Road - east of I-215 SB Ramps	89,152	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
48	78.4	81.9	82.4	869	2748	8691	Newport Road - west of I-215 SB Ramps	94,191	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
49	69.6	73.1	73.6	115	362	1145	I-215 NB Ramps - north of Newport Road	9,060	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
50	74.5	78.0	78.5	355	1124	3554	I-215 NB Ramps - south of Newport Road	28,113	65	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	2	Hard	50
51	78.3	81.8	82.3	844	2670	8444	Newport Road - east of I-215 NB Ramps	91,517	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50
52	78.2	81.6	82.2	821	2595	8207	Newport Road - west of I-215 NB Ramps	88,950	55	0.0%	92.0%	3.00%	5.00%	73.34%	13.06%	13.60%	5	Hard	50

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Appendix H Traffic Impact Study

URBAN CROSSROADS

Quail Hill (TTM No. 37692)

TRAFFIC STUDY

CITY OF MENIFEE

PREPARED BY:

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No. TR 2414
TRAFFIC
STATE OF CALIFORNIA

FEBRUARY 22, 2022 (REVISED)

14058-03 TA Report

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APPENDICES

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LIST OF EXHIBITS

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LIST OF TABLES

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
OPR	Office of Planning and Research
PHF	Peak Hour Factor
Project	Quail Hill (TTM No. 37692)
RBBD	Road and Bridge Benefit District
RCTC	Riverside County Transportation Commission
RTA	Riverside Transit Agency
SB 743	Senate Bill 743
SHS	State Highway System
TS	Traffic Study
TCR	Transportation Concept Report
TTM	Tentative Tract Map
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Riverside Council of Governments
V/C	Volume to Capacity
VMT	Vehicle Miles Traveled

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1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for the proposed Quail Hill (TTM No. 37692) (Tentative Track Map No. 37692) development ("Project"), which is located on Goetz Road at Paseo La Plaza in the City of Menifee, as shown on Exhibit 1-1.

The purpose of this TA is to evaluate the potential deficiencies related to traffic, identify circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to resolve identified deficiencies in order to achieve acceptable operational conditions at study area intersections and ensure consistency with the City's General Plan. This TA has been prepared in accordance with the City of Menifee's Traffic Impact Analysis Guidelines (January 2019) and through consultation with City of Menifee staff during the scoping process. (1) The Project traffic study scoping agreement is provided in Appendix 1.1 of this TA, which has been approved by the City of Menifee.

1.1 SUMMARY OF FINDINGS

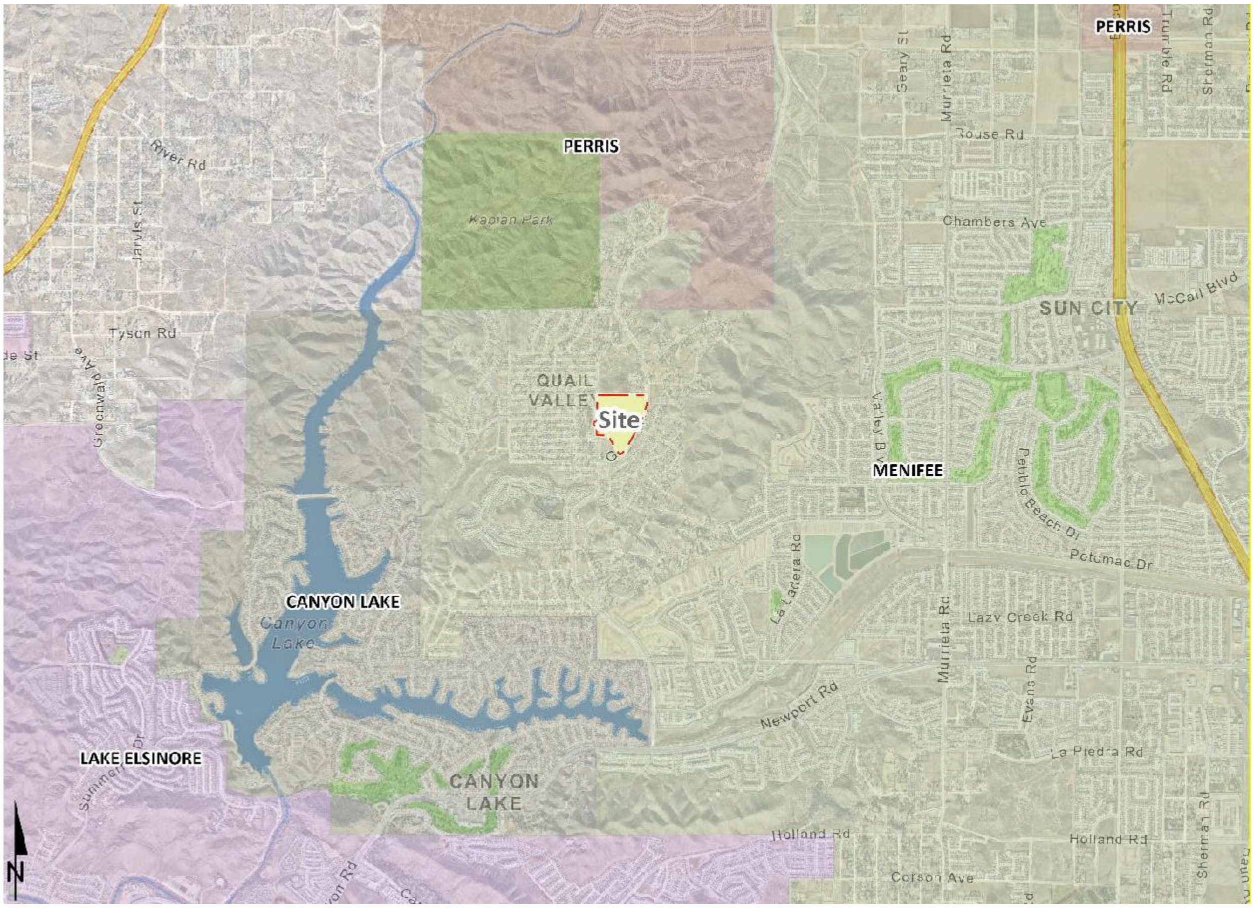
The Project is to construct the following improvements as design features in conjunction with development of the site:

- Construct Goetz Road at its ultimate half-section width between the Project's northern and southern boundaries as a Major Highway (110-foot right-of-way) consistent with the City's General Plan and roadway standards.
- Project to construct access to the site via Street B, which is to align with the existing Paseo La Plaza on Goetz Road. Driveway is to be controlled with a stop sign on the side-street (Street B) with full access (no turn restrictions).
- Project to construct access to the site via new Street A on Goetz Road. Driveway is to be controlled with a stop sign on the side-street (Street A) with full access (no turn restrictions).

Additional details and intersection lane geometrics are provided in Section 1.6 *Recommendations* of this report.

The proposed Project is not anticipated to require the construction of any off-site improvements, however, there are improvement needs identified at off-site intersections for future cumulative traffic study scenarios. As such, the Project Applicant's responsibility for the Project's contributions towards deficient off-site intersections is fulfilled through payment of fair share and/or payment into pre-existing fee programs (if applicable) that would be assigned to the future construction of the identified recommended improvements. The Project Applicant would be required to pay requisite fees and/or fair share contributions consistent with the City's requirements (see Section 7 *Local and Regional Funding Mechanisms*).

EXHIBIT 1-1: LOCATION MAP



1.2 PROJECT OVERVIEW

The Project is proposed to consist of 145 single family detached residential dwelling units. It is anticipated that the Project would have an Opening Year of 2025.

The preliminary site plan for the proposed Project is shown on Exhibit 1-2. As indicated on Exhibit 1-2, vehicular access will be provided via the following driveways:

- Goetz Road via Street A – full access
- Goetz Road via Street B aligning with the existing Paseo La Plaza – full access

It should be noted that the latest site plan reflects the development of 130 single family detached residential dwelling units, however, the analysis contained within this TS is based on a higher unit count and is therefore more conservative and would overstate as opposed to understate potential deficiencies. Regional access to the Project site is available from the I-215 Freeway via Newport Road interchange. Exhibit 1-2 depicts the location of the proposed Project in relation to the existing roadway network and the study area intersections.

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for single family detached residential (ITE Land Use Code 210) was used. (2) The Project is anticipated to generate a net total of 1,370 trip-ends per day with 109 AM peak hour trips and 144 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2021)
- Existing plus Project (E+P)
- Opening Year Cumulative (2025) Without Project
- Opening Year Cumulative (2025) With Project

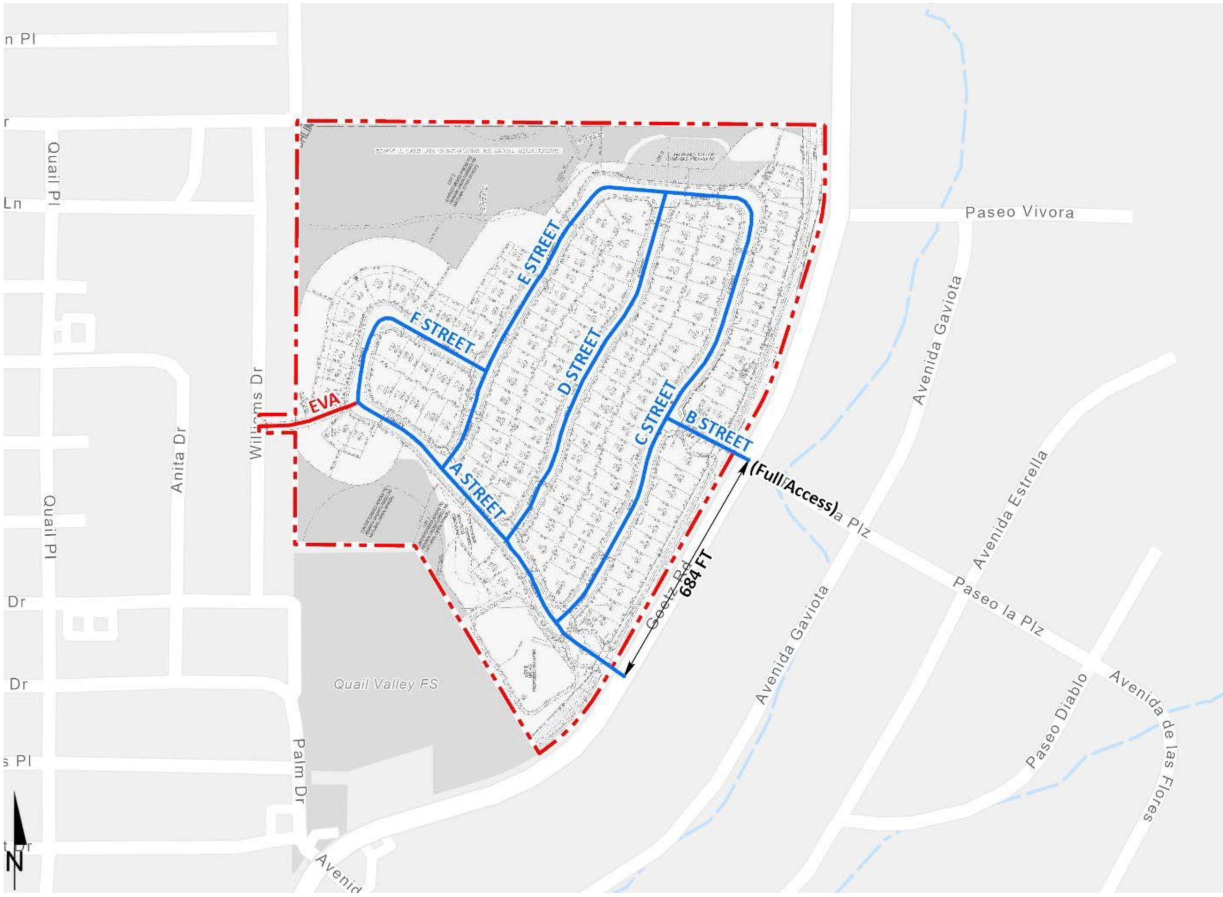
1.3.1 EXISTING (2021) CONDITIONS

Information for Existing (2021) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) analysis determines traffic deficiencies that would occur on the existing roadway system with the addition of Project traffic.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



1.3.3 OPENING YEAR CUMULATIVE (2025) CONDITIONS

The Opening Year Cumulative (2025) conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth from Existing (2021) conditions of 8.24% is included for Opening Year Cumulative (2025) traffic conditions. This comprehensive list was compiled from information provided by the City of Menifee and is consistent with other recent studies in the study area.

1.4 STUDY AREA

To ensure that this Traffic Study (TA) satisfies the City of Menifee's traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by City of Menifee staff prior to the preparation of this report. This agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the City of Menifee is included in Appendix 1.1 of this TA.

1.4.1 INTERSECTIONS

The 13 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with City of Menifee staff. The study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the City of Menifee's traffic study guidelines. (1) The "50 peak hour trip" criteria represent a minimum number of trips at which a typical intersection would have the potential to be substantively affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and widely used within Riverside County for estimating a potential area of influence (i.e., study area).

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently updated in 2011. The Riverside County Transportation Commission (RCTC) adopted the 2011 CMP for the County of Riverside in December 2011. (3) There are no study area intersections identified as a Riverside County CMP intersection.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Goetz Rd. & Street B/Paseo La Plaza	City of Menifee	No
2	Goetz Rd. & Street A	City of Menifee	No
3	Goetz Rd. & Audie Murphy Rd. N	City of Menifee	No
4	Goetz Rd. & Audie Murphy Rd. S/Canyon Lake Dr.	City of Menifee	No
5	Goetz Rd./Buckstone Ln. & Newport Rd./Railroad Canyon Rd.	City of Menifee, City of Lake Elsinore	No
6	Berea Rd./Murphy Ranch Rd. & Newport Rd.	City of Menifee	No
7	Murrieta Rd. & Newport Rd.	City of Menifee	No
8	Evans Rd. & Newport Rd.	City of Menifee	No
9	Bradley Rd. & Newport Rd.	City of Menifee	No
10	Avenida de Cortez & Town Center Rd.	City of Menifee	No
11	Haun Rd. & Newport Rd.	City of Menifee	No
12	I-215 SB Ramps & Newport Rd.	Caltrans, City of Menifee	No
13	I-215 NB Ramps & Newport Rd.	Caltrans, City of Menifee	No

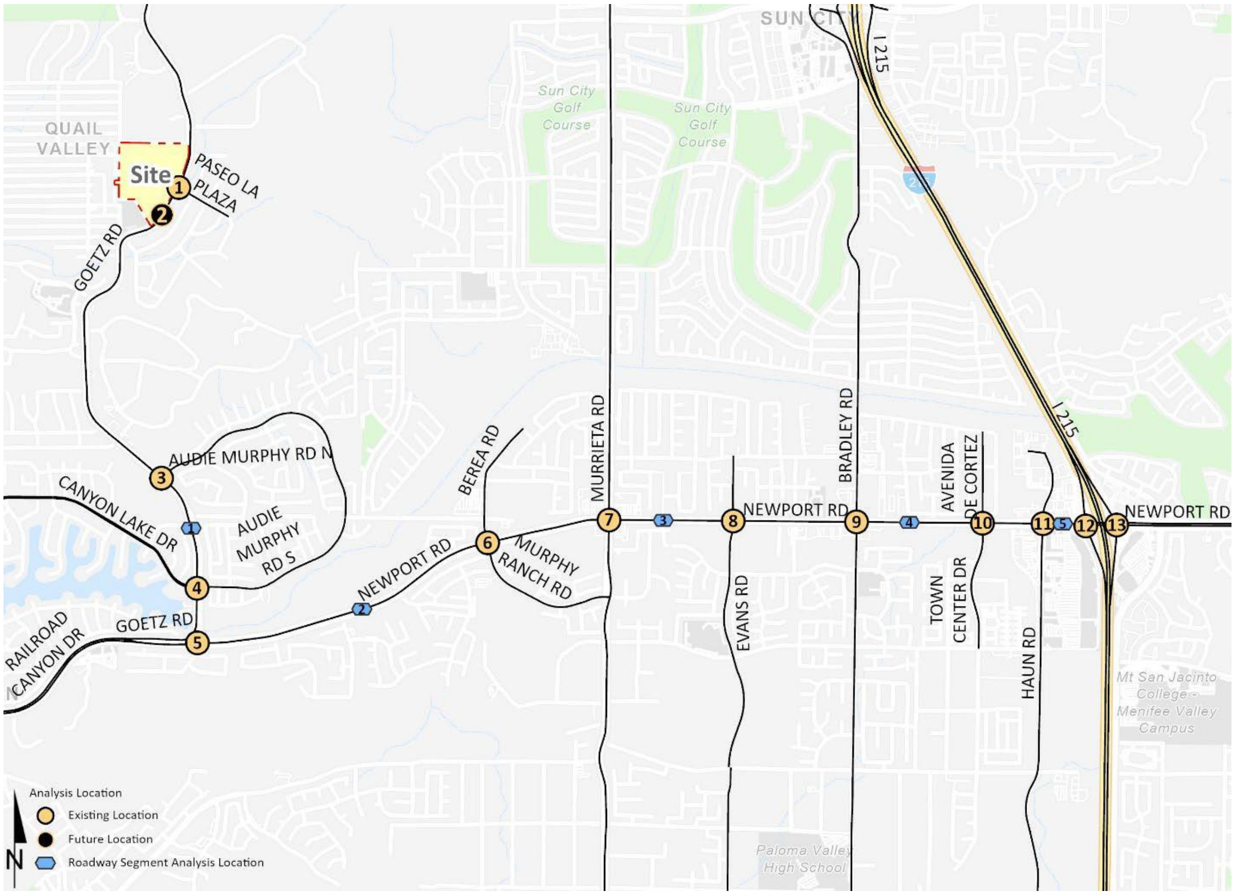
1.4.2 ROADWAY SEGMENTS

At the request of City staff, daily volume-to-capacity (v/c) has been evaluated for the following roadway segments list in Table 1-2:

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Roadway Segments
1	Goetz Rd., north of Newport Rd.
2	Newport Rd., east of Goetz Rd.
3	Newport Rd., between Murrieta Rd. & Bradley Rd.
4	Newport Rd., between Bradley Rd. & Haun Rd.
5	Newport Rd., between Haun Rd. & I-215 Freeway

EXHIBIT 1-3: STUDY AREA



1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions* and Section 6 *Opening Year Cumulative (2025) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-3.

TABLE 1-3: SUMMARY OF LOS

#	Intersection	Existing		E+P		2025 Without Project		2025 With Project	
		AM	PM	AM	PM	AM	PM	AM	PM
1	Goetz Rd. & Street B/Paseo La Plaza	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
2	Goetz Rd. & Street A	N/A	N/A	🟢	🟢	N/A	N/A	🟢	🟢
3	Goetz Rd. & Audie Murphy Rd. N	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
4	Goetz Rd. & Audie Murphy Rd. S/Canyon Lake Dr.	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
5	Goetz Rd./Buckstone Ln. & Newport Rd./Railroad Canyon Rd.	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
6	Berea Rd./Murphy Ranch Rd. & Newport Rd.	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
7	Murrieta Rd. & Newport Rd.	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟡
8	Evans Rd. & Newport Rd.	🟢	🟢	🟢	🟢	🟡	🟢	🟡	🟢
9	Bradley Rd. & Newport Rd.	🟢	🟢	🟢	🟢	🔴	🔴	🔴	🔴
10	Avenida de Cortez & Town Center Rd.	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
11	Haun Rd. & Newport Rd.	🟢	🟢	🟢	🟢	🟢	🔴	🟢	🔴
12	I-215 SB Ramps & Newport Rd.	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
13	I-215 NB Ramps & Newport Rd.	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢

🟢 = Acceptable LOS A - D/E* 🟡 = Unacceptable LOS E 🔴 = Unacceptable LOS F

*Note: LOS E is acceptable LOS at intersections adjacent to the I-215 Freeway

1.5.1 EXISTING CONDITIONS

Intersections

The study area intersections currently operate at an acceptable LOS during the peak hours under Existing (2021) traffic conditions.

Roadway Segments

The study area roadway segments currently operate at an acceptable LOS under Existing (2021) traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria, with the exception of the segment of Newport Road between Haun Road and the I-215 Freeway.

Off-Ramp Queues

No study area movements currently experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Existing (2021) traffic conditions.

1.5.2 E+P CONDITIONS

Intersections

The study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours under E+P traffic conditions, consistent with Existing (2021) traffic conditions.

Roadway Segments

The study area roadway segments are anticipated to continue to operate at an acceptable LOS under E+P traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria, with the exception of the segment of Newport Road between Haun Road and the I-215 Freeway which will continue to operate at a deficient LOS.

Off-Ramp Queues

Consistent with Existing (2021) Conditions, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic.

1.5.3 OPENING YEAR CUMULATIVE (2025) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours under Opening Year Cumulative (2025) Without Project traffic conditions:

- Murrieta Road & Newport Road (#7) – LOS E PM peak hour only
- Evans Road & Newport Road (#8) – LOS E AM peak hour only
- Bradley Road & Newport Road (#9) – LOS F AM and PM peak hour
- Haun Road & Newport Road (#11) – LOS F PM peak hour only

There are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic, in addition to the intersections previously identified under Opening Year Cumulative (2025) Without Project traffic conditions.

Roadway Segments

The study area roadway segments are anticipated to continue to operate at an acceptable LOS under Opening Year Cumulative (2025) Without Project and With Project traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria, with the exception of the following segments:

- Newport Road, Bradley Road to Haun Road (#4) – LOS F
- Newport Road, Haun Road to I-215 Freeway (#5) – LOS F

Off-Ramp Queues

There are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Opening Year Cumulative (2025) Without Project and With Project traffic conditions.

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the minimum improvements needed to accommodate site access and maintain acceptable peak hour operations. The site adjacent recommendations are shown on Exhibits 1-4.

Recommendation 1 – Goetz Road & Street B/Paseo La Plaza (#1) – The following improvements are necessary to accommodate site access:

- Project to construct eastbound shared left-through-right turn lane with a stop sign.
- Project to construct a northbound left turn lane with a minimum of 100-feet of storage within a painted two-way left turn lane.
- The roadway improvement will also accommodate a southbound left turn lane (100-feet of storage) into Paseo La Plaza.

Recommendation 2 – Goetz Road & Street A (#2) – The following improvements are necessary to accommodate site access:

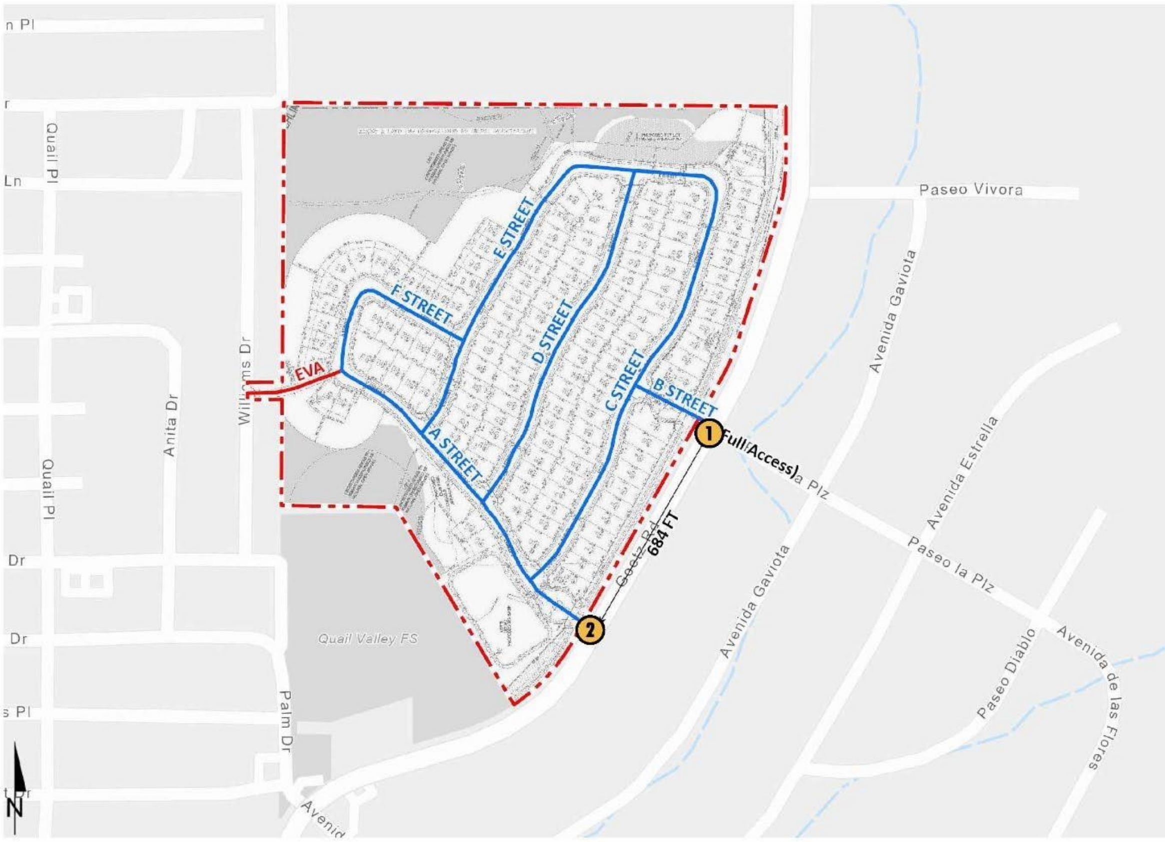
- Project to construct eastbound shared left-right turn lane with a stop sign.
- Project to construct a northbound left turn lane with a minimum of 100-feet of storage.
- A southbound left turn lane will also be accommodated within the painted median.

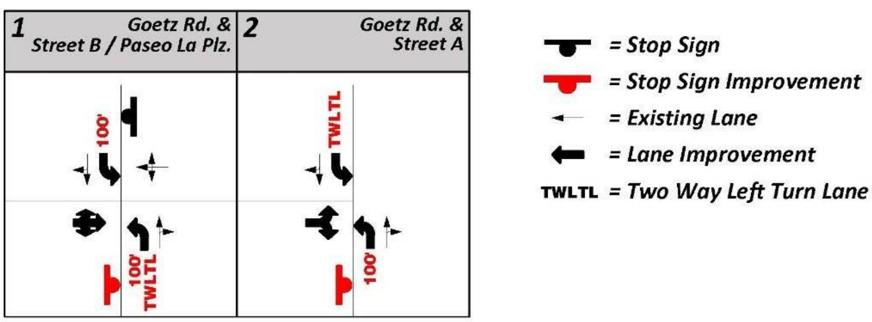
Recommendation 3 – Goetz Road is a north-south oriented roadway located on the Project's eastern boundary. Project to construct Goetz Road at its ultimate half-width as a Major Highway (110-foot right-of-way) between the northern and southern Project boundaries consistent with the City's standards. Improvements to the half-section along the Project's frontage also includes a sidewalk and Class I regional trail (similar to the one that exists south of California Place on Goetz Road). Although the frontage improvements will ultimately accommodate two-southbound travel lanes, the interim condition will only accommodate a single through lane until such time the roadway is widened to its ultimate to the south and can accommodate the second receiving lane.

Internal Project roadways will also be constructed with sidewalks that connect with the sidewalks along the Project's frontage. Street B is proposed to align with Paseo La Plaza at Goetz Road which is the beginning of the Class III bike route (unstriped, on-road bike route).

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS





Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Menifee sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

1.6.2 Queuing Analysis

A queuing analysis has been performed for the Project driveways for Opening Year Cumulative (2025) With Project traffic conditions. The traffic modeling and signal timing optimization software package SimTraffic has been utilized to assess the queues. SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. These random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each applicable turn lane. A SimTraffic simulation has been recorded up to 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 30-minute periods with 60-minute recording intervals. Queuing analysis worksheets for the weekday AM and PM peak hours are provided in Appendix 1.2 of this report. Based on the intersection operations analysis and the queuing analysis, a traffic signal does not appear necessary for the Project driveways along Goetz Road and there is no queue spillback anticipated between the driveways.

1.6.3 Off-site Recommendations

The recommended improvements needed to address the cumulative deficiencies identified under Existing (2021), E+P, and Opening Year Cumulative (2025) traffic conditions are shown in Table 1-4. For those improvements listed in Table 1-4 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay fair share fees consistent with the City's requirements (see Section 7 *Local and Regional Funding Mechanisms*). It should be noted that fair share percentages and monetary contributions will be updated at the time of the final plan based on the final number of dwelling units.

TABLE 1-4: SUMMARY OF IMPROVEMENTS BY ANALYSIS SCENARIO

#	Intersection	Jurisdiction	Existing (2021)	E+P	Opening Year Cumulative (2025) Without Project	Opening Year Cumulative (2025) With Project	Improvements in City DIF or County TUMF?[1]	Project Responsibility[2]	Fair Share %[3]
7	Murrieta Rd. & Newport Rd.	Menifee	None	None	Add 2nd SB left turn lane by restriping the SB approach	Same	No	Fair Share	6.0%
8	Evans Rd. & Newport Rd.	Menifee	None	None	Add 3rd EB through lane	Same	TUMF	Fees	--
9	Bradley Rd. & Newport Rd.	Menifee	None	None	Add 2nd SB left turn lane	Same	No	Fair Share	3.3%
					Add a 2nd EB left turn lane	Same	No	Fair Share	
					Modify the signal with overlap phasing on the WB right turn lane	Same	No	Fair Share	
11	Haun Rd. & Newport Rd.	Menifee	None	None	Modify the signal with overlap phasing on the EB and WB right turn lanes	Same	No	Fair Share	3.0%
					Implement a 140s cycle length in the PM peak hour only	Same	No	Fair Share	

[1] Improvements included in City of Menifee DIF or County TUMF programs for local and regional components.

[2] Identifies the Project's responsibility to construct an improvement or contribute fair share or fee payment towards the implementation of the improvement shown.

[3] Program improvements constructed by project may be eligible for fee credit, at discretion of City.

See Table 7-1 for Fair Share Calculations.

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with the City of Menifee's traffic study guidelines. (1)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Menifee and Caltrans require signalized intersection operations analysis based on the methodology described in the HCM (6th Edition). Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. Study area intersections have been evaluated using the Synchro (Version 10) analysis software package.

The traffic modeling and signal timing optimization software package Synchro (Version 10) is utilized to analyze signalized intersections within the study area. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM, 6th Edition

A saturation flow rate of 1900 has been utilized for all study area intersections located within the City of Menifee. The peak hour traffic volumes are adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (4)

California Department of Transportation (Caltrans)

Per the California Department of Transportation (Caltrans) traffic study guidance, the traffic modeling and signal timing optimization software package Synchro (Version 10) has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e., I-215 Freeway ramps at Newport Road). (5) Signal timing for the freeway arterial-to-ramp intersections have been obtained from Caltrans District 8 and were utilized for the purposes of this analysis.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Murrieta require the operations of unsignalized intersections be evaluated using the methodology described the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM, 6th Edition

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Per the HCM, the highest delay and associated LOS on the minor approach is reported for two-way stop-controlled intersections. For all-way stop controlled intersections, LOS is computed for the intersection as a whole and the average delay is reported (similar to signalized intersections).

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices *(CA MUTCD)*. (6)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The Caltrans CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics (e.g., located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Traffic signal warrant analyses were performed for the following unsignalized study area intersection shown in Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Goetz Rd. & Street B/Paseo La Plaza	Menifee
2	Goetz Rd. & Street A	Menifee

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Conditions* and Section 6 *Opening Year Cumulative (2025) Traffic Conditions* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the LOS E daily roadway segment capacities for each type of roadway as summarized in Table 2-4.

TABLE 2-4: ROADWAY SEGMENT CAPACITIES

Roadway Classification	Number of Lanes	Maximum Two-Way Average Daily Traffic (ADT) Volume[1]		
		LOS C	LOS D	LOS E
Collector	2	10,400	11,700	13,000
Secondary	4	20,700	23,300	25,900
Major	4	27,300	30,700	34,100
Arterial	4	29,600	33,400	37,000
Mountain Arterial	2	12,900	14,500	16,100
Mountain Arterial	4	25,500	28,700	31,900
Urban Arterial	6	45,000	50,600	56,300
Urban Arterial	8	69,000	78,000	87,000
Expressway	4	53,000	58,000	64,000
Expressway	6	79,000	87,000	95,000
Expressway	8	106,000	119,000	132,000

[1] Based on Attachment B of the City of Menifee LOS Traffic Study Guidelines (October 2020).

These roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic. As such, where the average daily volume (ADT) based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, for the purposes of this analysis, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

2.5 FREEWAY OFF-RAMP QUEUING ANALYSIS

Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections at the I-215 Freeway at Newport Road interchange. Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the I-215 Freeway mainline from the off-ramps.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. The footnote from the Synchro output sheets indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations.

2.6 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from each of the applicable surrounding jurisdictions.

2.6.1 CITY OF MENIFEE

Per Policy C-1.2 of the City of Menifee General Plan, the following LOS will be utilized for study area intersections located within the City:

The City of Menifee has identified LOS D as the threshold for acceptable operating conditions for intersections except at constrained intersections and roadway segments in close proximity to I-215, where LOS E is accepted during peak hours.

Therefore, any intersection operating at LOS E or F will be considered deficient for the purposes of this analysis. (7)

2.6.2 CALTRANS

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for automobile delay-based LOS. Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT as the metric for determining impacts on the State Highway System (SHS). However, LOS D has been utilized as the target LOS for Caltrans facilities, consistent with the City of Menifee.

2.7 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

The LOS-based traffic study will be utilized for conditions of approval and to demonstrate consistency with the General Plan goals/policies. To determine whether the addition of project-related traffic at a study intersection would result in a deficiency, the following thresholds will be utilized:

- If the pre-Project condition at an intersection or roadway segment is at or better than the minimum acceptable LOS (LOS D, or LOS E at constrained locations near I-215) and the addition of project trips results in unacceptable LOS (LOS E or LOS F), a project-related traffic deficiency is forecast to occur. This type of deficiency would be considered project-specific in which the project would be fully responsible for.
- If the pre-Project condition is LOS E or F and the Project adds 50 or more peak hour trips to the intersection or roadway segment, then a cumulative traffic deficiency is forecast to occur. This type of deficiency would be considered a “cumulative” deficiency in which the project would be required to contribute a fair share payment toward mitigating the impact

2.8 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the TUMF and/or DIF will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share contribution based on the Project’s proportional share may be imposed in order to address the Project’s share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the City Traffic Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval). It should be noted that fair share percentages and monetary contributions will be updated at the time of the final plan based on the final number of dwelling units.

Fair share contributions may be recommended to mitigate significant impacts under the E+P scenario if the existing condition is at an unacceptable LOS E or F. Per the City of Menifee traffic study guidelines, all fair share contributions shall be calculated using the following equation (1):

$$\boldsymbol{d} = \frac{\boldsymbol{c}}{(\boldsymbol{b} - \boldsymbol{a})}$$

Where:

a = Existing Traffic Volume

b = Opening Year Cumulative With Project Volume

c = Proposed Project Trips

d = Fair Share Percentage

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Menifee General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, roadway segment, and off-ramp queuing analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with City of Menifee staff (Appendix 1.1), the study area includes a total of 13 existing and future intersections as shown previously on Exhibit 1-2, where the Project is anticipated to contribute 50 or more peak hour trips. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 GENERAL PLAN CIRCULATION ELEMENTS

As noted previously, the Project site is located within the City of Menifee. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on City of Menifee General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Menifee General Plan Circulation Element and Exhibit 3-3 illustrates the City of Menifee General Plan roadway cross-sections.

Urban Arterials are six-lane divided roadways (typically divided by a raised median or painted two-way turn-lane) with a 152-foot right-of-way and a 110-to-126-foot curb-to-curb measurement. These roadways serve both regional through-traffic and inter-city traffic and typically direct traffic onto and off-of the freeways. The following study area roadway within the City of Menifee is classified as an Urban Arterial:

- Newport Road

Major Roadways are four-lane roadways and may include a raised or painted median. These roadways typically have a 100-to-118-foot right-of-way and a 76-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas. The following study area roadways within the City of Menifee are classified as a Major Roadway:

- Goetz Road
- Bradley Road, south of Newport Road
- Haun Road, south of Newport Road

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS

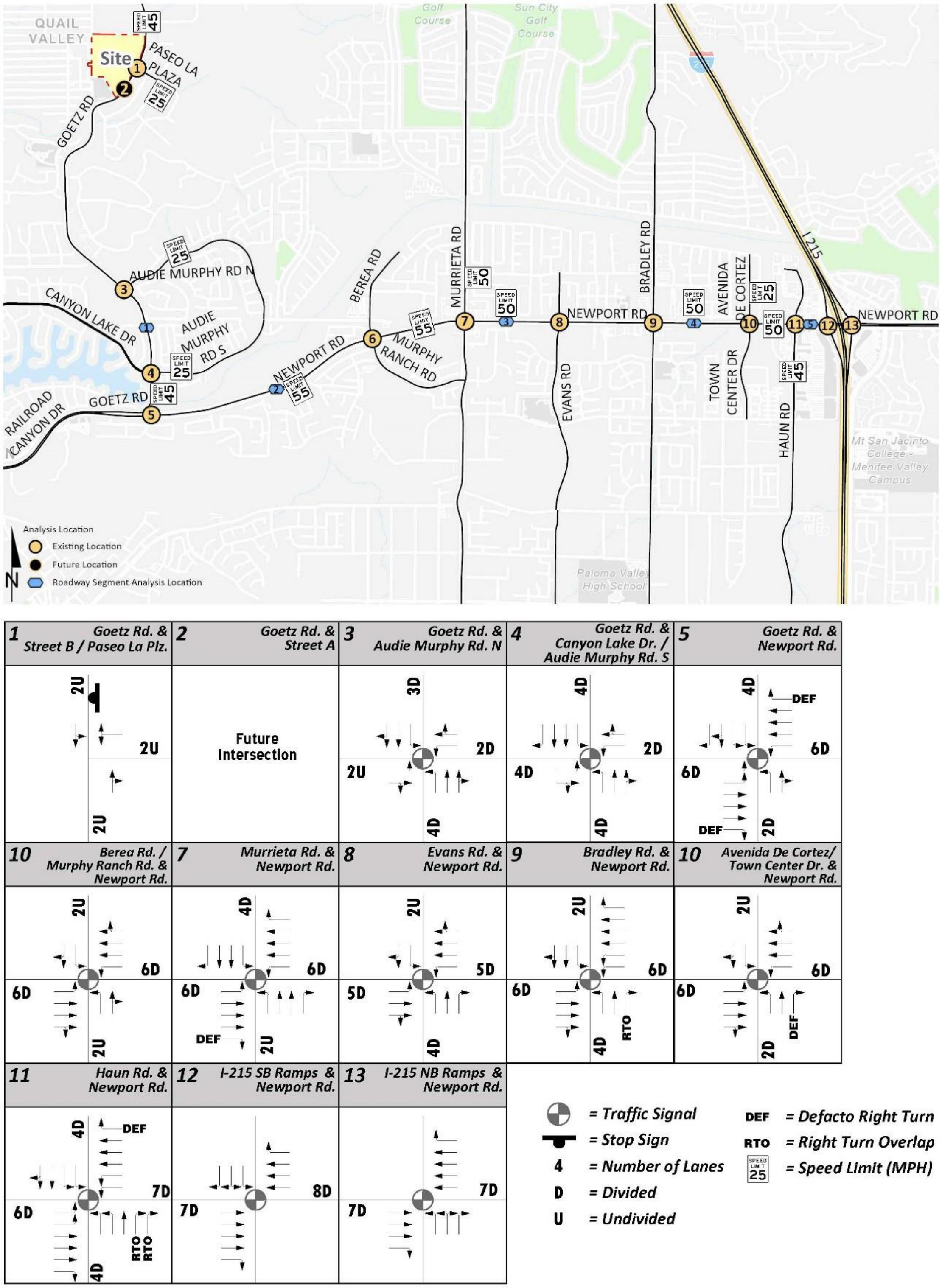


EXHIBIT 3-2: CITY OF MENIFEE GENERAL PLAN ROADWAY NETWORK

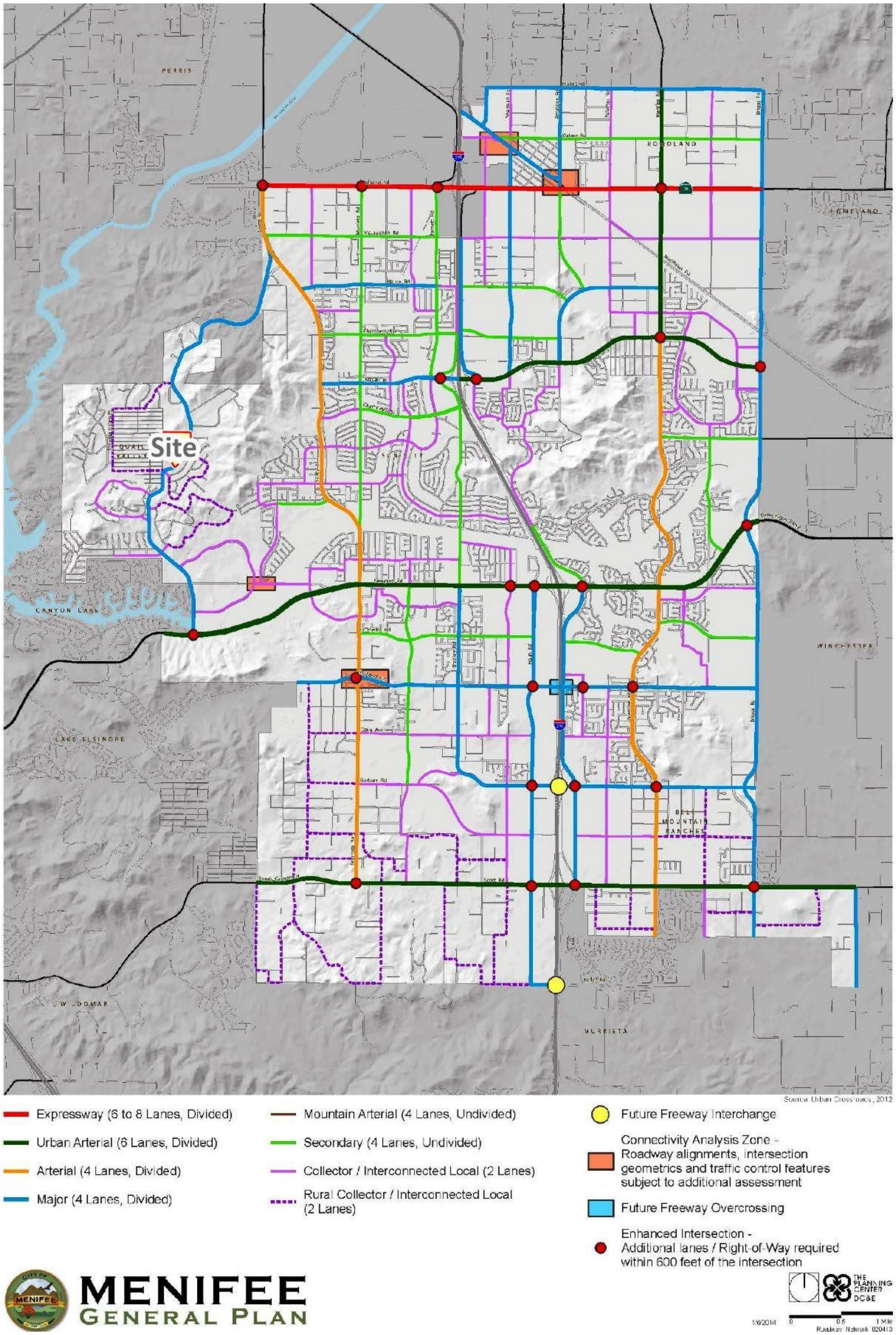
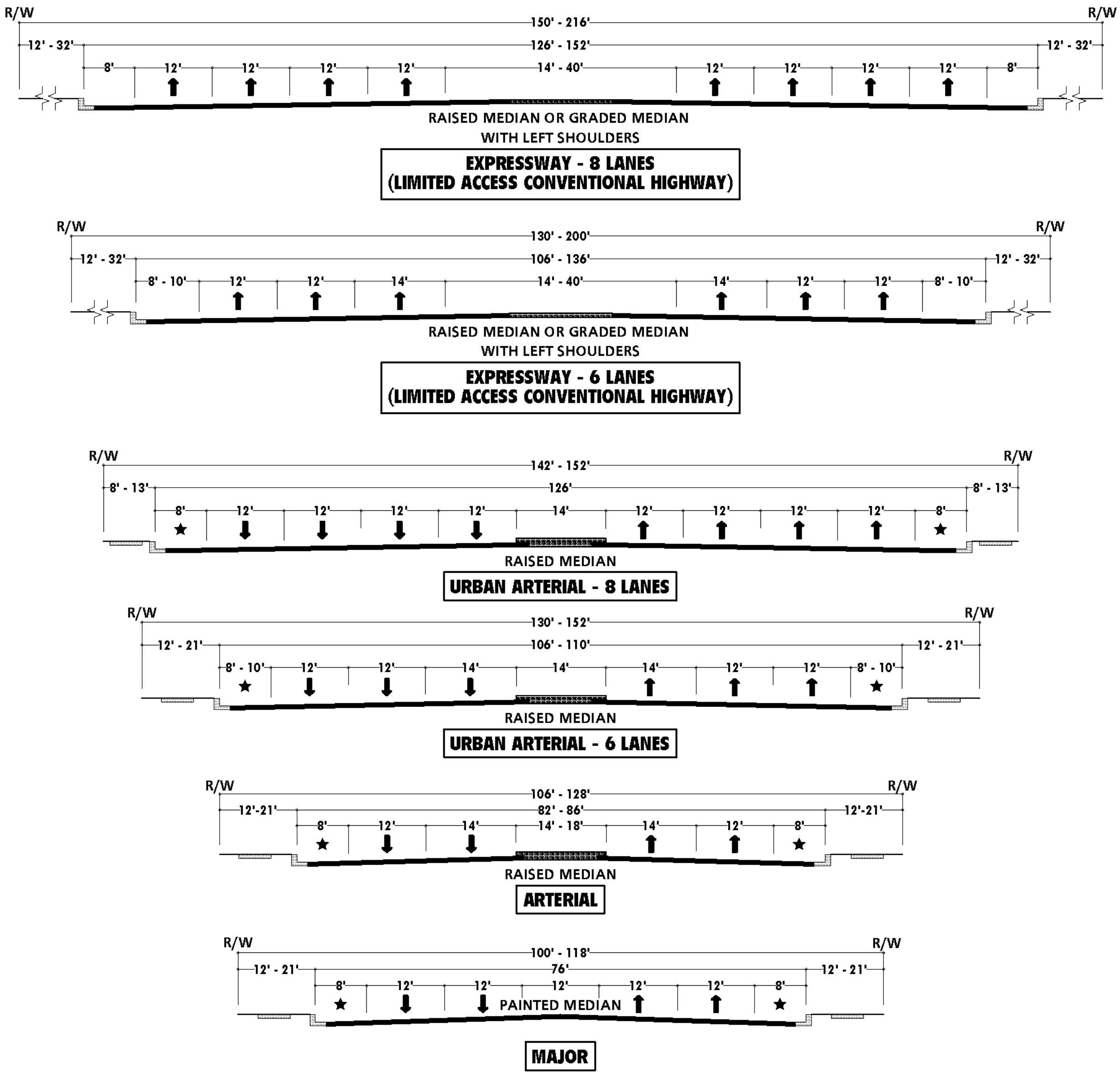
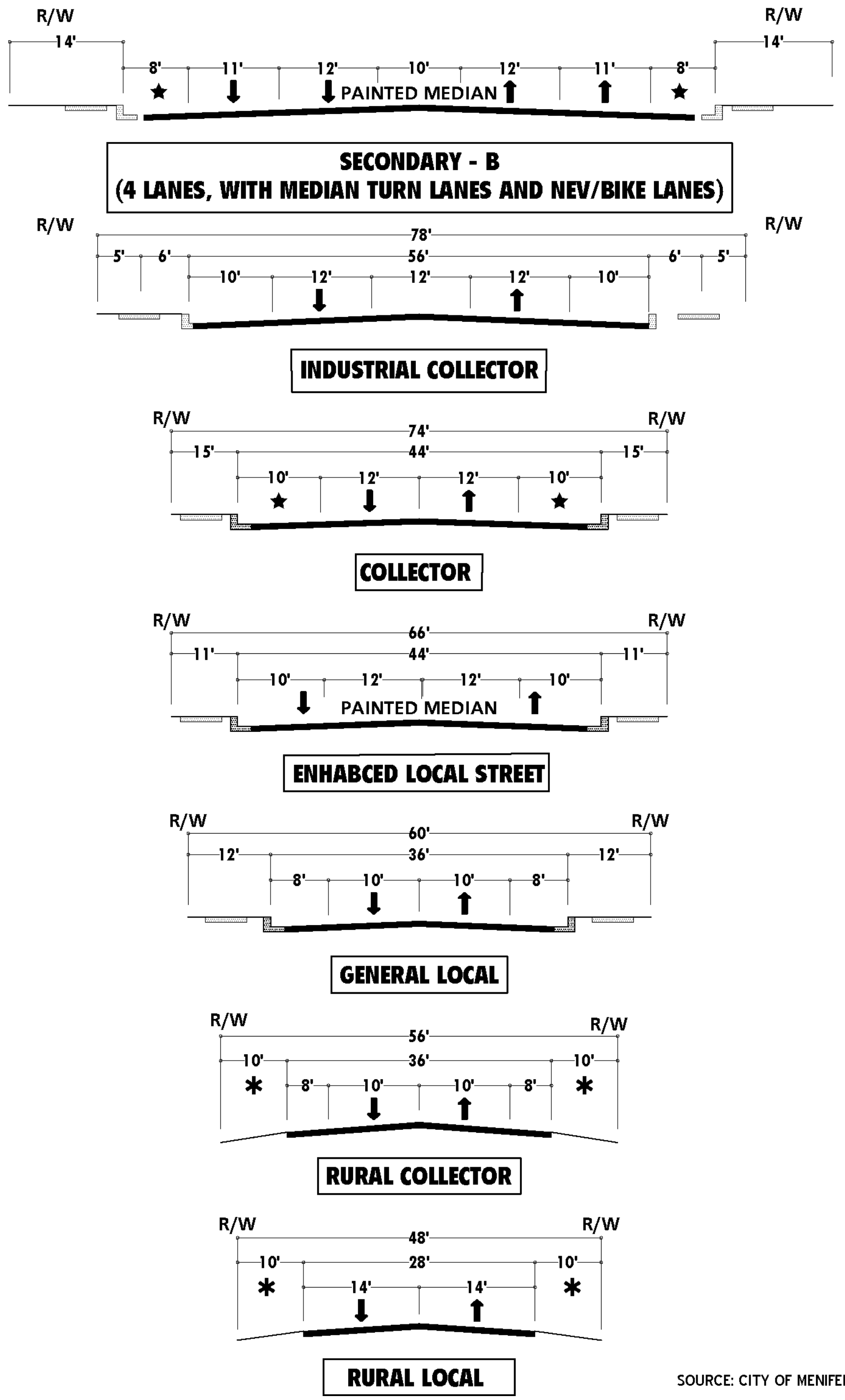


EXHIBIT 3-3: CITY OF MENIFEE GENERAL PLAN ROADWAY CROSS-SECTIONS





SOURCE: CITY OF MENIFEE GENERAL PLAN

Secondary Highways are four-lane roadways and may include a raised or painted median. These roadways typically have a 100-foot right-of-way and a 72-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas and a lesser capacity than Major Roadways. The following study area roadways within the City of Menifee are classified as a Secondary Street:

- Bradley Road, north of Newport Road
- Evans Road, south of Newport Road

Collector Streets are two-lane roadways and provide on-street parking on both sides. These roadways typically have a 74-foot right-of-way and a 44-foot curb-to-curb measurement. These roadways provide connections to secondary streets, arterials, and freeways, with most traffic being through-traffic or intra-city traffic. The following study area roadways within the City of Menifee are classified as a Collector Street:

- Audie Murphy Road
- Berea Road
- Murphy Ranch Road
- Evans Road, north Newport Road
- Avenida de Cortez/Town Center Road

3.3 BICYCLE & PEDESTRIAN FACILITIES

The City of Menifee bike and community pedestrian network are shown on Exhibit 3-4. There are existing Class II bike facilities along portions of Newport Road and Goetz Road. There is a proposed Class II bike facility along Bradley Road. Exhibit 3-5 illustrates the existing pedestrian facilities, including sidewalks and crosswalks. As shown on Exhibit 3-5, there are limited pedestrian facilities along Goetz Road. Goetz Road currently has Class II (on-street) bike lanes striped to the south of the Project site between California Place and Rock Canyon Road and then from Kerrigan Drive to Newport Road. Goetz Road is proposed to have a Class II bike lane between Newport Road and the northerly City boundary at Ethanac Road. Adjacent to the Project, the existing roadways of Paseo La Plaza, Avenida De Las Flores, Avenida Roble/Newport Drive, and around the Quail Valley community on Mountain View Place to San Jacinto Road and East Drive (terminating at Goetz Road) is identified as a Class III (non-marked/shared) bike route. As shown on Exhibit 3-6, Goetz Road also include a community on-street neighborhood electric vehicle (NEV) lane.

EXHIBIT 3-4: CITY OF MENIFEE BIKEWAY AND COMMUNITY PEDESTRIAN NETWORK

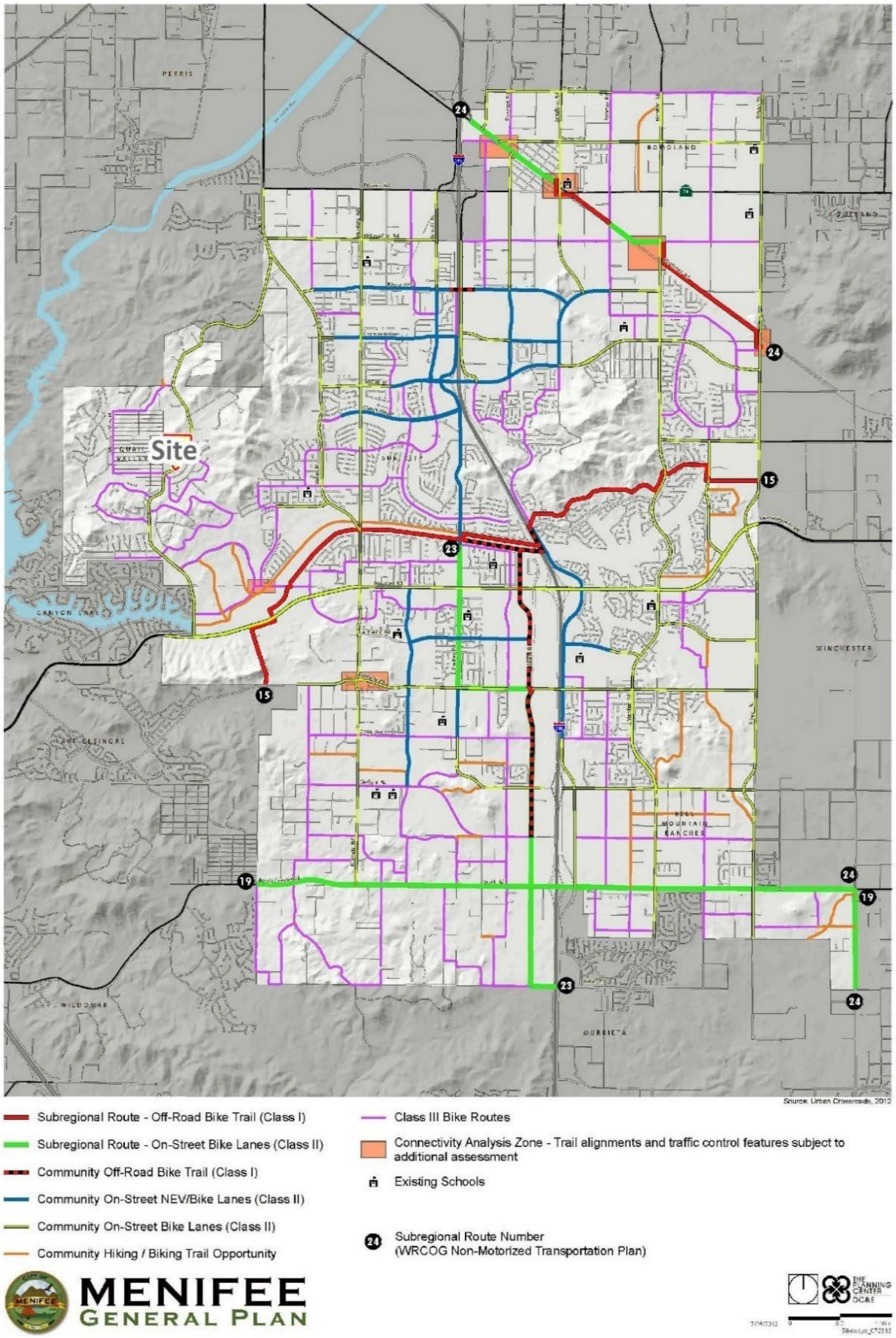


EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES

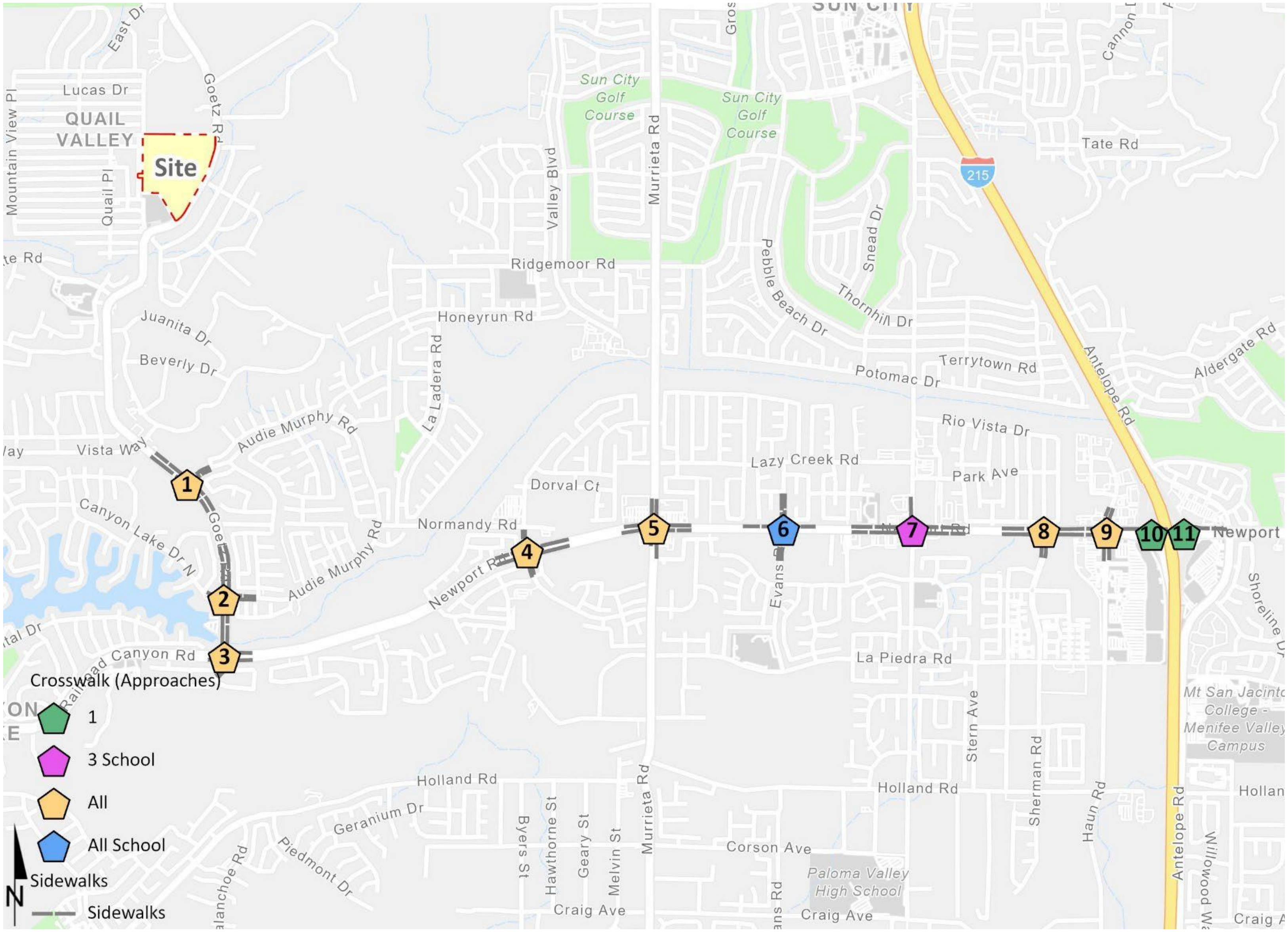
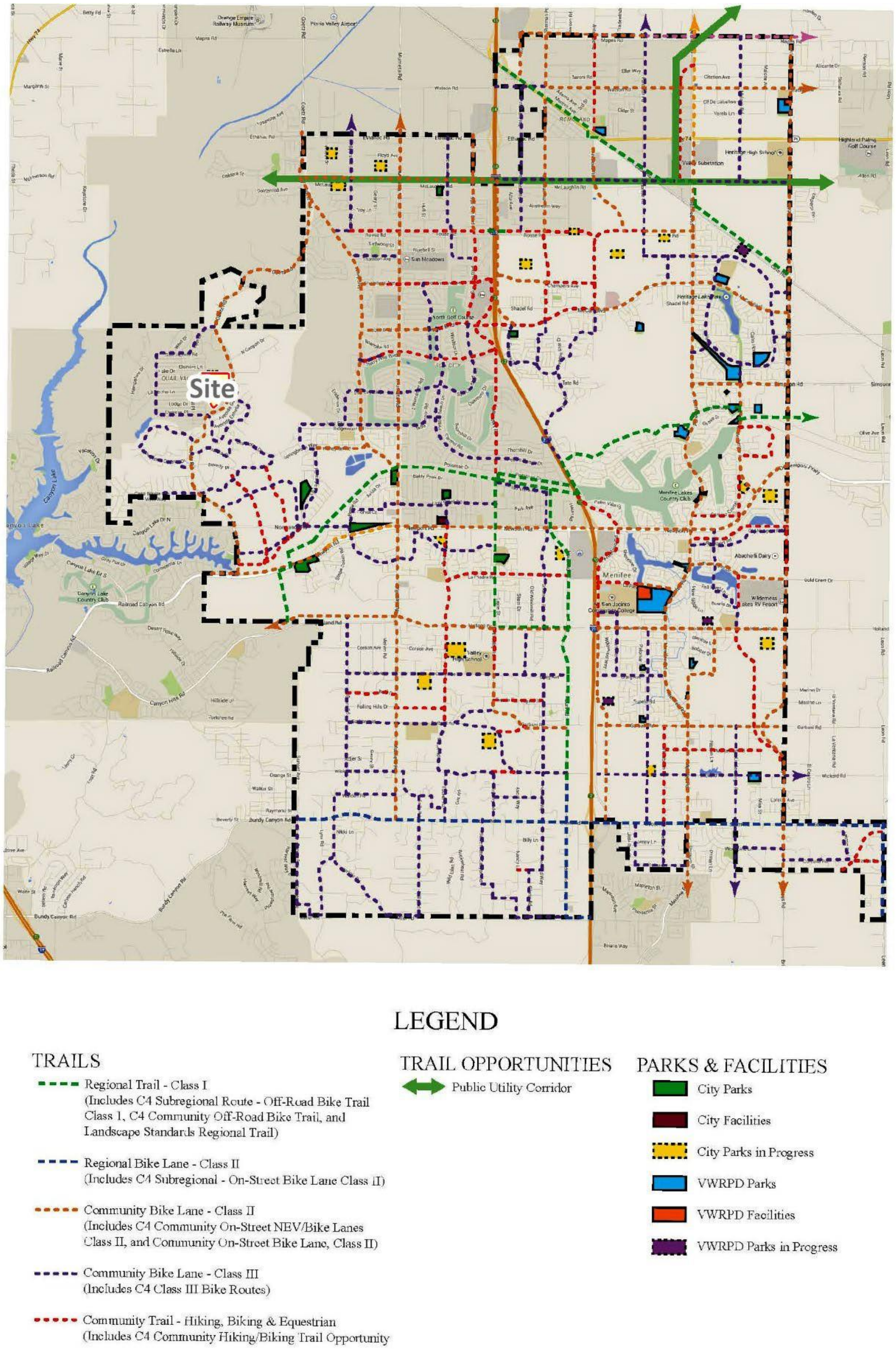


EXHIBIT 3-6: CITY OF MENIFEE COMMUNITY TRAILS



3.4 TRANSIT SERVICE

The study area is currently served by Riverside Transit Agency (RTA) with bus services along Goetz Road and Newport Road. The transit services are illustrated on Exhibit 3-7. RTA Routes 61 and 74 run to the east along Newport Road, Bradley Road, and Murrieta Road, however, there are no RTA routes along Goetz Road that could potentially serve the Project. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.5 EXISTING TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in 2021. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. Where applicable, traffic volumes have been flow conserved in order to not have any loss of vehicles. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-8. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 14.69 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 6.81 percent. As such, the above equation utilizing a factor of 14.69 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 6.81 percent (i.e., 1/0.0681 = 14.69) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-8.

EXHIBIT 3-7: CITY OF MENIFEE TRANSIT SERVICES

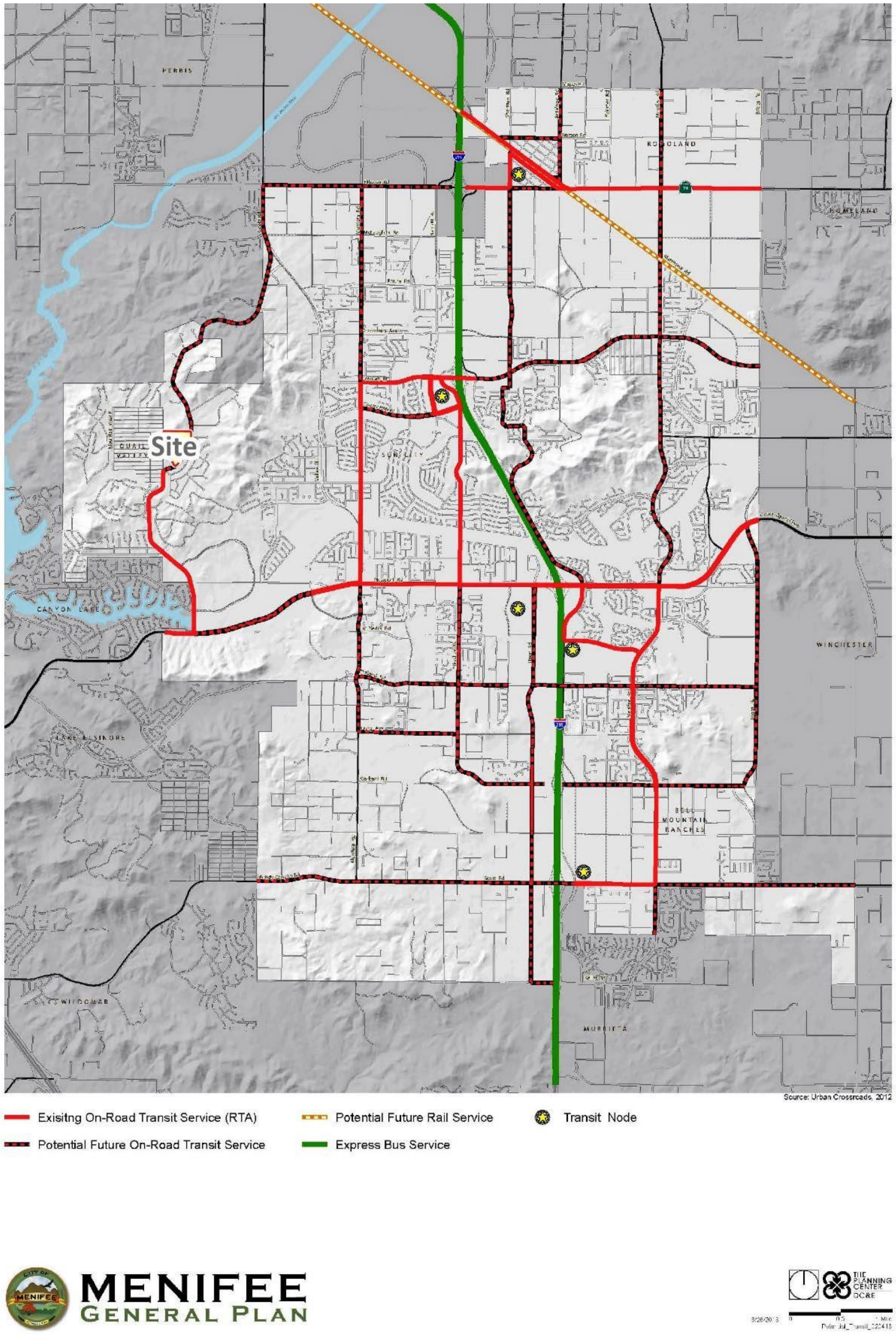
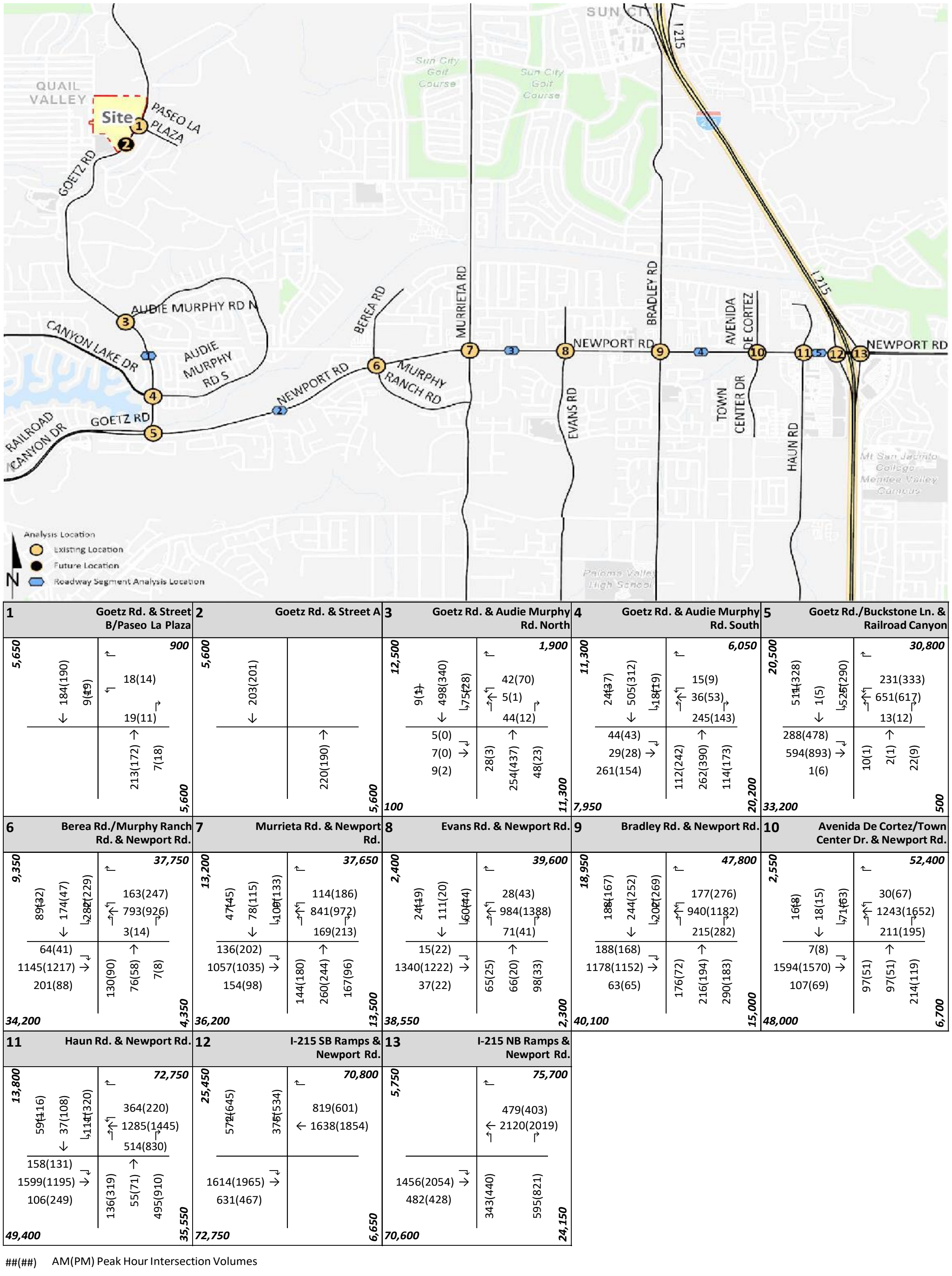


EXHIBIT 3-8: EXISTING (2021) TRAFFIC VOLUMES



3.6 EXISTING (2021) INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1 which indicates that the study area intersection are currently operating at an acceptable LOS during the peak hours. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2021) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM
1	Goetz Rd. & Street B/Paseo La Plaza	CSS	11.6	10.6	B	B
2	Goetz Rd. & Street A		Future Intersection			
3	Goetz Rd. & Audie Murphy Rd. N	TS	12.4	6.9	B	A
4	Goetz Rd. & Audie Murphy Rd. S/Canyon Lake Dr.	TS	27.4	20.7	C	C
5	Goetz Rd./Buckstone Ln. & Newport Rd./Railroad Canyon Rd.	TS	18.9	17.2	B	B
6	Berea Rd./Murphy Ranch Rd. & Newport Rd.	TS	22.1	18.5	C	B
7	Murrieta Rd. & Newport Rd.	TS	23.8	28.0	C	C
8	Evans Rd. & Newport Rd.	TS	22.5	12.6	C	B
9	Bradley Rd. & Newport Rd.	TS	41.6	45.9	D	D
10	Avenida de Cortez & Town Center Rd.	TS	15.4	13.7	B	B
11	Haun Rd. & Newport Rd.	TS	23.8	**59.3**	C	**E**
12	I-215 SB Ramps & Newport Rd.	TS	10.2	12.1	B	B
13	I-215 NB Ramps & Newport Rd.	TS	9.7	13.7	A	B

[1] CSS = Cross-street Stop; TS = Traffic Signal

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

3.7 EXISTING (2021) TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. No study area intersections currently warrant a traffic signal for Existing (2021) traffic conditions (see Appendix 3.3).

3.8 EXISTING (2021) ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Menifee General Plan provides roadway volume capacity values presented previously in Table 2-4. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2021) conditions roadway segment capacity analysis based on the City of Menifee General Plan Roadway Segment Capacity Thresholds identified previously in Table 2-4.

TABLE 3-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR EXISTING (2021) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2021	V/C[2]	LOS[3]
1	Goetz Rd.	north of Newport Rd.	4D	25,900	11,324	0.44	C or better
2	Newport Rd.	east of Goetz Rd.	6D	56,300	30,787	0.55	C or better
3	Newport Rd.	Murrieta Rd. to Bradley Rd.	6D	56,300	37,661	0.67	C or better
4	Newport Rd.	Bradley Rd. to Haun Rd.	6D	56,300	47,795	0.85	D
5	Newport Rd.	Haun Rd. to I-215 Freeway	7D	76,125	**72,746**	**0.96**	**E**

[1] These maximum roadway capacities have been obtained from the City of Menifee's Traffic Study Guidelines.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

As shown in Table 3-2, the following study area roadway segment currently operates at an unacceptable LOS based on the City's planning level daily roadway capacity thresholds for Existing traffic conditions:

- Newport Road, Haun Road to I-215 Freeway (#5) – LOS E

3.9 EXISTING (2021) QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-215 Freeway at Newport Road interchange and for the intersection of Bradley Road & Newport Road to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-215 Freeway mainline. Queuing analysis findings are presented in Table 3-3. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 3-4, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. Worksheets for Existing (2021) traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.

TABLE 3-3: PEAK HOUR FREEWAY OFF-RAMP QUEUING SUMMARY FOR EXISTING (2021) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet) AM Peak Hour	PM Peak Hour	Acceptable?[1] AM	PM
#12: I-215 SB Ramps & Newport Rd.	SBL	1,660	260	277	Yes	Yes
	SBL/R	840	219	247	Yes	Yes
	SBR	500	221	237	Yes	Yes
#13: I-215 NB Ramps & Newport Rd.	NBL	1,350	208	269	Yes	Yes
	NBL/R	1,350	235	397 [2]	Yes	Yes
	NBR	370	196	278	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

3.10 EXISTING DEFICIENCIES AND IMPROVEMENTS

This section provides a summary of existing deficiencies and recommended improvements. Based on the City of Menifee deficiency criteria discussed in Section 2.7 *Deficiency Criteria*, the following intersections were found to be deficient. Improvements necessary to improve traffic deficiencies back to acceptable levels are also discussed below.

3.10.1 IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

All of the study area intersections are currently operating at an acceptable LOS. As such, no intersection improvements have been recommended (see Table 3-1).

3.10.2 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

Where the ADT based roadway segment analysis indicates a deficiency (unacceptable LOS), the more detailed peak hour intersection analysis has also been reviewed. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. While this traffic study recognizes LOS D is the City's target LOS for roadway segments, a review of the more detailed peak hour intersection analysis is necessary to determine whether roadway widening along the segment is necessary. For the purposes of this analysis, if the peak hour intersection operations on either side of the roadway segment are anticipated to operate at an acceptable LOS, then additional roadway segment widening has not been recommended. Therefore, for the purposes of this assessment, roadway segment widening has only been recommended if the peak hour intersection analysis indicates the need for additional through lanes or if the improvement is consistent with the City's General Plan.

The following roadway segment is shown as currently deficient for Existing traffic conditions, however, the intersections on either side of this roadway segment are currently operating at an acceptable LOS during the peak hours without additional improvements, as such, further widening of this segment has not been recommended:

- Newport Road, Haun Road to I-215 Freeway (#5)

3.10.3 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously in Table 3-3, there are no movements that are no current queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Existing (2021) traffic conditions. As such, no improvements have been identified.

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4 PROJECTED FUTURE TRAFFIC

The Project is proposed to consist of 145 single family detached residential dwelling units. It is anticipated that the Project would have an Opening Year of 2025. Access to the Project site will be provided via Goetz Road. Regional access to the Project site is available from the I-215 Freeway via Newport Road interchange.

4.1 PROJECT TRIP GENERATION

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for single family detached residential (ITE Land Use Code 210) was used. (2) Table 4-1 presents the trip generation rates and the resulting trip generation summary for the proposed Project. As shown in Table 4-1, the Project is anticipated to generate a net total of 1,370 trip-ends per day with 109 AM peak hour trips and 144 PM peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. The Project trip distribution patterns are graphically depicted on Exhibit 4-1.

TABLE 4-1: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates:									
Single Family Residential Detached	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units

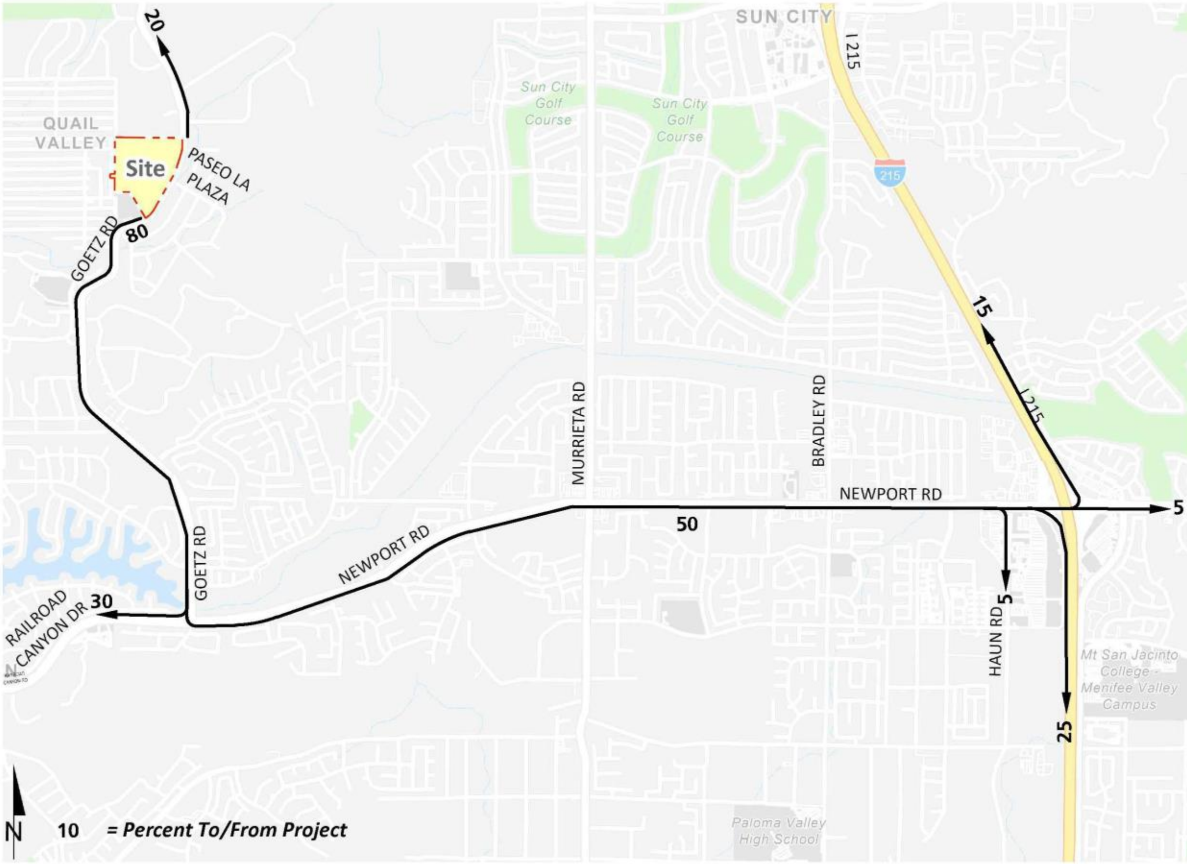
Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary									
Quail Hill (TTM No. 37692)	145	DU	28	81	109	90	54	144	1,370

[1] DU = Dwelling Units

4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION



4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, the Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-2.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year for 2025 traffic conditions. The total ambient growth is 8.24% for 2025 traffic conditions (compounded growth of 2 percent per year over 4 years or $1.02^{4\text{ years}}$). The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. Opening Year Cumulative (2025) traffic volumes are provided in Section 6 of this TA. The traffic generated by the proposed Project was then manually added to the base volume to determine Opening Year Cumulative “With Project” forecasts.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Menifee. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e., 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year Cumulative (2025) forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-3, listed in Table 4-2, and have been considered for inclusion.

Although it is unlikely that all of these cumulative projects would be fully built and occupied by Years 2025, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic deficiencies. Any other cumulative projects located beyond the cumulative study area that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is likely accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-4.

TABLE 4-2: CUMULATIVE DEVELOPMENT LAND USE SUMMARY (PAGE 1 OF 3)

No.	Project Name	Land Use	Quantity[1]	
City of Menifee:				
M1	PM 2018-118 (Newport and Menifee Commercial)	Shopping Center	138.091	TSF
M2	PLN20-0067 TPM 37934	Shopping Center	5.07	AC
M3	PP 2015-164	Senior Adult Attached Housing	100	DU
		Apartments	238	DU
M4	PAR 2016-039/TR33511	Single Family Residential	71	DU
M5	Legado Specific Plan	Single Family Residential	1,061	DU
		Community Center	10	TSF
		Sprots Park	11.23	TSF
		Shopping Center	225	TSF
M6A	TR 32314	Single Family Residential	33	DU
M6B	Cimarron Ridge	Single Family Residential	756	DU
M7	TR 2016-285, SP 2016-286, GPA 2016-287, CZ 2016-288	Single Family Residential	305	DU
M8	TR 28859-1	Single Family Residential	161	DU
M9	Menifee North Shopping Center	Free-Standing Discount Superstore	200.000	TSF
		Bank with Drive-through Window	5.500	TSF
		Fast-food w/ Drive-Thru	6.700	TSF
		Shopping Center	10.000	TSF
		Gas Station & Market / Car Wash	16	VFP
M10	TR 29835	Single Family Residential	543	DU
	TR 31098	Single Family Residential	264	DU
M11	CUP 03549	Self-Storage Facility	152.893	TSF
		Grocery Store	45.000	TSF
		Pharmacy	14.600	TSF
		Shopping Center	11.500	TSF
		Restaurants	6.100	TSF
		Fast-food w/ Drive-Thru	3.500	TSF
		Gas Station & Market / Car Wash	16	VFP
M12	PP 19469R1	Senior Apartments	221	DU
M13	CUP 2017-042	Assisted Living	118	Rooms
M14	2015-211	Single Family Residential	75	DU
M15	TR 31582	Single Family Residential (50% Built)	140	DU

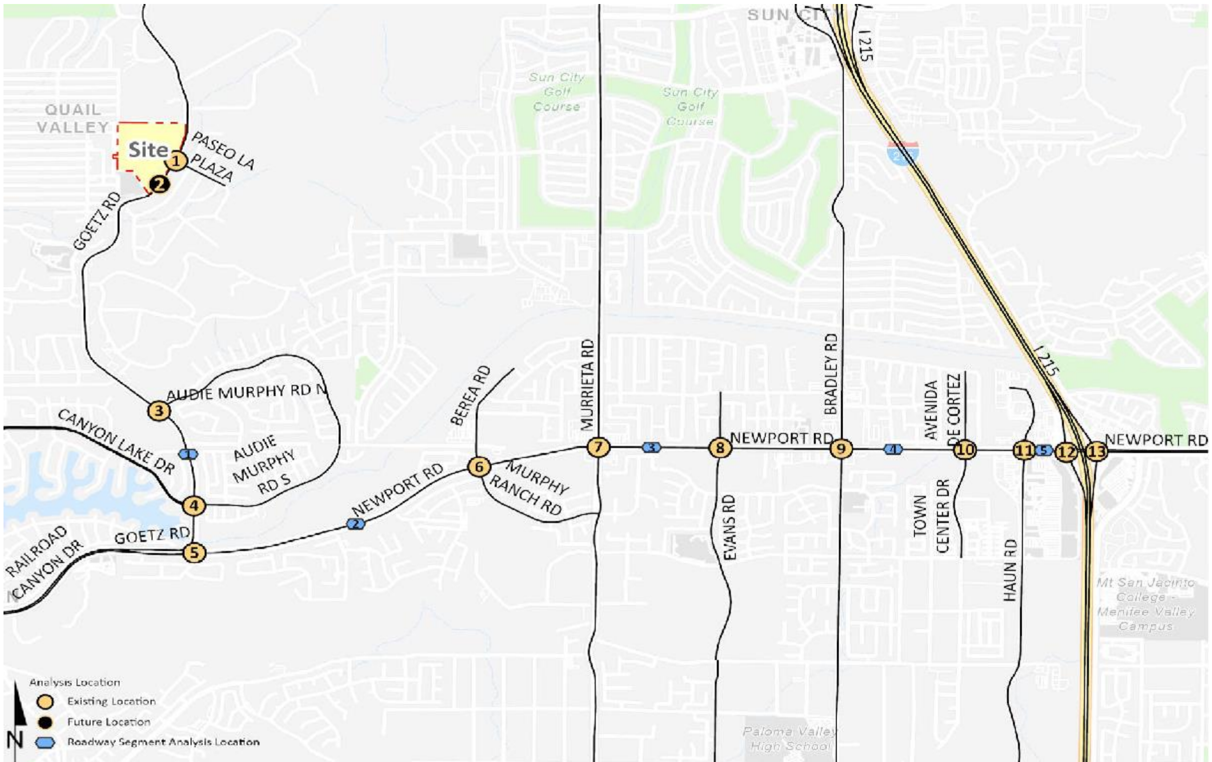
(Page 2 of 3)

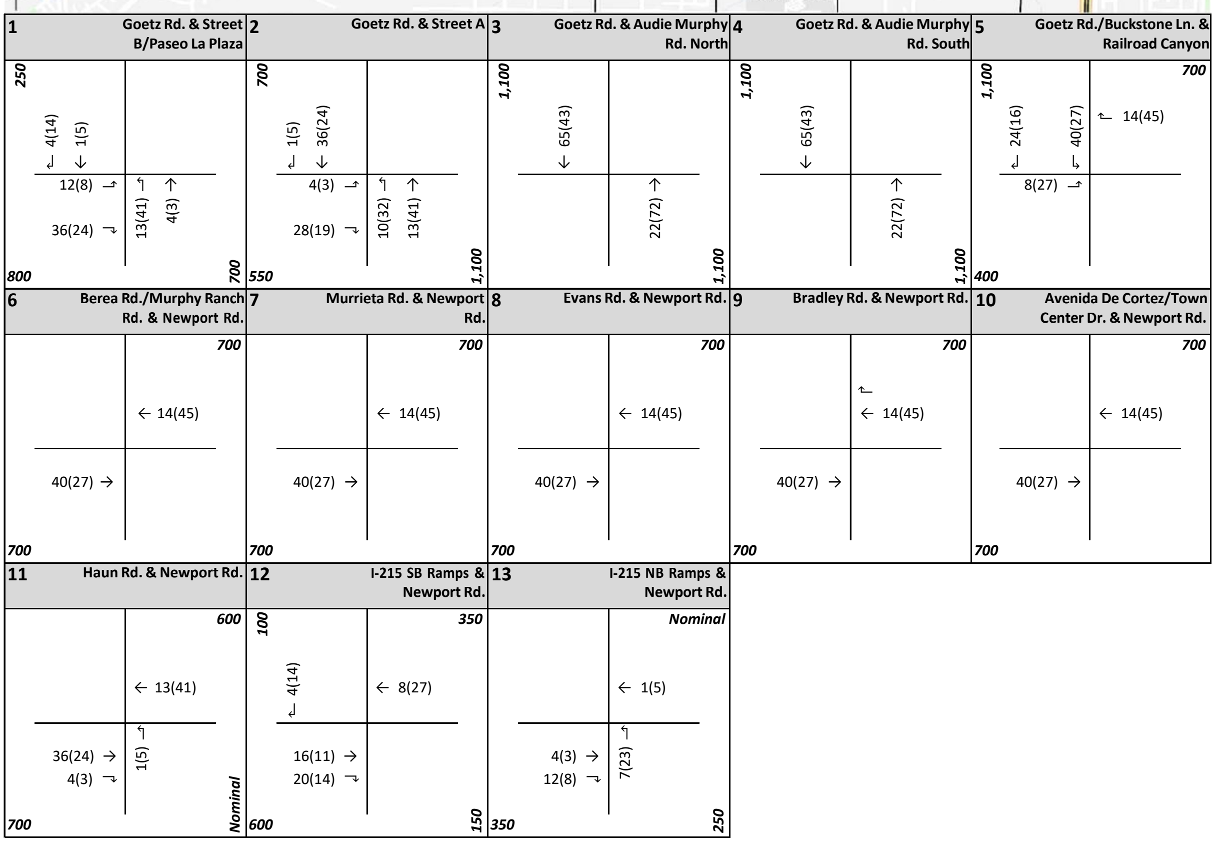
No.	Project Name	Land Use	Quantity[1]
M16	TR 32100	Single Family Residential	170 DU
	TR 32101	Single Family Residential	197 DU
	TR 32102	Single Family Residential	272 DU
M17	Nautical Cove Residential	Single Family Residential	235 DU
M18	Menifee Heights - TR32277	Single Family Residential	359 DU
		Active Parks	10.2 AC
M19	PP 2016-164	Fast-food w/ Drive-Thru	2.730 TSF
M20	SP 248 Newport Hub	Shopping Center (50% occupied)	229.70 TSF
		General Office	97.6 TSF
		General Light Industrial (50% occupied)	241.8 TSF
		Motel	100 ROOM
M21	Pechanga Commercial Site (PP 2010-123)	Shopping Center	208.160 TSF
M22	Menifee Town Center Specific Plan	Shopping Center	409.370 TSF
		Hotel	99 ROOM
		Single Family Residential	277 DU
		Condo/Townhomes / Apartments	548 DU
M23	Junction at Menifee	Shopping Center	526.800 TSF
	Menifee Shopping Center	Shopping Center	238.180 TSF
M24	DEV 2019-053	Gym	21.312 TSF
		Grocery Store	25.428 TSF
		Retail	8.000 TSF
		Fast-food	2.155 TSF
		Car Wash	2.700 TSF
		C-Store	3.000 TSF
		Oil/Lube	3.297 TSF
M25	CUP 2016-110	Fast-food w/ Drive-Thru	2.400 DU
M26	Newport & Menifee Retail	Shopping Center	138.091 TSF
M27	The Lakes (TR 30422 / SP 247 Amendment 1)	Single Family Residential (75% Built)82	327 DU
M28	CUP 2016-183	Assisted Living	45.246 TSF
		Mixed Office/Retail	10.368 TSF
M29	TM 28790	Single Family Residential	156 DU
M30	TR 28859	Single Family Residential (65% Built)	86 DU
M31	TR 2017-174; CUP 2017-173; PP 2017-175	Assisted Living	142 Rooms
		Memory Care	36 Rooms
		Office	21.722 TSF
M32	TTM 31456	Single Family Residential	177 DU
M33	GPA 2016-061; SPA -062; TR -063	Single Family Residential	54 DU
M34	TTM 2015-165	Single Family Residential	68 DU
M35	TR 32025	Single Family Residential	198 DU

(Page 3 of 3)

No.	Project Name	Land Use	Quantity[1]
M36	CUP 2013-157	Tire Store	7.171 TSF
M37	PP 2016-239	Recreation Community Center	N/A
M38	TR 2016-038	Single Family Residential	18 DU
M39	PP 22628; EOT 2016-102	Mixed Commercial/Industrial	N/A
M40	PAR 2016-215	Gas Station & Market / Car Wash	4 VFP
		Fast-food w/ Drive-Thru	3.200 TSF
		Retail	2.000 TSF
M41	PP 2018-189	Medical-Dental Office	6.229 TSF
M42	PP 2016-124	Fast-food w/ Drive-Thru	6.200 TSF
		Retail	1.000 TSF
		Gas Station & Market / Car Wash	12 VFP
M43	Menifee Crossroads	Restaurant, Office, and Retail	102.400 TSF
M44	Goetz Marketplace	Fast-food w/ Drive-Thru	3.200 TSF
		Gas Station w/ Market & Car Wash	3.800 TSF
M45	Audie Murphy	Single Family Residential	1112 DU

EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

URBAN CROSSROADS

EXHIBIT 4-3: CUMULATIVE DEVELOPMENT LOCATION MAP

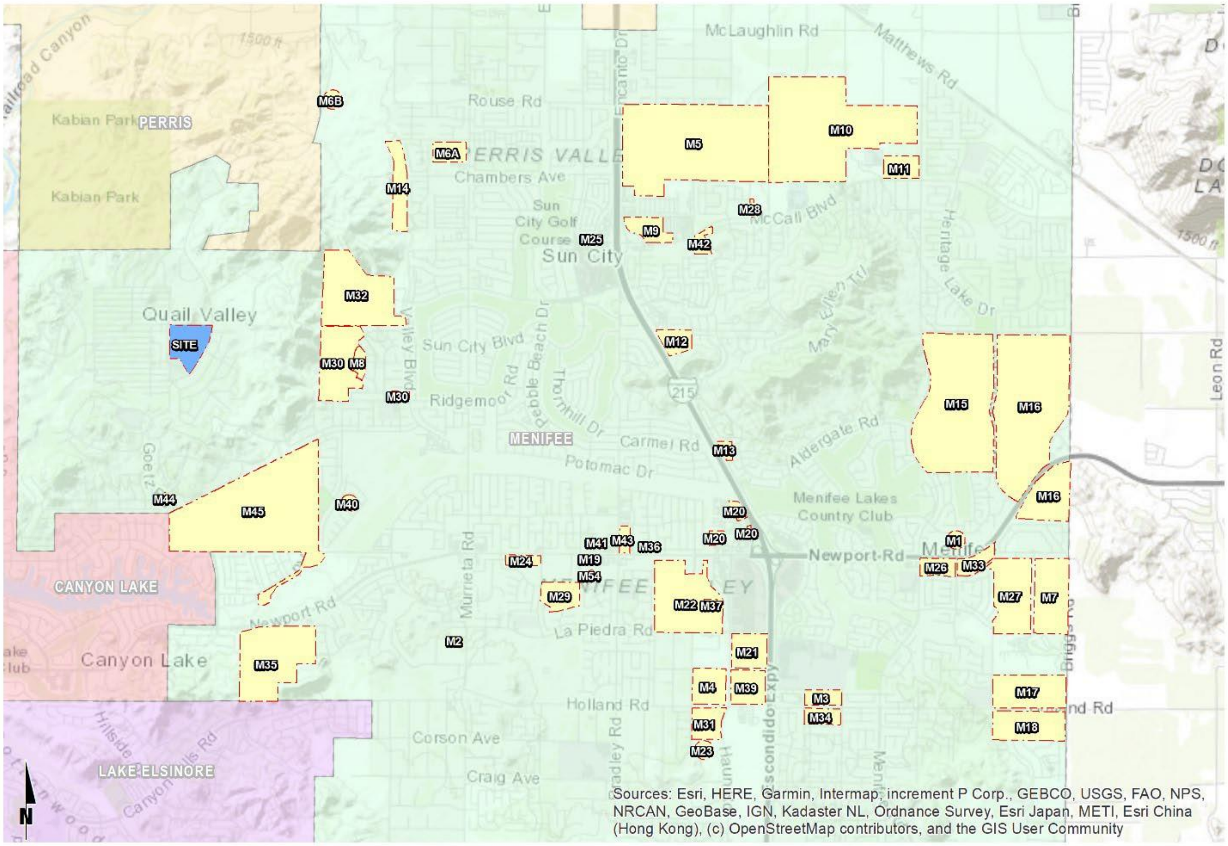
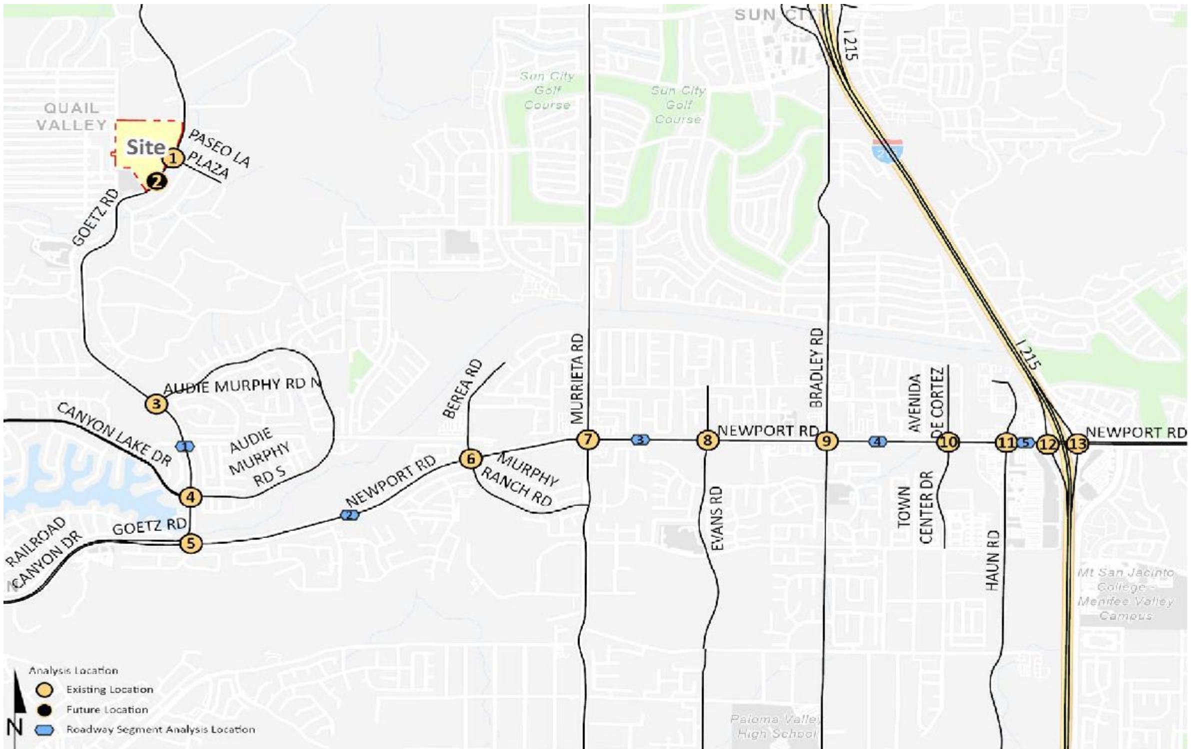
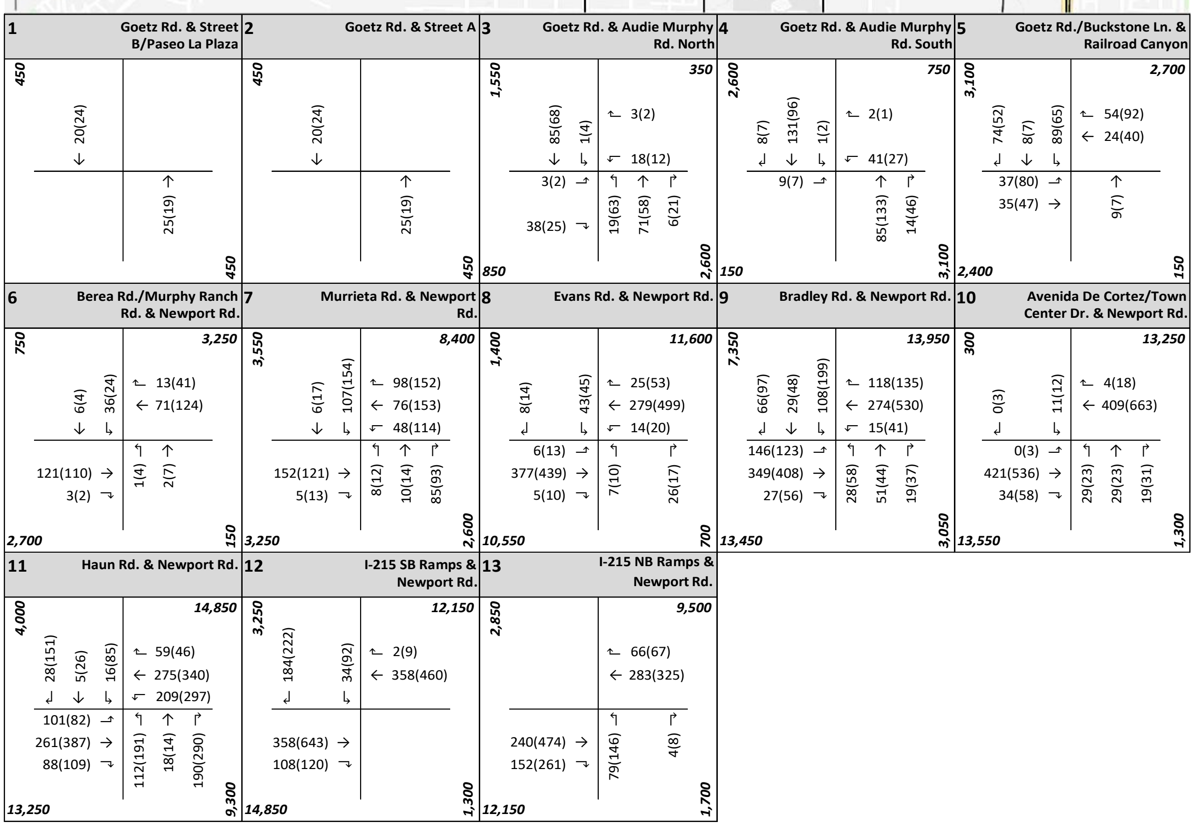


EXHIBIT 4-4: CUMULATIVE ONLY TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

4.7 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the near-term 2025 traffic conditions. An ambient growth factor of 2.0% per year, compounded annually, accounts for background (area-wide) traffic increases that occur over time up to the years 2025 from the year 2021. Traffic volumes generated by cumulative development projects are then added to assess the Opening Year Cumulative (2025) traffic conditions. Lastly, Project traffic is added to assess "With Project" traffic conditions. The 2025 roadway network is similar to the existing conditions roadway network with the exception of intersections proposed to be developed by the Project. The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year Cumulative (2025) Without Project
    - Existing 2021 counts
    - Ambient growth traffic (8.24%)
    - Cumulative Development Project traffic
- Opening Year Cumulative (2025) With Project
    - Existing 2021 counts
    - Ambient growth traffic (8.24%)
    - Cumulative Development Project traffic
    - Project traffic

5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations, traffic signal warrant, roadway segment, and off-ramp queuing analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

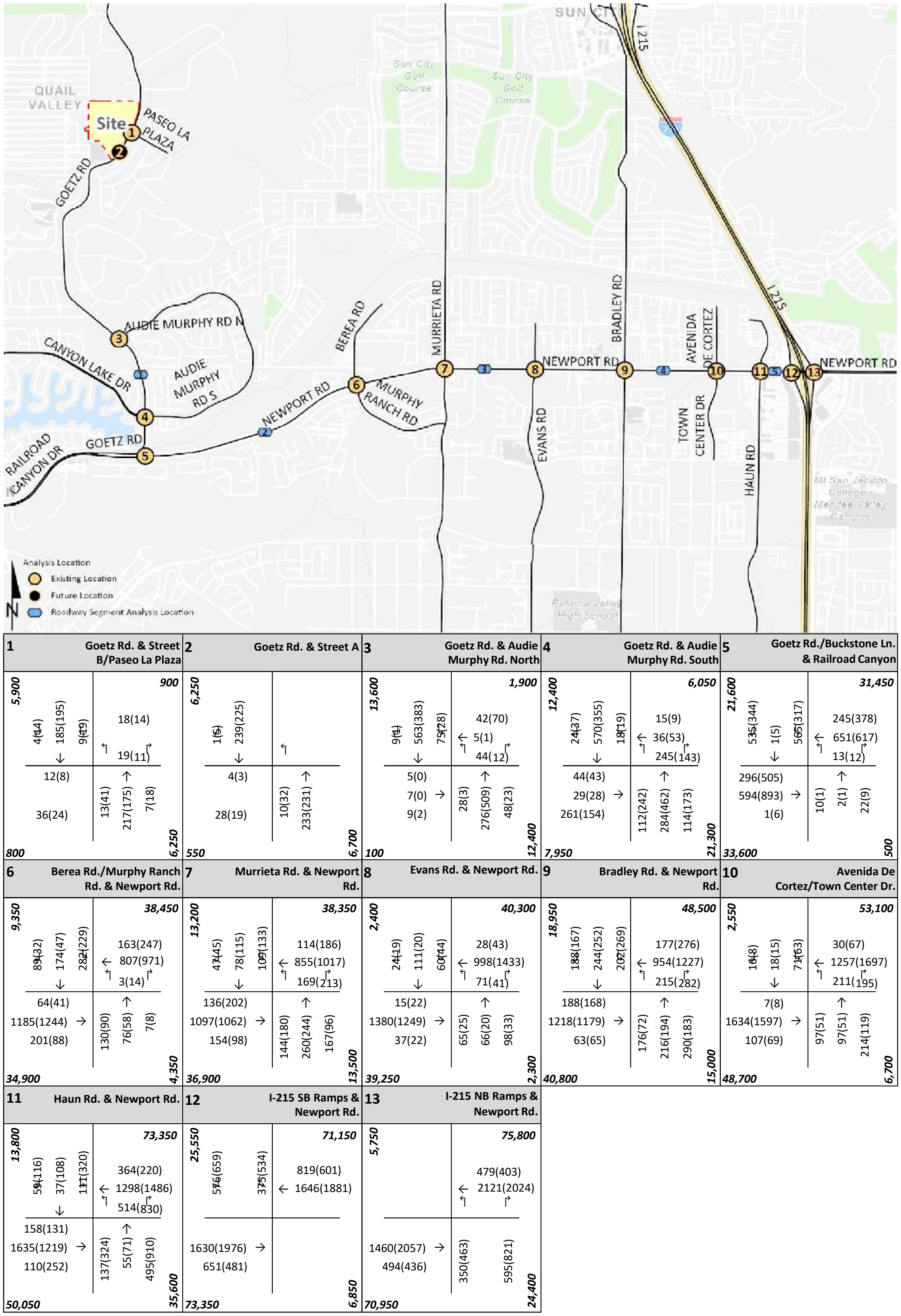
5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The ADT and weekday AM and PM peak hour intersection turning movement volumes which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TA. The intersection analysis results are summarized on Table 5-1 for E+P traffic conditions, which indicate that consistent with Existing traffic conditions, the study area intersections are anticipated to continue to operate at an acceptable LOS under E+P traffic conditions. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TA.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 5-1: INTERSECTION ANALYSIS FOR E+P CONDITIONS

#	Intersection	Traffic Control[1]	Existing (2021) Delay[2] (secs.) AM	Existing (2021) Delay[2] (secs.) PM	Existing (2021) Level of Service AM	Existing (2021) Level of Service PM	E+P Delay[2] (secs.) AM	E+P Delay[2] (secs.) PM	E+P Level of Service AM	E+P Level of Service PM
1	Goetz Rd. & Street B/Paseo La Plaza	CSS	11.6	10.6	B	B	13.1	11.9	B	B
2	Goetz Rd. & Street A	**CSS**	Future Intersection				10.2	10.2	B	B
3	Goetz Rd. & Audie Murphy Rd. N	TS	12.4	6.9	B	A	12.5	7.0	B	A
4	Goetz Rd. & Audie Murphy Rd. S/Canyon Lake Dr.	TS	27.4	20.7	C	C	28.6	20.7	C	C
5	Goetz Rd./Buckstone Ln. & Newport Rd./Railroad Canyon Rd.	TS	18.9	17.2	B	B	19.7	18.0	B	B
6	Berea Rd./Murphy Ranch Rd. & Newport Rd.	TS	22.1	18.5	C	B	22.4	18.6	D	B
7	Murrieta Rd. & Newport Rd.	TS	23.8	28.0	C	C	24.1	28.2	C	C
8	Evans Rd. & Newport Rd.	TS	22.5	12.6	C	B	23.4	12.7	C	B
9	Bradley Rd. & Newport Rd.	TS	41.6	45.9	D	D	42.5	47.2	D	D
10	Avenida de Cortez & Town Center Rd.	TS	15.4	13.7	B	B	15.6	13.8	B	B
11	Haun Rd. & Newport Rd.	TS	23.8	59.3	C	E	24.0	60.0	C	E
12	I-215 SB Ramps & Newport Rd.	TS	10.2	12.1	B	B	10.2	12.2	B	B
13	I-215 NB Ramps & Newport Rd.	TS	9.7	13.7	A	B	9.8	13.9	A	B

[1] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrant analysis for E+P traffic conditions are based on peak hour volumes for existing intersections and ADT volume-based planning level warrants for intersections that do not currently exist. No study area intersections are anticipated to warrant a traffic signal for E+P traffic conditions (see Appendix 5.2).

5.5 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Menifee General Plan provides roadway volume capacity values presented previously in Table 2-3. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 5-2 provides a summary of the E+P roadway segment capacity analysis based on the City of Menifee General Plan Roadway Segment Capacity Thresholds identified previously in Table 2-3. As shown in Table 5-2, there are no roadway segments that are anticipated to operate at an unacceptable LOS under E+P traffic conditions.

5.5 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Menifee General Plan provides roadway volume capacity values presented previously in Table 2-4. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 5-2 provides a summary of the E+P roadway segment capacity analysis based on the City of Menifee General Plan Roadway Segment Capacity Thresholds identified previously in Table 2-4. As shown in Table 5-2, the following study area roadway segment is anticipated to continue to operate at an unacceptable LOS based on the City's planning level daily roadway capacity thresholds for E+P traffic conditions:

- Newport Road, Haun Road to I-215 Freeway (#5) – LOS E

TABLE 5-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR E+P CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2021	V/C[2]	LOS[3]	E+P	V/C[2]	LOS[3]
1	Goetz Rd.	north of Newport Rd.	4D	25,900	11,324	0.44	C or Better	12,420	0.48	C or Better
2	Newport Rd.	east of Goetz Rd.	6D	56,300	30,787	0.55	C or Better	31,473	0.56	C or Better
3	Newport Rd.	Murrieta Rd. to Bradley Rd.	6D	56,300	37,661	0.67	C or Better	38,347	0.68	C or Better
4	Newport Rd.	Bradley Rd. to Haun Rd.	6D	56,300	47,795	0.85	D	48,481	0.86	D
5	Newport Rd.	Haun Rd. to I-215 Freeway	7D	76,125	**72,746**	**0.96**	**E**	**73,362**	**0.96**	**E**

[1] These maximum roadway capacities have been obtained from the City of Menifee's Traffic Study Guidelines.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

5.6 QUEUING ANALYSIS

Queuing analysis findings for E+P are presented on Table 5-3. As shown on Table 5-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic. Worksheets for E+P traffic conditions off-ramp queuing analysis are provided in Appendix 5.3.

TABLE 5-3: PEAK HOUR FREEWAY OFF-RAMP QUEUING SUMMARY FOR E+P CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2020) 95th Percentile Queue (Feet) AM Peak Hour	Existing (2020) 95th Percentile Queue (Feet) PM Peak Hour	Existing (2020) Acceptable?[1] AM	Existing (2020) Acceptable?[1] PM	E+P 95th Percentile Queue (Feet) AM Peak Hour	E+P 95th Percentile Queue (Feet) PM Peak Hour	E+P Acceptable?[1] AM	E+P Acceptable?[1] PM
#12: I-215 SB Ramps & Newport Rd.	SBL	1660	260	277	Yes	Yes	260	287	Yes	Yes
	SBL/R	840	219	247	Yes	Yes	226	248	Yes	Yes
	SBR	500	221	237	Yes	Yes	218	238	Yes	Yes
#13: I-215 NB Ramps & Newport Rd.	NBL	1350	208	269	Yes	Yes	211	287	Yes	Yes
	NBL/R	1350	235	397	Yes	Yes	236	370[2]	Yes	Yes
	NBR	370	196	278	Yes	Yes	196	285	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

5.7 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of existing deficiencies and recommended improvements. Based on the City of Menifee deficiency criteria discussed in Section 2.7 *Deficiency Criteria*, the following intersections were found to be deficient. Improvements necessary to improve traffic deficiencies back to acceptable levels are also discussed below.

5.7.1 IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

All of the study area intersections are anticipated to continue to operate at an acceptable LOS with the addition of Project traffic under E+P traffic conditions. As such, no intersection improvements have been recommended.

5.7.2 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

As shown on Table 5-2, the following roadway segment is anticipated to continue to operate at a deficient LOS for E+P traffic conditions. However, similar to Existing traffic conditions, the intersections on either side of this roadway segment are anticipated to operate at an acceptable LOS during the peak hours without additional improvements (see Table 5-1), as such, further widening of this segment has not been recommended:

- Newport Road, Haun Road to I-215 Freeway (#5)

5.7.3 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously in Table 5-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for E+P traffic conditions. As such, no improvements have been identified.

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6 OPENING YEAR CUMULATIVE (2025) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2025) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, roadway segment, and off-ramp queuing analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

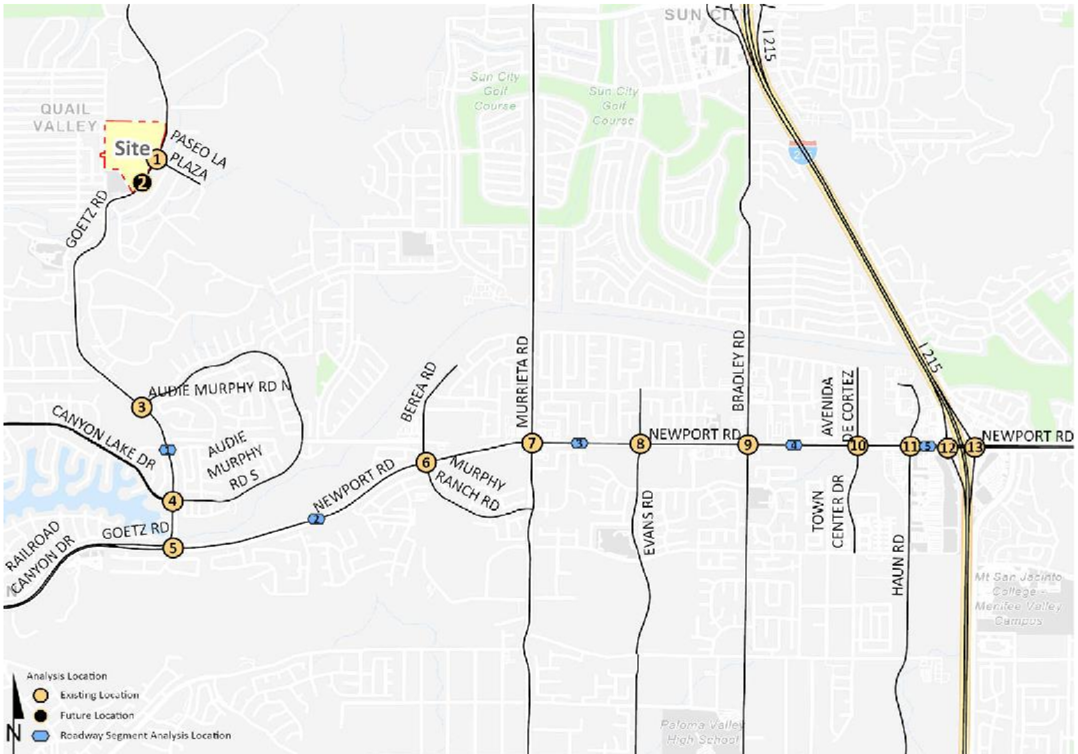
6.2 OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

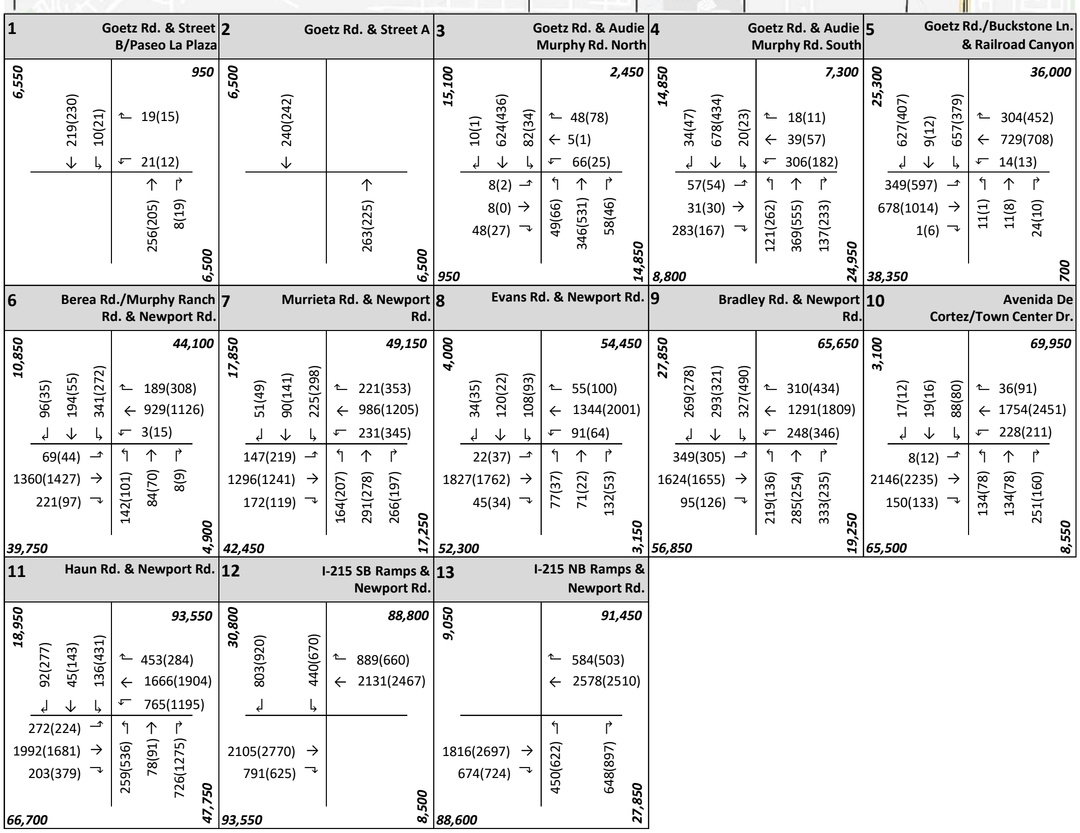
This scenario includes Existing traffic volumes plus an ambient growth factor of 8.24% plus traffic from pending and approved but not yet constructed known development projects in the area. The ADT and peak hour intersection turning movement volumes which can be expected for Opening Year Cumulative (2025) Without Project conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes, an ambient growth factor of 8.24%, traffic from pending and approved but not yet constructed known development projects in the area and the addition of Project traffic. The ADT and peak hour intersection turning movement volumes which can be expected for Opening Year Cumulative (2025) With Project conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC VOLUMES

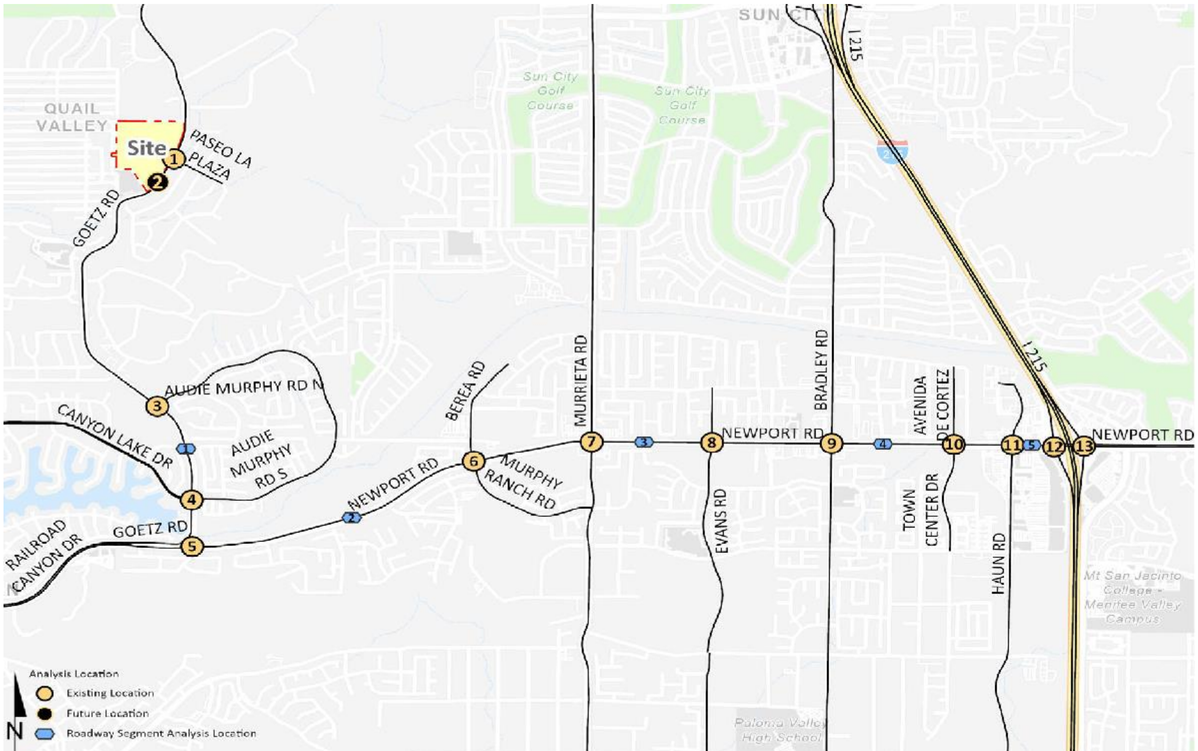


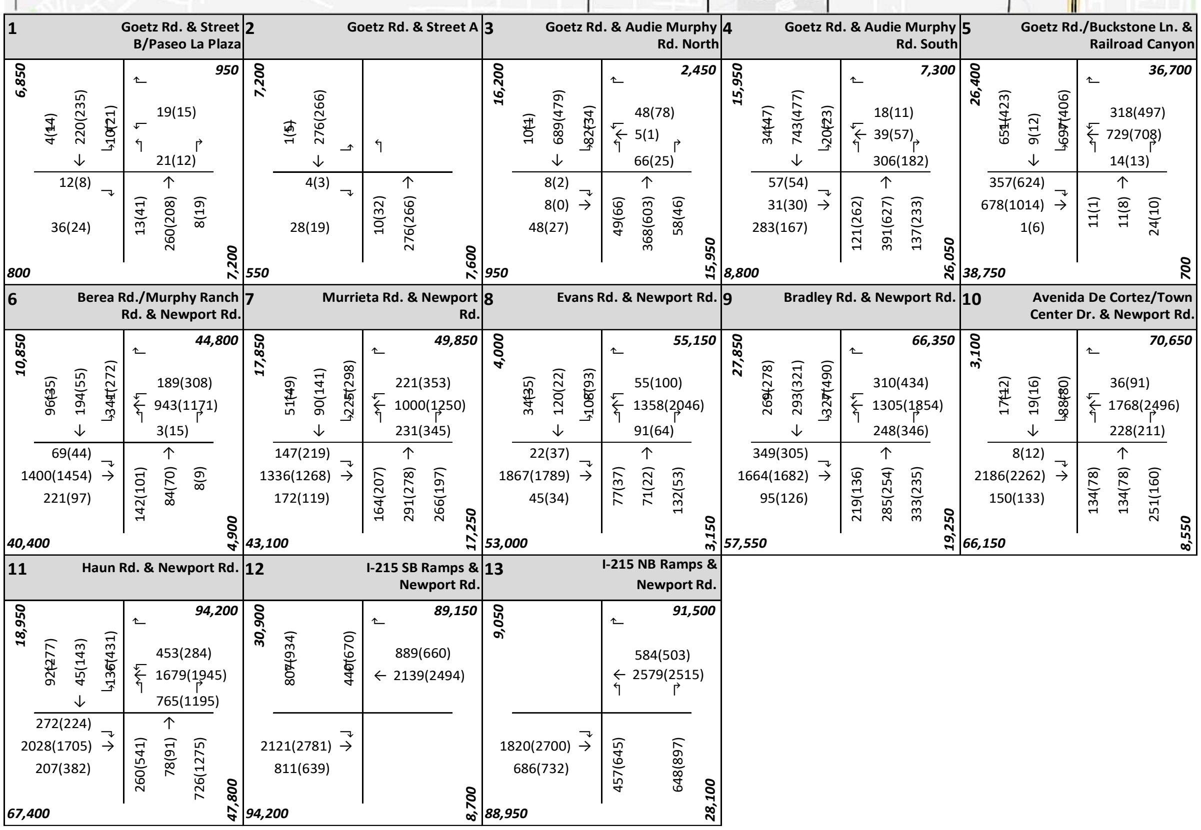


##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC CONDITIONS

Opening Year Cumulative (2025) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection analysis results are summarized in Table 6-1, which indicate that the following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours under Opening Year Cumulative (2025) Without Project:

- Murrieta Road & Newport Road (#7) – LOS E PM peak hour only
- Evans Road & Newport Road (#8) – LOS E AM peak hour only
- Bradley Road & Newport Road (#9) – LOS F AM and PM peak hour
- Haun Road & Newport Road (#11) – LOS F PM peak hour only

The intersection operations analysis worksheets for Opening Year Cumulative Without Project traffic conditions are included in Appendix 6.1 of this TA.

6.4.2 OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 6-1, there are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic, in addition to the intersections previously identified under Opening Year Cumulative (2025) Without Project traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2025) With Project traffic conditions are included in Appendix 6.2 of this TA.

TABLE 6-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

#	Intersection	Traffic Control[1]	2025 Without Project Delay[2] (secs.) AM	PM	Level of Service AM	PM	2025 With Project Delay[2] (secs.) AM	PM	Level of Service AM	PM
1	Goetz Rd. & Street B/Paseo La Plaza	CSS	12.7	11.2	B	B	14.7	12.8	B	B
2	Goetz Rd. & Street A	CSS	Future Intersection				10.6	10.5	B	B
3	Goetz Rd. & Audie Murphy Rd. N	TS	15.1	12.4	B	B	15.2	12.5	B	B
4	Goetz Rd. & Audie Murphy Rd. S/Canyon Lake Dr.	TS	44.1	25.3	D	C	46.9	25.8	D	C
5	Goetz Rd./Buckstone Ln. & Newport Rd./Railroad Canyon	TS	24.8	21.7	C	C	26.4	24.2	C	C
6	Berea Rd./Murphy Ranch Rd. & Newport Rd.	TS	28.1	22.8	C	C	28.7	23.2	C	C
7	Murrieta Rd. & Newport Rd.	TS	42.7	**70.3**	D	**E**	43.2	**70.5**	D	**E**
8	Evans Rd. & Newport Rd.	TS	**65.8**	26.3	**E**	C	**70.9**	27.6	**E**	C
9	Bradley Rd. & Newport Rd.	TS	**139.4**	**143.0**	**F**	**F**	**141.2**	**146.8**	**F**	**F**
10	Avenida de Cortez & Town Center Rd.	TS	36.3	26.8	D	C	39.2	28.2	D	C
11	Haun Rd. & Newport Rd.	TS	64.1	**168.4**	E	**F**	66.6	**170.0**	E	**F**
12	I-215 SB Ramps & Newport Rd.	TS	13.7	17.7	B	B	13.8	18.3	B	B
13	I-215 NB Ramps & Newport Rd.	TS	10.7	23.1	B	C	10.8	24.0	B	C

* **BOLD** = Unacceptable LOS

1 CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

2 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrant analysis for Opening Year Cumulative (2025) traffic conditions are based on peak hour volumes for existing intersections and ADT volume-based planning level warrants for intersections that do not currently exist. No study area intersections are anticipated to warrant a traffic signal for Opening Year Cumulative (2025) Without and With Project traffic conditions (see Appendix 6.3 and Appendix 6.4).

6.6 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Menifee General Plan provides roadway volume capacity values presented previously in Table 2-4. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 6-2 provides a summary of the Opening Year Cumulative (2025) conditions roadway segment capacity analysis based on the City of Menifee General Plan Roadway Segment Capacity Thresholds identified previously in Table 2-4. As shown in Table 6-2, the following study area roadway segments are anticipated to operate at an unacceptable LOS based on the City's planning level daily roadway capacity thresholds for Opening Year Cumulative (2025) Without Project and With Project traffic conditions:

- Newport Road, Bradley Road to Haun Road (#4) – LOS F
- Newport Road, Haun Road to I-215 Freeway (#5) – LOS F

TABLE 6-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2025 NP	V/C[2]	LOS[3]	2025 WP	V/C[2]	LOS[3]
1	Goetz Rd.	north of Newport Rd.	4D	25,900	14,839	0.57	C or Better	15,935	0.62	C or Better
2	Newport Rd.	east of Goetz Rd.	6D	56,300	36,019	0.64	C or Better	36,705	0.65	C or Better
3	Newport Rd.	Murrieta Rd. to Bradley Rd.	6D	56,300	49,161	0.87	D	49,847	0.89	D
4	Newport Rd.	Bradley Rd. to Haun Rd.	6D	56,300	**65,672**	**1.17**	**F**	**66,358**	**1.18**	**F**
5	Newport Rd.	Haun Rd. to I-215 Freeway	7D	76,125	**93,574**	**1.23**	**F**	**94,190**	**1.24**	**F**

BOLD = Unacceptable LOS

[1] These maximum roadway capacities have been obtained from the City of Menifee's Traffic Study Guidelines.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

6.7 QUEUING ANALYSIS

Queuing analysis findings for Opening Year Cumulative (2025) are presented in Table 6-3. As shown in Table 6-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Opening Year Cumulative (2025) Without Project and With Project traffic conditions. Worksheets for Opening Year Cumulative (2025) Without Project and With Project traffic conditions off-ramp queuing analyses are provided Appendices 6.5 and 6.6, respectively.

TABLE 6-3: PEAK HOUR FREEWAY OFF-RAMP QUEUING SUMMARY FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	Without Project 95th Percentile Queue (Feet)		Without Project Acceptable? [1]		With Project 95th Percentile Queue (Feet)		With Project Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
#12: I-215 SB Ramps & Newport Rd.	SBL	1660	346 [2]	449 [2]	Yes	Yes	346 [2]	468 [2]	Yes	Yes
	SBL/R	840	360 [2]	364	Yes	Yes	365 [2]	366	Yes	Yes
	SBR	500	344 [2]	355	Yes	Yes	347 [2]	353	Yes	Yes
#13: I-215 NB Ramps & Newport Rd.	NBL	1350	257	390	Yes	Yes	258	402	Yes	Yes
	NBL/R	1350	271	484 [2]	Yes	Yes	276	498 [2]	Yes	Yes
	NBR	370	219	337	Yes	Yes	219	337	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

[4] Movement is a free-right turn lane. As such, there is no queue during the peak hours.

6.8 DEFICIENCIES AND IMPROVEMENTS

This section provides a summary of deficiencies, based on the City of Menifee's deficiency criteria discussed in Section 2.7 *Deficiency Criteria*, and improvements needed to improve operations back to acceptable levels.

6.8.1 IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the recommended improvement strategies to address Opening Year Cumulative (2025) traffic deficiencies are presented in Table 6-4. Worksheets for Opening Year Cumulative (2025) Without and With Project conditions, with improvements, HCM calculation worksheets are provided in Appendices 6.7 and 6.8, respectively.

Recommended Improvement – Murrieta Road & Newport Road (#7) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound left turn lane. 2nd southbound left turn lane shall be accommodated by restriping the southbound approach with two left turn lanes, one through lane, and one shared through-right turn lane (effectively removing the underutilized southbound right turn lane). This restriping should be phased in with the widening of Murrieta Road to the south to allow for two receiving lanes south of the intersection (for the realigned southbound through traffic).

Recommended Improvement – Evans Road & Newport Road (#8) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 3rd eastbound through lane.

Recommended Improvement – Bradley Road & Newport Road (#9) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound left turn lane. Northbound lanes may also need to be restriped in conjunction with this improvement in order to ensure adequate alignment with the through lanes in both the northbound and southbound directions.
- Add a 2nd eastbound left turn lane.
- Modify the existing traffic signal to accommodate overlap phasing on the westbound right turn lane.

Recommended Improvement – Haun Road & Newport Road (#11) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Modify the existing traffic signal to accommodate overlap phasing on the eastbound and westbound right turn lanes.
- Implement a 140-second cycle length during the PM peak hour only.

TABLE 6-4: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[2]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
7	Murrieta Rd. & Newport Rd.																	
	- Without Project	TS	1	2	1	**2**	2	**0**	1	3	1	1	3	1	31.3	47.3	C	D
	- With Project	TS	1	2	1	**2**	2	**0**	1	3	1	1	3	1	31.7	47.7	C	D
8	Evans Rd. & Newport Rd.																	
	- Without Project	TS	1	1	1	1	1	0	1	**3**	0	1	3	0	26.1	18.0	C	B
	- With Project	TS	1	1	1	1	1	0	1	**3**	0	1	3	0	26.6	18.3	C	B
9	Bradley Rd. & Newport Rd.																	
	- Without Project	TS	1	1	1>	**2**	2	0	**2**	3	0	2	3	**1>**	37.1	45.7	D	D
	- With Project	TS	1	1	1>	**2**	2	0	**2**	3	0	2	3	**1>**	38.0	47.2	D	D
11	Haun Rd. & Newport Rd.																	
	- Without Project[4]	TS	2	1	2>	2	2	0	2	3	**1>**	2	3	**1>**	54.4	65.9	D	E
	- With Project[4]	TS	2	1	2>	2	2	0	2	3	**1>**	2	3	**1>**	56.3	79.8	E	E

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] TS = Traffic Signal

[3] Improvement is restriping only of eastbound and westbound approaches.

[4] Improvement includes implementing a 140-second cycle length during the PM peak hour only.

6.8.2 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

As shown on Table 6-2, the following roadway segments are anticipated to operate at a deficient LOS for Opening Year Cumulative (2025) traffic conditions. However, the intersections on either side of these roadway segments are anticipated to operate at an acceptable LOS during the peak hours with the additional intersection improvements identified previously in Table 6-4, as such, further widening of the following segments have not been recommended:

- Newport Road, Haun Road to I-215 Freeway (#5)
- Newport Road, Haun Road to I-215 Freeway (#5)

6.8.3 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously in Table 6-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Opening Year Cumulative (2025) traffic conditions. As such, no improvements have been identified.

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7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Menifee are funded through a combination of improvements constructed by the Project, development impact fee programs or fair share contributions. Fee programs applicable to the Project are described below.

7.1 RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

The Transportation Uniform Mitigation Fee (TUMF) program is administered by the Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (8) This regional program was put into place to ensure that development pays its fair share, and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

7.2 CITY OF MENIFEE DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The Project will also be subject to City of Menifee's DIF program which includes a component for roads and signals. The City's DIF program has been updated in July 2021 and discusses the local (as opposed to regional) streets and signal improvements planned for the City through build-out of the existing City limits.

7.3 SOUTHWEST ROAD AND BRIDGE BENEFIT DISTRICT (RBBD)

The City of Menifee is anticipated to experience substantial growth. Extensive improvements are necessitated by new development within the region. In particular, Riverside County recognized the effects of this growth on the vicinity of the study area when it formed the Southwest RBBD. The proposed Project lies within Zone B of the Southwest RBBD. Zone B is generally bounded by the I-215 Freeway to the east, Sunset Avenue to the west, Holland Road to the north, and Baxter Road to the south. As discussed above, the facilities improvements that will be ultimately constructed as a result of the collection of these fees and assessments.

7.4 Measure A

Measure A, Riverside County's half-cent sales tax for transportation, was adopted by voters in 1988 and extended in 2002. It will continue to fund transportation improvements through 2039. Measure A funds a wide variety of transportation projects and services throughout the County. RCTC is responsible for administering the program. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the 1988 election.

7.5 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion). When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, have been provided in Table 7-1 for the applicable deficient study area intersection and for each applicable phase. These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases. It should be noted that fair share percentages and monetary contributions will be updated at the time of the final plan based on the final number of dwelling units.

TABLE 7-1: PROJECT FAIR SHARE CALCULATIONS

#	Intersection		Existing	Project	2025 With Project Volume	Total New Traffic	Project % of New Traffic
7	Murrieta Rd. & Newport Rd.						
		AM:	3,276	54	4,195	919	5.9%
		PM:	3,519	72	4,724	1,205	**6.0%**
9	Bradley Rd. & Newport Rd.						
		AM:	4,077	54	5,697	1,620	**3.3%**
		PM:	4,262	72	6,461	2,199	3.3%
11	Haun Rd. & Newport Rd.						
		AM:	4,919	54	6,740	1,821	**3.0%**
		PM:	5,914	73	8,493	2,579	2.8%

BOLD = Denotes highest fair share percentage.

8 REFERENCES

1. **City of Menifee Engineering Department.** *LOS Traffic Study Guidelines.* Menifee : s.n., October 2020 (Revised).
2. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.
3. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.
4. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
5. **California Department of Transportation.** *Guide for the Preparation of Traffic Impact Studies.* December 2002.
6. —. California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2017.
7. **Circulation Element C-1: Roadway System. *The City of Menifee, California.* [Online] [Cited: 2014 йил 30-May.] http://cityofmenifee.us/index.aspx?NID=215.**
8. **Western Riverside Council of Governments. *TUMF Nexus Study, 2016 Program Update.* July 2017.**

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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ATTACHMENT A
SCOPING AGREEMENT FOR TRAFFIC STUDY

This letter acknowledges the City Menifee Engineering Department requirements for the traffic study of the following project. The analysis must follow the latest City Traffic Study Guidelines dated October 2020

Case No. -
Related Cases -
SP No. -
EIR No. -
GPA No. -
CZ No. -
Project Name: Qual Hill (TTM No. 37692)
Project Location: West of Goetz Rd. at Paseo La Plaza
Project Description: 145 single family detached residential dwelling units

	Consultant	Developer
Name:	Urban Crossroads, Inc. - Charlene So	Quail HIlls, LP
Address:	1133 Camelback St. #8329 Newport Beac, CA 92658	555 S. Fair Oaks Dr., #337 Pasadena, CA 91105
Telephone:	949-861-0177	

A. Trip Generation Source: ITE *Trip Generation Manual,* most recent edition 10th Edition, 2017

Existing Land Use 2.1-5 Residential, Rural Mountainous
Proposed Land Use 2.1-5 Residential, Rural Mountainous
Existing Zoning Low Density Residential-2, Rural Mountainous
Proposed Zoning Low Density Residential-2, Rural Mountainous
Total Daily Trips

PROPOSED:

	In	Out	Total
AM Trips	28	81	109
PM Trips	90	54	144

Internal Trip Allowance ☐ Yes ☒ No (% Trip Discount)

Pass-By Trip Allowance ☐ Yes ☑ No (% Trip Discount)

(Attach additional sheet if this is a multi-use site with a breakdown of trips generated)

B. Trip Geographic Distribution: N % S % E % W %

(See attached exhibit for detailed assignment) See Attached Exhibit

C. Background Traffic

Project Completion Year: 2025 Annual Ambient Growth Rate: 2.0 %

Other area projects to be included: -

Please contact the Engineering Department or use the most recently provided data

Model/Forecast methodology if required Not Applicable

D. Horizon Year Analysis: Does this project require a Horizon Year Analysis? ☐ Yes ☑ No

E. Study intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)

1. See page 3 of the attached memo
2.
3.
4.
5.
6.
7.
8.

F. Study Roadway Segments:

1. See page 3 of the attached memo
2.
3.
4.
5.
6.
7.
8.

G. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or one-mile radius of boundaries? ☑ Yes ☐ No

If so, name of Jurisdiction: City of Lake Elsinore

H. Site Plan (please attach a legible 11'X17' copy)

I. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Engineering Department)

See attached memo

Recommended by:

Charlene So

Consultant's Representative 8/18/2021 Date

Scoping Agreement Submitted on 8/18/2021 Date

Scoping Agreement Resubmitted on Date

Approved Scoping Agreement:

City of Menifee Date

Attachment A: Project Scoping Form

This scoping form shall be completed and submitted to the City of Menifee to assist in identifying infrastructure improvements that may be required to support traffic from the proposed project.

Project Identification:

Case Number:	
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Quail Hill (TTM No. 37692)
Project Address:	West of Goetz Road at Paseo La Plaza
Project Opening Year:	2025
Project Description:	145 single family detached residential dwelling units

	Consultant:	Developer:
Name:	Urban Crossroads, Inc. - Charlene So	Quail Hills, LP
Address:	1133 Camelback St, #8329	555 S. Fair Oaks Dr., #337
	Newport Beach, CA 92658	Pasadena, CA 91105
Telephone:	949-861-0177	
Fax/Email:	cso@urbanxroads.com	

Trip Generation Information:

Trip Generation Data Source: ITE Trip Generation Manual, 10th Edition (2017)

Current General Plan Land Use: 2.1-5 Residential, Rural Mountainous

Proposed General Plan Land Use: 2.1-5 Residential, Rural Mountainous

Current Zoning: Low Density Residential-2, Rural Mountainous

Proposed Zoning: Low Density Residential-2, Rural Mountainous

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				28	81	109
PM Trips				90	54	144

Trip Internalization: ☐ Yes ☑ No (______% Trip Discount)

Pass-By Allowance: ☐ Yes ☑ No (______% Trip Discount)

Potential Screening Checks

Is your project screened from specific analyses (see Page 11 of the guidelines related to LOS assessment and Pages 24-26).

Is the project screened from VMT assessment? [X] Yes ☐ No

VMT screening justification (see Pages 24-26 of the guidelines): Project screens out for Low VMT Area. Project is located in TAZ 3737 and has a VMT of 27.65 VMT per service population and the city threshold is 35.68 VMT per service population.

VMT Analysis Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used Not Applicable
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Signatures

TIA Preparer: Charlene So City (Approved by): ____________________

URBAN CROSSROADS

urbanxroads.com

August 18, 2021

Mr. Rob Blough
City of Menifee
29714 Haun Road
Menifee, California 92586

SUBJECT: MENIFEE CROSSROADS (TTM NO. 37692) TRAFFIC ANALYSIS – SCOPING AGREEMENT

Dear Mr. Rob Blough:

Urban Crossroads, Inc. is pleased to submit this scoping letter to City of Menifee regarding the Traffic Analysis for the proposed Menifee Crossroads (Tentative Tract Map No. 37692) development ("Project"), which is located Goetz Road at Paseo La Plaza in the City of Menifee (see Exhibit 1). It is our understanding that the Project is proposed to consist of 145 single family detached residential dwelling units. This letter describes the draft proposed project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed project study area and analysis locations.

A preliminary site plan for the proposed Project is shown on Exhibit 2. Exhibit 3 depicts the location of the proposed Project in relation to the existing roadway network. It is anticipated that the Project would have an Opening Year of 2025. As indicated on Exhibit 2, access to the Project site will be provided to Goetz Road via Street A and Street B. Street B is proposed to align with the existing Paseo La Plaza and will assume to allow for full access. Street A will also assume full access. There is also an emergency vehicle access to the west towards Palm Drive.

TRIP GENERATION

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for single family detached residential (ITE Land Use Code 210) was used. Table 1 presents the trip generation rates and the resulting trip generation summary for the proposed Project. As shown in Table 1, the Project is anticipated to generate a net total of 1,370 two-way trips per day with 109 AM peak hour trips and 144 PM peak hour trips.

TABLE 1: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates:									
Single Family Residential Detached	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).
[2] DU = Dwelling Units

Land Use	Quantity Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary								
Single Family Residential Detached	145 DU	28	81	109	90	54	144	1,370

[1] DU = Dwelling Units

TRIP DISTRIBUTION

The Project trip distribution patterns are graphically depicted on Exhibit 4 for the proposed Project. The intersections where the Project are anticipated to contribute 50 or more peak hour trips will be evaluated.

ANALYSIS SCENARIOS

Consistent with the City's TIA guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2021) Conditions
- Existing plus Project Conditions
- Opening Year Cumulative (2025) Without Project Conditions
- Opening Year Cumulative (2025) With Project Conditions

All study area intersections will be analyzed using the HCM (6th Edition) methodology.

EXISTING COUNT DATA

The Menifee Union School District is back to in-person school and started on August 11, 2021, for the 2021-2022 school year. As such, we are proposing that new traffic counts be conducted for the study area intersections with no adjustments made to the baseline. Although there are effects to local traffic related to the ongoing COVID-19 pandemic, these changes may be more long-lasting and should be reflected in the baseline condition.

STUDY AREA

The traffic impact study area was defined in conformance with the requirements of the City's TIA guidelines, which state that the minimum area to be studied shall include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips. Exhibit 2 identifies the proposed study area intersections based on the aforementioned criteria. The study area intersections and roadway segments are listed below.

STUDY AREA INTERSECTIONS

ID	Intersection Location	Jurisdiction
1	Goetz Rd. & Street B/Paseo La Plaza	City of Menifee
2	Goetz Rd. & Street A – Future Intersection	City of Menifee
3	Goetz Rd. & Audie Murphy Rd.	City of Menifee
4	Goetz Rd. & Canyon Lake Drive N./Audie Murphy Rd.	City of Menifee
5	Goetz Rd. & Newport Rd./Railroad Canyon Rd.	City of Menifee, City of Lake Elsinore
6	Berea Rd./Murphy Ranch Rd. & Newport Rd.	City of Menifee
7	Murrieta Rd. & Newport Rd.	City of Menifee
8	Evans Rd. & Newport Rd.	City of Menifee
9	Bradley Rd. & Newport Rd.	City of Menifee
10	Town Center Dr./Avenida de Cortez & Newport Rd.	City of Menifee
11	Haun Rd. & Newport Rd.	City of Menifee
12	I-215 SB Ramps & Newport Rd.	Caltrans, City of Menifee
13	I-215 NB Ramps & Newport Rd.	Caltrans, City of Menifee

STUDY AREA ROADWAY SEGMENTS

ID	Roadway Segment	Jurisdiction
1	Goetz Rd., north of Newport Rd.	City of Menifee
2	Newport Rd., east of Goetz Rd.	City of Menifee
3	Newport Rd., between Murrieta Rd. & Bradley Rd.	City of Menifee
4	Newport Rd., between Bradley Rd. & Haun Rd.	City of Menifee
5	Newport Rd., between Haun Rd. & I-215 Freeway	City of Menifee

LEVEL OF SERVICE (LOS) CRITERIA

Per Policy C-1.2 of the City of Menifee General Plan, the following LOS will be utilized for study area intersections located within the City: Require development to mitigate its traffic impacts and achieve a peak hour Level of Service (LOS) D or better at intersections, except at constrained intersections at close proximity to the I-215 where LOS E may be permitted.

OPERATING REQUIREMENTS FOR GENERAL PLAN CONSISTENCY

Project related impacts shall be clearly identified as direct or cumulative in the TIA report. Only feasible improvements shall be recommended in the TIA report. Consideration should be made for existing right-of-way, availability of receiving lanes for additional thru or turn lanes, environmental constraints, utility conflicts, and economically feasible improvement costs. Analysis of the recommended improvements shall be provided to demonstrate the proposed improvement will reduce the project impact to LOS to meet LOS standards.

All studies that propose increasing the number of travel lanes on a roadway or intersections to improve LOS conditions, either beyond existing conditions or for General Plan conditions beyond what is planned for that segment shall clearly identify the impacts associated with such a change. Exhibits and preliminary cost estimates must be provided to show the feasibility of the improvement.

The TIA shall identify whether or not the recommended improvements to achieve LOS standards are within the scope of a funding mechanism. The funding mechanism identified shall also include the availability of the funds and anticipated construction dates (if available). A fair share contribution toward the identified funding mechanism shall be calculated in order to reduce identified cumulative project impacts.

LOS improvements may also include connectivity improvements for bicycles and pedestrians. Improvements along the project frontage shall include pedestrian and bicycle facilities in compliance with the goals and policies established in the City's General Plan and mandated through the Complete Streets Act of 2008. The project should clearly identify pedestrian and bicycle facilities within the community that connect the development to existing sidewalk and bicycle facilities.

LOS improvements that are determined to be infeasible should be discussed in the TIA and the factors resulting in the improvement being infeasible should be identified.

AMBIENT GROWTH

Consistent with other studies performed in the area, an ambient growth rate of 2% per year is proposed for the study area intersections to approximate background traffic growth not identified by nearby cumulative development projects.

FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the City of Menifee's Development Impact Fee (DIF) program and Western Riverside Council of Governments Transportation Uniform Mitigation Fee (TUMF), will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share financial contribution based on the Project's fair share impact may be imposed in order to mitigate the Project's share of impacts in lieu of construction. The Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (OYC Total Traffic – Existing Traffic)

SPECIAL ISSUES

The following special issue will also be addressed as part of the TIA:

- *Site Access Evaluation:* The turn pocket lengths will be determined through peak hour traffic simulations developed using Synchro and SimTraffic software in an effort to identify the required storage capacity for turn lanes at each Project driveway along Goetz Road.
- *Sight Distance:* Sight distance evaluation for the Project driveways to determine feasibility of full access at both Project driveways.
- *Traffic Signal Warrant:* A traffic signal warrant analysis will be prepared for all analysis scenarios for the unsignalized, full access study area intersections.
- *Site Plan Review*: The TIA shall review the latest project site plan for access and internal circulation; compliance with City roadway design standards including roadway widths, horizontal curves and turning radii; corner sight distance, geometrics and traffic control for the primary access intersections and all internal intersections; bicycle and pedestrian facilities and connectivity to and through the site; and parking.

OPEN ITEMS – CUMULATIVE DEVELOPMENT PROJECTS

A preliminary list of cumulative projects and map are shown on Exhibit 5 and Table 2. We request that City staff provide an updated list of cumulative development projects for inclusion in the traffic study, and associated mitigation measures where appropriate for recently approved, but not yet constructed development. We have also reached out to obtain current lists from the City of Perris and City of Lake Elsinore.

SIGNAL TIMING

It is requested that the City of Menifee provide existing signal timing for intersections within their jurisdiction. If existing signal timing is not available, default values consistent with the most current CA MUTCD guidelines will be utilized. Signal timing for the I-215 Freeway Ramps at Newport Road will be based on signal timing obtained from Caltrans District 8.

VEHICLE MILES TRAVELED (VMT)

The WRCOG Screening Tool identifies that the site screens out as a low VMT generating zone (see Attachment A). The Project is consistent with the General Plan and the socio-economic data (SED) in the base model as well.

If you have any questions, please contact me directly at (949) 861-0177.

Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, P.E.
Associate Principal

EXHIBIT 1: LOCATION MAP

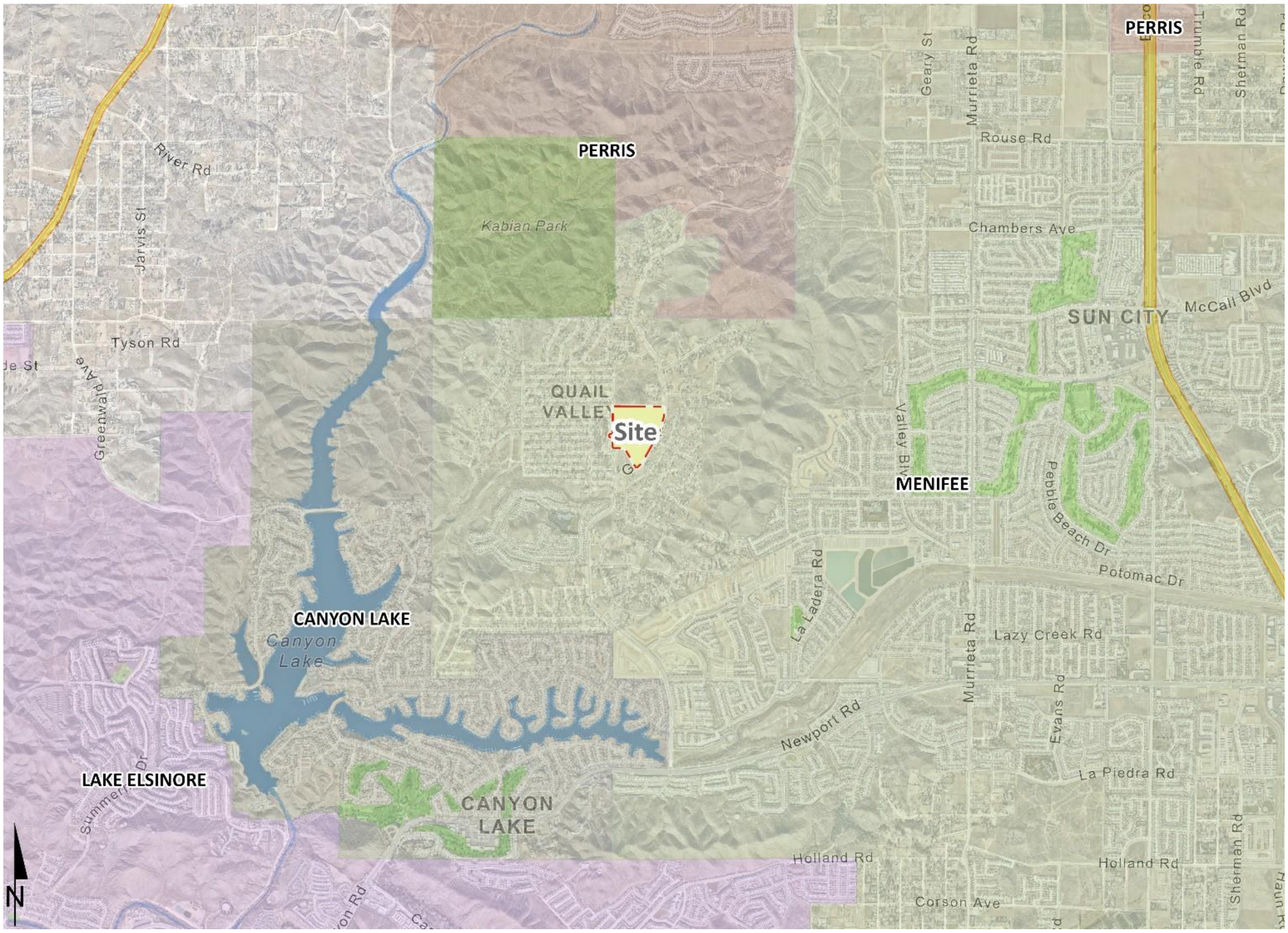


EXHIBIT 2: PRELIMINARY SITE PLAN

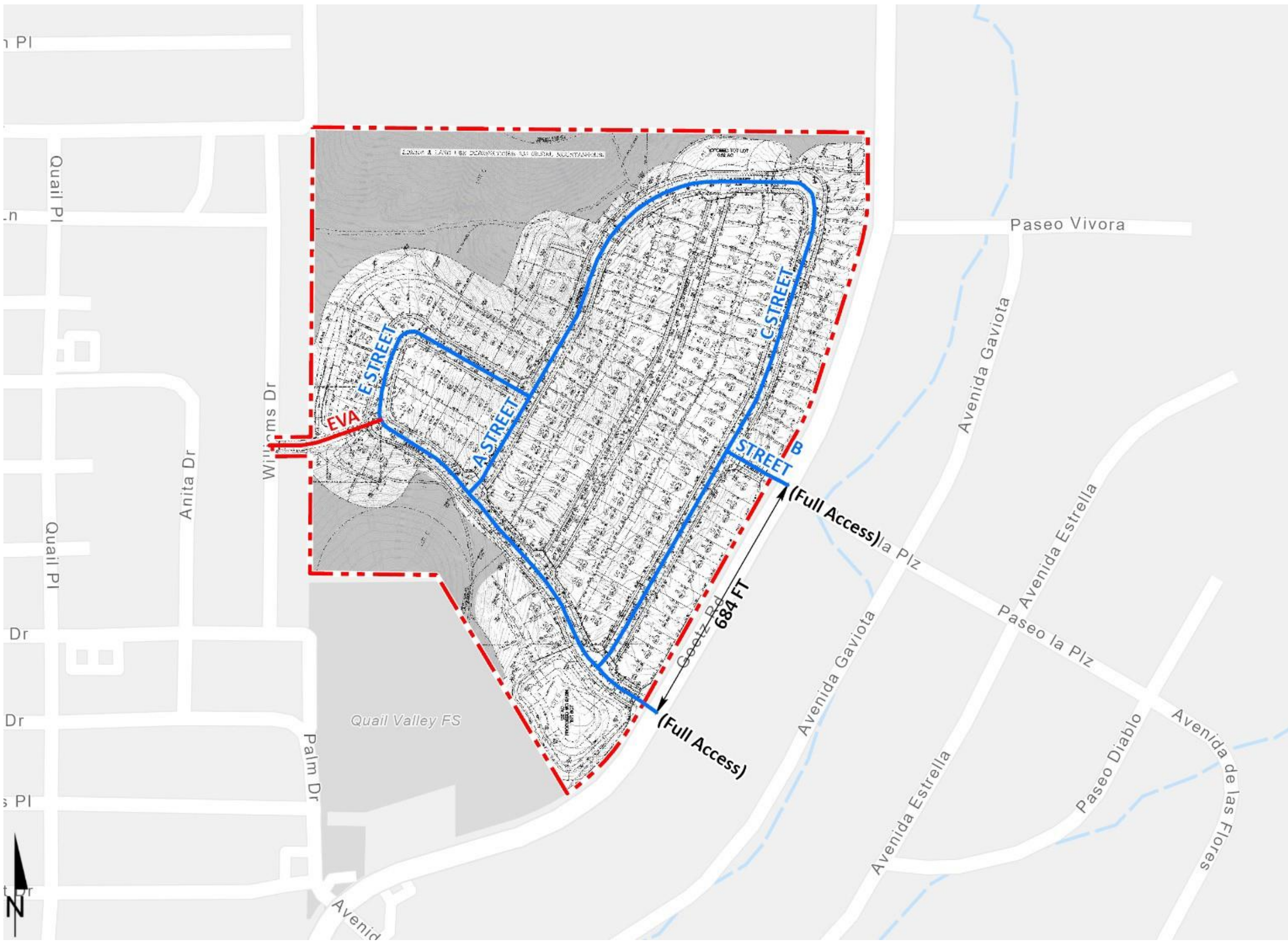


EXHIBIT 3: STUDY AREA

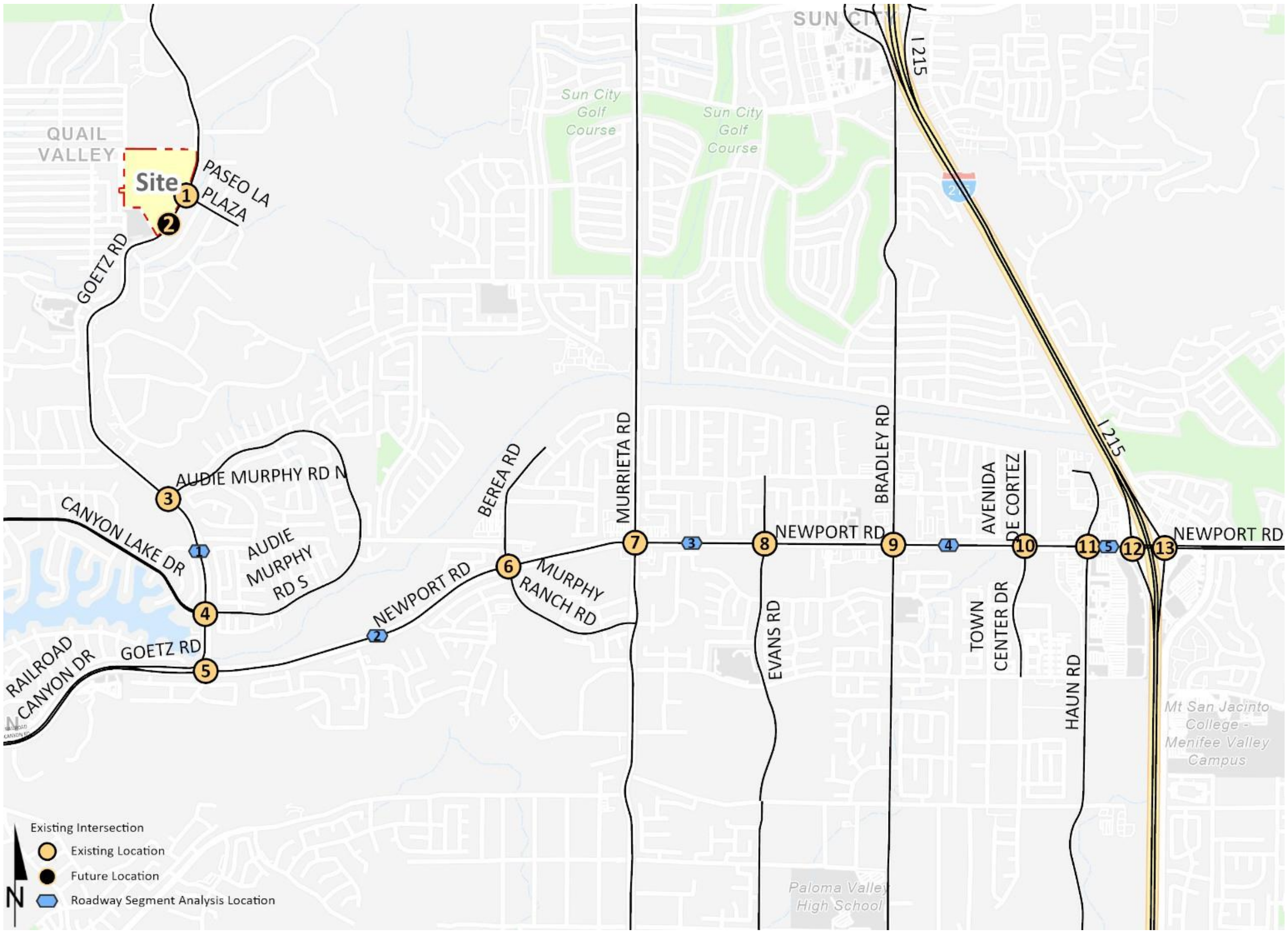


EXHIBIT 4: PROJECT TRIP DISTRIBUTION

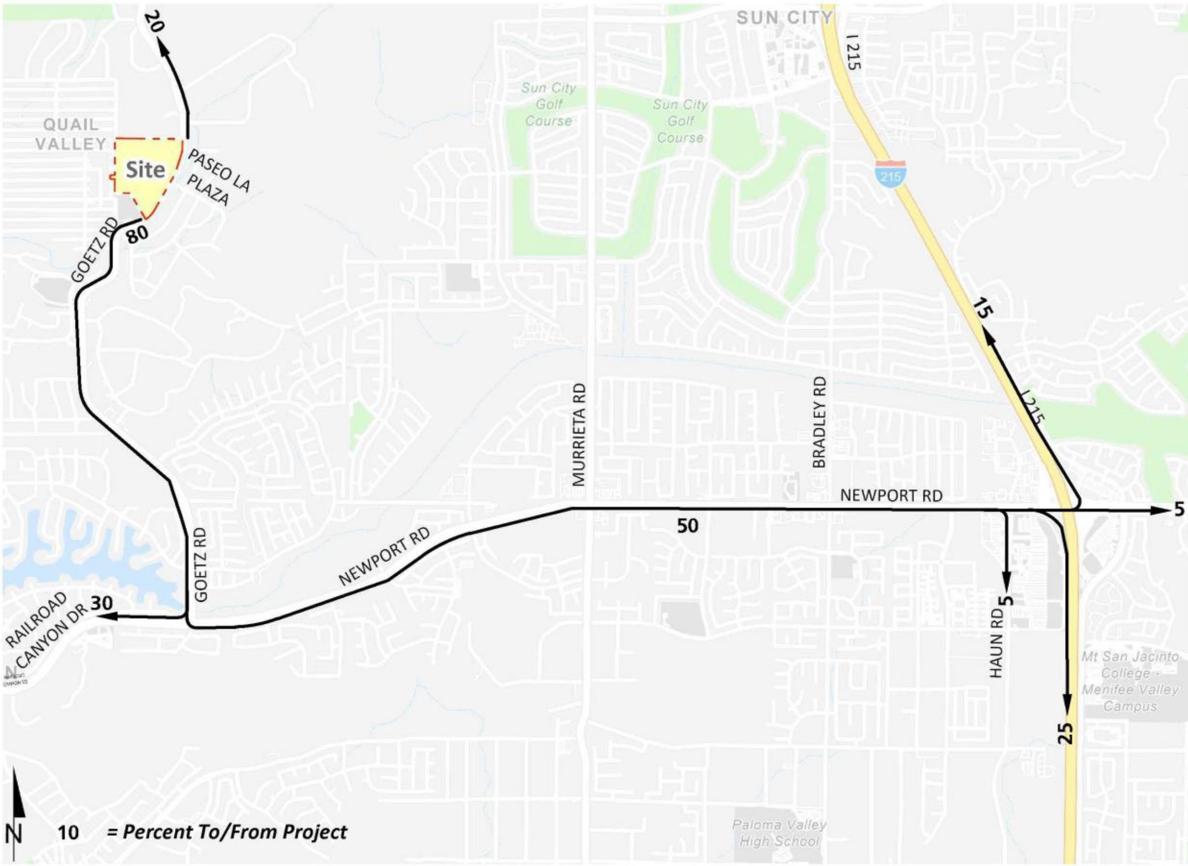
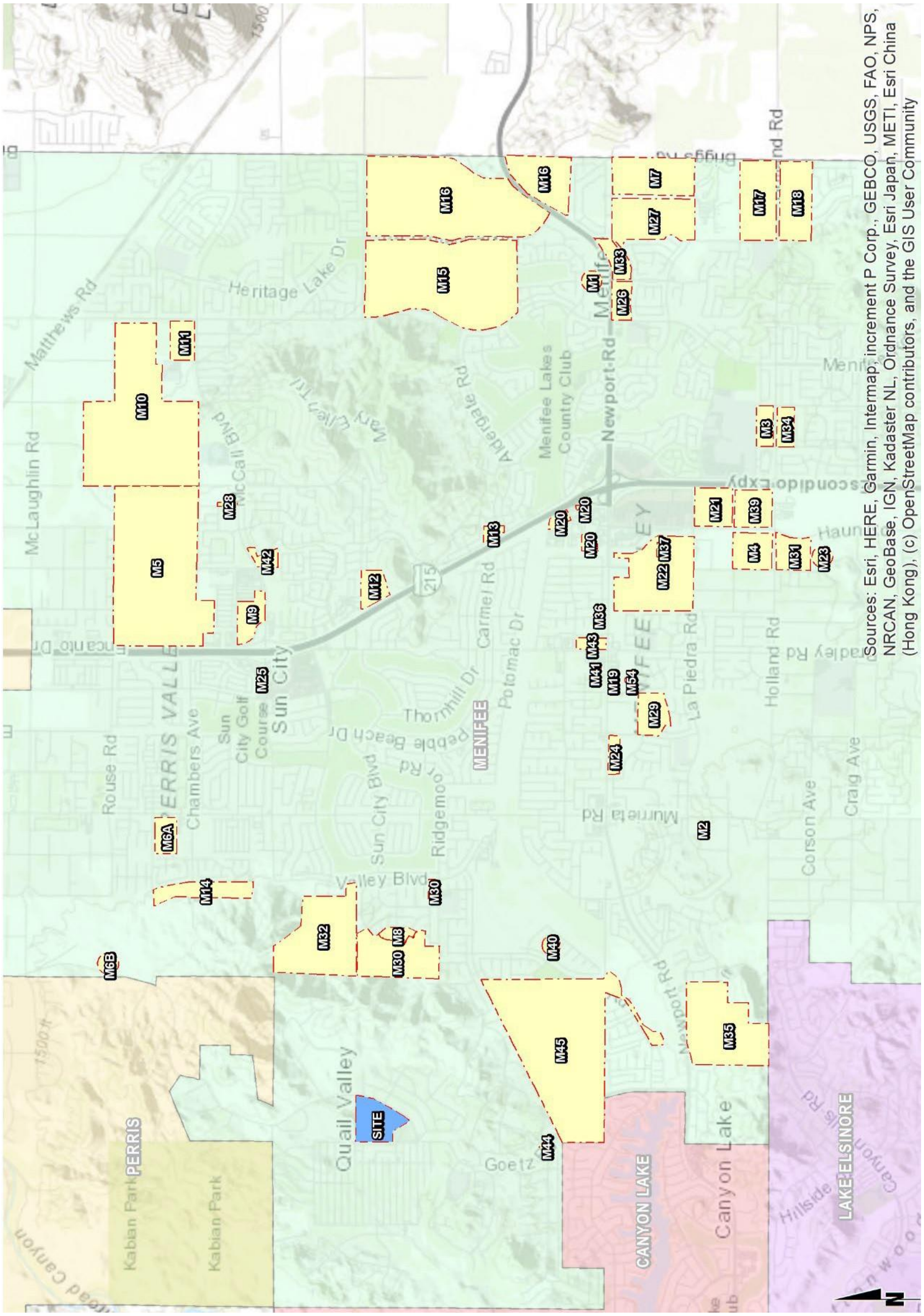
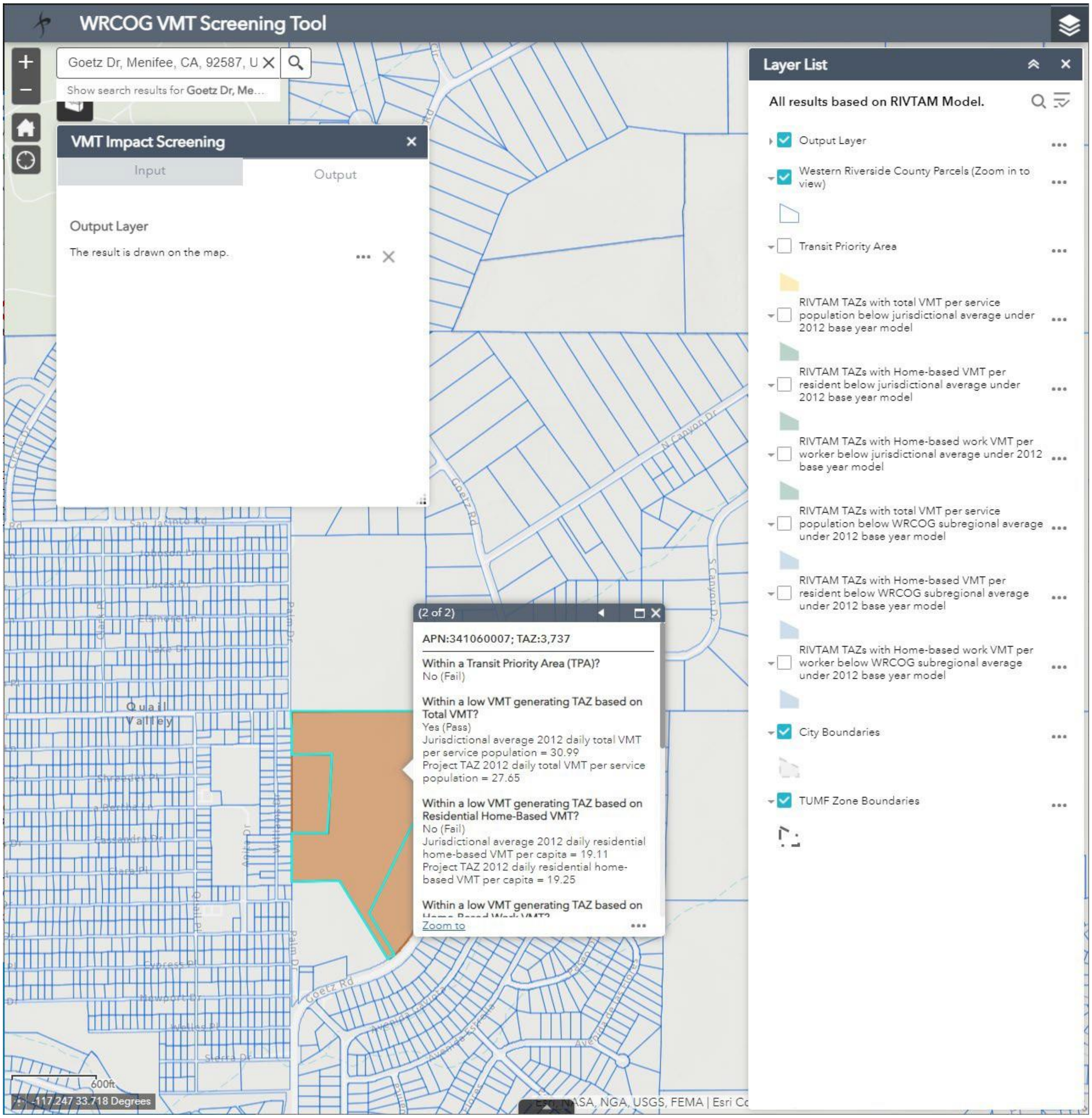


EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP



ATTACHMENT A: WRCOG VMT SCREENING TOOL SCREENSHOT



WRCOG VMT Screening Tool
Goetz Dr, Menifee, CA, 92587, U
Show search results for Goetz Dr, Me...
VMT Impact Screening
Input
Output
Output Layer
The result is drawn on the map.
Layer List
All results based on RIVTAM Model.
Output Layer
Western Riverside County Parcels (Zoom in to view)
Transit Priority Area
RIVTAM TAZs with total VMT per service population below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below jurisdictional average under 2012 base year model
RIVTAM TAZs with total VMT per service population below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below WRCOG subregional average under 2012 base year model
City Boundaries
TUMF Zone Boundaries
(2 of 2)
APN:341060007; TAZ:3,737
Within a Transit Priority Area (TPA)?
No (Fail)
Within a low VMT generating TAZ based on Total VMT?
Yes (Pass)
Jurisdictional average 2012 daily total VMT per service population = 30.99
Project TAZ 2012 daily total VMT per service population = 27.65
Within a low VMT generating TAZ based on Residential Home-Based VMT?
No (Fail)
Jurisdictional average 2012 daily residential home-based VMT per capita = 19.11
Project TAZ 2012 daily residential home-based VMT per capita = 19.25
Within a low VMT generating TAZ based on
Zoom to
San Jacinto Rd
Goetz Rd
N Canyon Dr
S Canyon Dr
Palm Dr
Quail Valley
600ft
-117.247 33.718 Degrees
NASA, NGA, USGS, FEMA | Esri

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APPENDIX 1.2:

SITE ADJACENT QUEUING WORKSHEETS

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2025 With Project Conditions - AM Peak Hour WITH IMPROVEMENTS

02/07/2022

Intersection: 1: Goetz Rd. & Street B/Paseo La Plaza

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	66	48	21	25
Average Queue (ft)	28	25	1	2
95th Queue (ft)	57	48	10	12
Link Distance (ft)	343	628		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Goetz Rd. & Street A

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	40	21
Average Queue (ft)	18	1
95th Queue (ft)	40	11
Link Distance (ft)	351	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

2025 With Project Conditions - PM Peak Hour WITH IMPROVEMENTS

02/07/2022

Intersection: 1: Goetz Rd. & Street B/Paseo La Plaza

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	37	54	29	27
Average Queue (ft)	19	18	7	3
95th Queue (ft)	45	47	26	17
Link Distance (ft)	343	628		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Goetz Rd. & Street A

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	27	29
Average Queue (ft)	13	7
95th Queue (ft)	35	26
Link Distance (ft)	351	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS

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Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Menifee
N/S: Goetz Road
E/W: Paseo La Plaza
Weather: Clear

File Name : 01_MEN_GO_PLP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

	Goetz Road Southbound			Paseo La Plaza Westbound			Goetz Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	3	51	54	3	3	6	39	1	40	100
07:15 AM	2	47	49	5	4	9	56	3	59	117
07:30 AM	3	60	63	8	3	11	72	2	74	148
07:45 AM	1	26	27	3	8	11	46	1	47	85
Total	9	184	193	19	18	37	213	7	220	450
08:00 AM	1	32	33	2	1	3	40	2	42	78
08:15 AM	3	43	46	2	1	3	27	2	29	78
08:30 AM	2	33	35	2	4	6	26	4	30	71
08:45 AM	1	31	32	0	4	4	15	2	17	53
Total	7	139	146	6	10	16	108	10	118	280
Grand Total	16	323	339	25	28	53	321	17	338	730
Apprch %	4.7	95.3		47.2	52.8		95	5		
Total %	2.2	44.2	46.4	3.4	3.8	7.3	44	2.3	46.3	

	Goetz Road Southbound			Paseo La Plaza Westbound			Goetz Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	**3**	51	54	3	3	6	39	1	40	100
07:15 AM	2	47	49	5	4	9	56	**3**	59	117
07:30 AM	3	**60**	**63**	**8**	3	**11**	**72**	2	**74**	**148**
07:45 AM	1	26	27	3	**8**	11	46	1	47	85
Total Volume	9	184	193	19	18	37	213	7	220	450
% App. Total	4.7	95.3		51.4	48.6		96.8	3.2		
PHF	.750	.767	.766	.594	.563	.841	.740	.583	.743	.760

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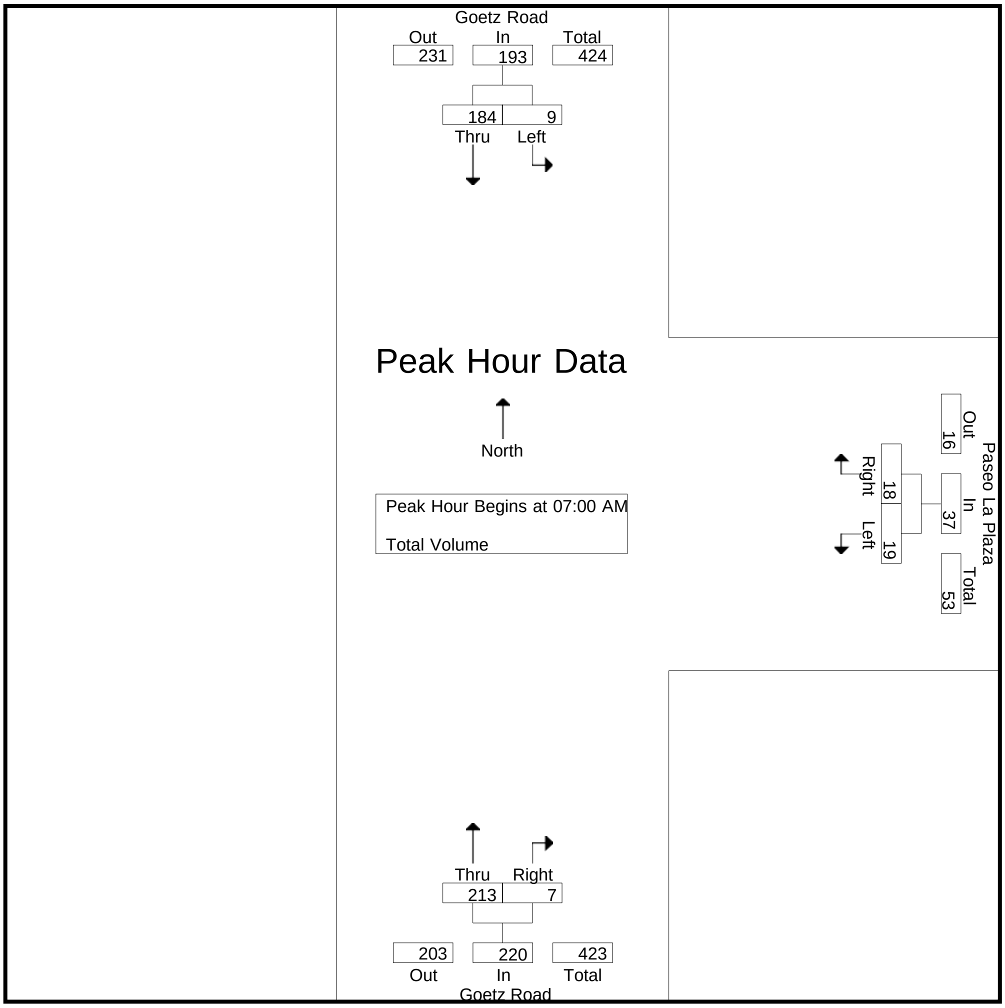

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:15 AM		
+0 mins.	**3**	51	54	3	3	6	56	**3**	59
+15 mins.	2	47	49	5	4	9	**72**	2	**74**
+30 mins.	3	**60**	**63**	**8**	3	**11**	46	1	47
+45 mins.	1	26	27	3	**8**	11	40	2	42
Total Volume	9	184	193	19	18	37	214	8	222
% App. Total	4.7	95.3		51.4	48.6		96.4	3.6	
PHF	.750	.767	.766	.594	.563	.841	.743	.667	.750

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City of Menifee
N/S: Goetz Road
E/W: Paseo La Plaza
Weather: Clear

File Name : 01_MEN_GO_PLP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

	Goetz Road Southbound			Paseo La Plaza Westbound			Goetz Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	6	42	48	2	1	3	32	3	35	86
04:15 PM	0	52	52	1	0	1	46	3	49	102
04:30 PM	6	36	42	1	1	2	42	5	47	91
04:45 PM	5	38	43	3	3	6	34	6	40	89
Total	17	168	185	7	5	12	154	17	171	368
05:00 PM	6	58	64	2	3	5	49	4	53	122
05:15 PM	5	43	48	3	6	9	43	1	44	101
05:30 PM	3	51	54	3	2	5	46	7	53	112
05:45 PM	7	35	42	2	2	4	33	3	36	82
Total	21	187	208	10	13	23	171	15	186	417
Grand Total	38	355	393	17	18	35	325	32	357	785
Apprch %	9.7	90.3		48.6	51.4		91	9		
Total %	4.8	45.2	50.1	2.2	2.3	4.5	41.4	4.1	45.5	

	Goetz Road Southbound			Paseo La Plaza Westbound			Goetz Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	5	38	43	**3**	3	6	34	6	40	89
05:00 PM	**6**	**58**	**64**	2	3	5	**49**	4	**53**	**122**
05:15 PM	5	43	48	3	**6**	**9**	43	1	44	101
05:30 PM	3	51	54	3	2	5	46	**7**	53	112
Total Volume	19	190	209	11	14	25	172	18	190	424
% App. Total	9.1	90.9		44	56		90.5	9.5		
PHF	.792	.819	.816	.917	.583	.694	.878	.643	.896	.869

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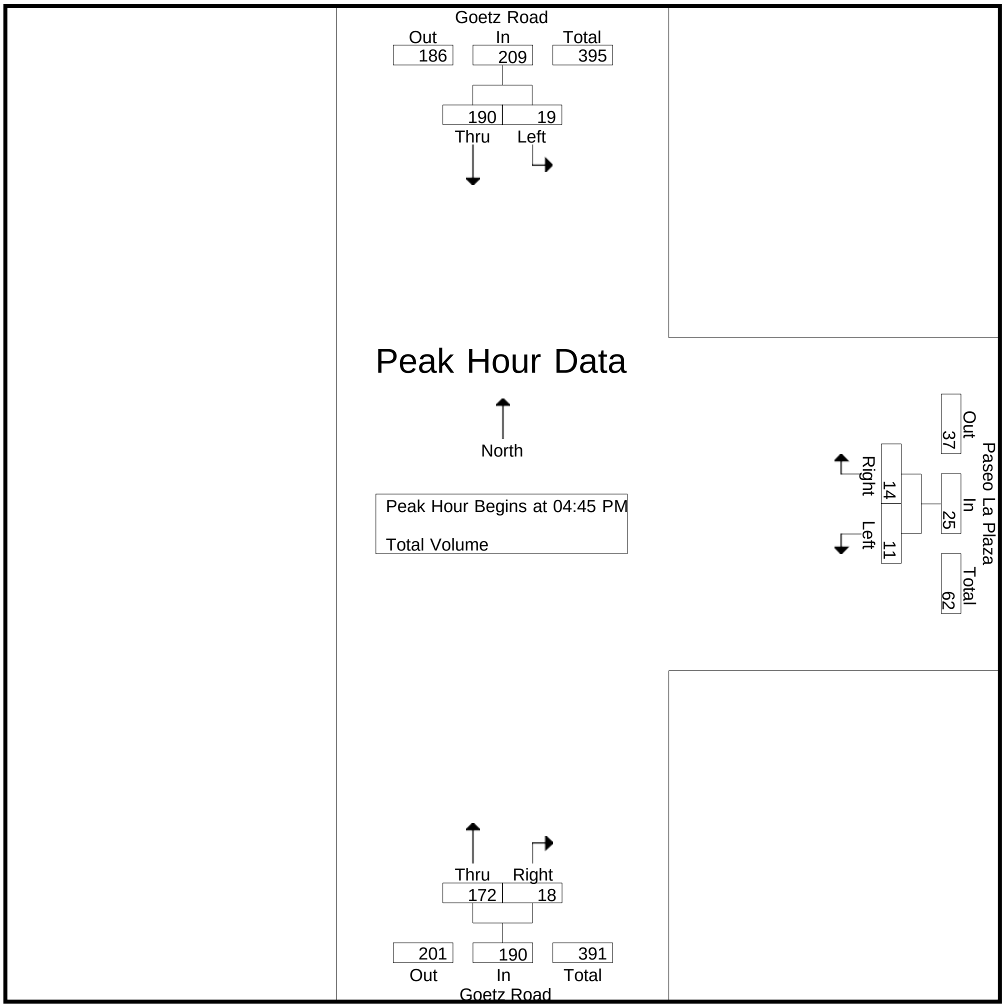
City of Menifee
N/S: Goetz Road
E/W: Paseo La Plaza
Weather: Clear

File Name : 01_MEN_GO_PLP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	5	38	43	**3**	3	6	34	6	40
+15 mins.	**6**	**58**	**64**	2	3	5	**49**	4	**53**
+30 mins.	5	43	48	3	**6**	**9**	43	1	44
+45 mins.	3	51	54	3	2	5	46	**7**	53
Total Volume	19	190	209	11	14	25	172	18	190
% App. Total	9.1	90.9		44	56		90.5	9.5	
PHF	.792	.819	.816	.917	.583	.694	.878	.643	.896

Location: Menifee
N/S: Goetz Road
E/W: Paseo La Plaza

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Goetz Road	East Leg Paseo La Plaza	South Leg Goetz Road	West Leg Paseo La Plaza	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1

	North Leg Goetz Road	East Leg Paseo La Plaza	South Leg Goetz Road	West Leg Paseo La Plaza	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1
TOTAL VOLUMES:	0	1	0	0	1

Location: Menifee
N/S: Goetz Road
E/W: Paseo La Plaza

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Goetz Road			Westbound Paseo La Plaza			Northbound Goetz Road			Eastbound Paseo La Plaza			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Goetz Road			Westbound Paseo La Plaza			Northbound Goetz Road			Eastbound Paseo La Plaza			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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951-268-6268

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Corona, CA 92878
(951)268-6268

City of Menifee
N/S: Goetz Road
E/W: Audie Murphy Road N
Weather: Clear

File Name : 03_MEN_GO_AM AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 7

Groups Printed- Total Volume

	Goetz Road Southbound					Audie Murphy Road Westbound					Goetz Road Northbound					Audie Murphy Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	16	139	2	0	157	12	1	7	5	20	5	60	18	0	83	0	2	0	0	2	5	262	267
07:15 AM	17	139	1	0	157	16	1	9	7	26	11	70	7	1	88	4	2	0	0	6	8	277	285
07:30 AM	19	139	3	0	161	11	3	14	10	28	6	61	12	3	79	1	3	3	3	7	16	275	291
07:45 AM	23	81	3	0	107	5	0	12	9	17	6	63	11	3	80	0	0	6	5	6	17	210	227
Total	75	498	9	0	582	44	5	42	31	91	28	254	48	7	330	5	7	9	8	21	46	1024	1070
08:00 AM	15	87	1	0	103	14	3	14	8	31	1	58	7	0	66	2	0	0	0	2	8	202	210
08:15 AM	9	101	0	0	110	9	3	20	11	32	6	46	5	2	57	2	2	1	1	5	14	204	218
08:30 AM	7	93	1	0	101	7	2	17	12	26	4	58	8	0	70	1	0	4	3	5	15	202	217
08:45 AM	8	65	0	0	73	7	3	12	12	22	0	32	5	1	37	1	1	1	1	3	14	135	149
Total	39	346	2	0	387	37	11	63	43	111	11	194	25	3	230	6	3	6	5	15	51	743	794
Grand Total	114	844	11	0	969	81	16	105	74	202	39	448	73	10	560	11	10	15	13	36	97	1767	1864
Apprch %	11.8	87.1	1.1			40.1	7.9	52			7	80	13			30.6	27.8	41.7					
Total %	6.5	47.8	0.6		54.8	4.6	0.9	5.9		11.4	2.2	25.4	4.1		31.7	0.6	0.6	0.8		2	5.2	94.8	

	Goetz Road Southbound				Audie Murphy Road Westbound				Goetz Road Northbound				Audie Murphy Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	16	**139**	2	157	12	1	7	20	5	60	**18**	83	0	2	0	2	262
07:15 AM	17	139	1	157	**16**	1	9	26	**11**	**70**	7	**88**	**4**	2	0	6	**277**
07:30 AM	19	139	**3**	**161**	11	**3**	**14**	**28**	6	61	12	79	1	**3**	3	**7**	275
07:45 AM	**23**	81	3	107	5	0	12	17	6	63	11	80	0	0	**6**	6	210
Total Volume	75	498	9	582	44	5	42	91	28	254	48	330	5	7	9	21	1024
% App. Total	12.9	85.6	1.5		48.4	5.5	46.2		8.5	77	14.5		23.8	33.3	42.9		
PHF	.815	.896	.750	.904	.688	.417	.750	.813	.636	.907	.667	.938	.313	.583	.375	.750	.924

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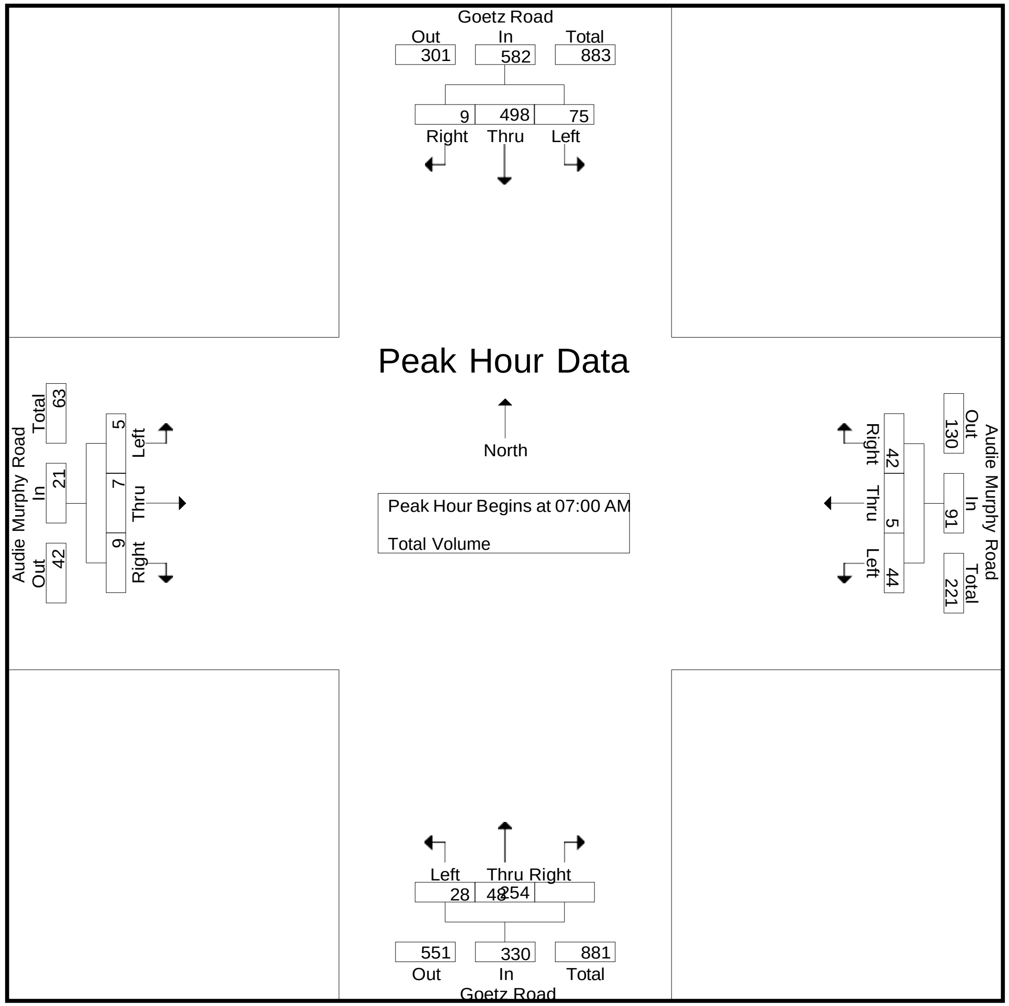
City of Menifee
N/S: Goetz Road
E/W: Audie Murphy Road N
Weather: Clear

File Name : 03_MEN_GO_AM AM
Site Code : 05121444
Start Date : 8/26/2021



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City of Menifee
N/S: Goetz Road
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File Name : 03_MEN_GO_AM AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	Goetz Road Southbound				Audie Murphy Road Westbound				Goetz Road Northbound				Audie Murphy Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
	07:00 AM				08:00 AM				07:00 AM				07:00 AM				
+0 mins.	16	**139**	2	157	**14**	**3**	14	31	5	60	**18**	83	0	2	0	2	
+15 mins.	17	139	1	157	9	3	**20**	**32**	**11**	**70**	7	**88**	**4**	2	0	6	
+30 mins.	19	139	**3**	**161**	7	2	17	26	6	61	12	79	1	**3**	3	**7**	
+45 mins.	**23**	81	3	107	7	3	12	22	6	63	11	80	0	0	**6**	6	
Total Volume	75	498	9	582	37	11	63	111	28	254	48	330	5	7	9	21	
% App. Total	12.9	85.6	1.5		33.3	9.9	56.8		8.5	77	14.5		23.8	33.3	42.9		
PHF	.815	.896	.750	.904	.661	.917	.788	.867	.636	.907	.667	.938	.313	.583	.375	.750	

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City of Menifee
N/S: Goetz Road
E/W: Audie Murphy Road N
Weather: Clear

File Name : 03_MEN_GO_AM PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

	Goetz Road Southbound					Audie Murphy Road Westbound					Goetz Road Northbound					Audie Murphy Road Eastbound						
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	5	83	0	0	88	8	0	16	14	24	0	98	7	0	105	0	0	2	2	14	219	233
04:15 PM	7	95	0	0	102	9	0	17	15	26	2	105	10	0	117	0	0	0	0	15	245	260
04:30 PM	4	72	0	0	76	4	0	18	14	22	1	107	5	0	113	0	0	0	0	14	211	225
04:45 PM	4	95	1	0	100	2	0	14	14	16	0	98	5	0	103	0	0	0	0	14	219	233
Total	20	345	1	0	366	23	0	65	57	88	3	408	27	0	438	0	0	2	2	57	894	951
05:00 PM	9	76	0	0	85	3	0	17	14	20	0	123	4	0	127	0	0	1	1	14	233	247
05:15 PM	6	75	0	0	81	5	0	23	17	28	1	94	5	0	100	0	0	0	0	17	209	226
05:30 PM	9	94	0	0	103	2	1	16	12	19	2	122	9	0	133	0	0	1	1	12	256	268
05:45 PM	6	83	0	0	89	8	0	14	12	22	0	91	10	0	101	0	0	1	1	12	213	225
Total	30	328	0	0	358	18	1	70	55	89	3	430	28	0	461	0	0	3	3	55	911	966
Grand Total	50	673	1	0	724	41	1	135	112	177	6	838	55	0	899	0	0	5	5	112	1805	1917
Apprch %	6.9	93	0.1			23.2	0.6	76.3			0.7	93.2	6.1			0	0	100				
Total %	2.8	37.3	0.1		40.1	2.3	0.1	7.5		9.8	0.3	46.4	3		49.8	0	0	0.3	0.3	5.8	94.2	

	Goetz Road Southbound				Audie Murphy Road Westbound				Goetz Road Northbound				Audie Murphy Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	4	**95**	**1**	100	2	0	14	16	0	98	5	103	0	0	0	0	219
05:00 PM	**9**	76	0	85	3	0	17	20	0	**123**	4	127	0	0	**1**	**1**	233
05:15 PM	6	75	0	81	**5**	0	**23**	**28**	1	94	5	100	0	0	0	0	209
05:30 PM	9	94	0	**103**	2	**1**	16	19	**2**	122	**9**	**133**	0	0	1	1	**256**
Total Volume	28	340	1	369	12	1	70	83	3	437	23	463	0	0	2	2	917
% App. Total	7.6	92.1	0.3		14.5	1.2	84.3		0.6	94.4	5		0	0	100		
PHF	.778	.895	.250	.896	.600	.250	.761	.741	.375	.888	.639	.870	.000	.000	.500	.500	.896

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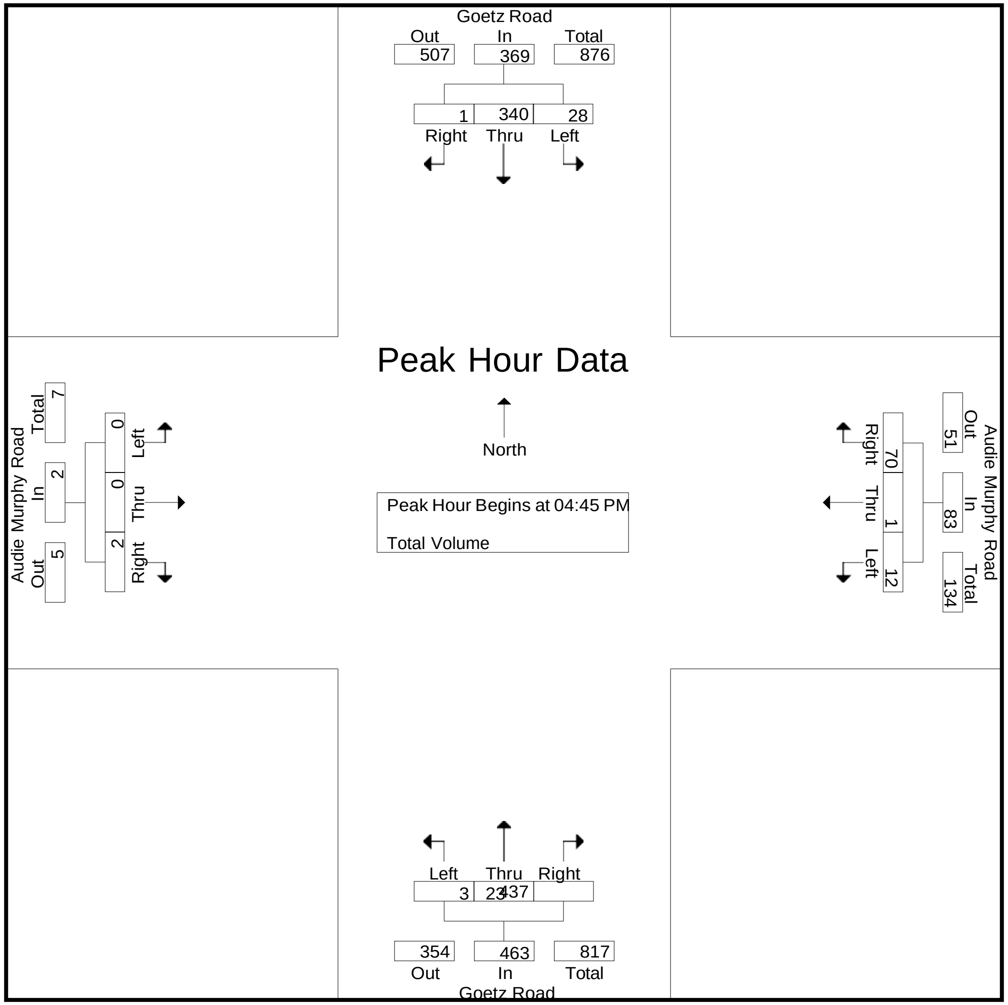
City of Menifee
N/S: Goetz Road
E/W: Audie Murphy Road N
Weather: Clear

File Name : 03_MEN_GO_AM PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: Goetz Road
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Weather: Clear

File Name : 03_MEN_GO_AM PM
Site Code : 05121444
Start Date : 8/26/2021

	Goetz Road Southbound				Audie Murphy Road Westbound				Goetz Road Northbound				Audie Murphy Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				05:00 PM				04:45 PM				05:00 PM				
+0 mins.	4	**95**	**1**	100	3	0	17	20	0	98	5	103	0	0	**1**	**1**	
+15 mins.	**9**	76	0	85	5	0	**23**	**28**	0	**123**	4	127	0	0	0	0	
+30 mins.	6	75	0	81	2	**1**	16	19	1	94	5	100	0	0	1	1	
+45 mins.	9	94	0	**103**	**8**	0	14	22	**2**	122	**9**	**133**	0	0	1	1	
Total Volume	28	340	1	369	18	1	70	89	3	437	23	463	0	0	3	3	
% App. Total	7.6	92.1	0.3		20.2	1.1	78.7		0.6	94.4	5		0	0	100		
PHF	.778	.895	.250	.896	.563	.250	.761	.795	.375	.888	.639	.870	.000	.000	.750	.750	

Location: Menifee
N/S: Goetz Road
E/W: Audie Murphy Road N

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Goetz Road	East Leg Audie Murphy Road N	South Leg Goetz Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	1	1	2	4
8:00 AM	1	0	0	1	2
8:15 AM	0	1	0	1	2
8:30 AM	0	1	0	0	1
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	1	4	1	4	10

	North Leg Goetz Road	East Leg Audie Murphy Road N	South Leg Goetz Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	0	0	0	1	1

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Location: Menifee
N/S: Goetz Road
E/W: Audie Murphy Road N

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Goetz Road			Westbound Audie Murphy Road N			Northbound Goetz Road			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	0	0	0	0	0	0	0	0	1

	Southbound Goetz Road			Westbound Audie Murphy Road N			Northbound Goetz Road			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	2	0	0	0	0	3

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City of Menifee
N/S: Goetz Road
E/W: Canyon Lake Dr N/Audie Murphy Rd S
Weather: Clear

File Name : 04_MEN_GO_CL AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 15

Groups Printed- Total Volume

	Goetz Road Southbound					Audie Murphy Road S Westbound					Goetz Road Northbound					Canyon Lake Drive N Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	140	5	3	148	55	6	2	2	63	25	62	32	9	119	13	10	78	24	101	38	431	469
07:15 AM	6	145	5	2	156	94	10	5	5	109	20	69	27	15	116	13	9	83	21	105	43	486	529
07:30 AM	5	131	11	7	147	55	8	2	1	65	32	66	35	7	133	10	5	56	19	71	34	416	450
07:45 AM	4	89	3	0	96	41	12	6	2	59	35	65	20	7	120	8	5	44	21	57	30	332	362
Total	18	505	24	12	547	245	36	15	10	296	112	262	114	38	488	44	29	261	85	334	145	1665	1810
08:00 AM	5	94	5	2	104	28	6	1	1	35	31	55	25	5	111	8	3	48	20	59	28	309	337
08:15 AM	6	93	8	3	107	48	3	2	0	53	42	47	30	6	119	6	5	59	20	70	29	349	378
08:30 AM	0	100	7	3	107	42	9	5	1	56	50	53	21	3	124	11	4	46	20	61	27	348	375
08:45 AM	2	73	3	0	78	37	12	0	0	49	33	31	14	8	78	4	7	39	13	50	21	255	276
Total	13	360	23	8	396	155	30	8	2	193	156	186	90	22	432	29	19	192	73	240	105	1261	1366
Grand Total	31	865	47	20	943	400	66	23	12	489	268	448	204	60	920	73	48	453	158	574	250	2926	3176
Apprch %	3.3	91.7	5			81.8	13.5	4.7			29.1	48.7	22.2			12.7	8.4	78.9					
Total %	1.1	29.6	1.6		32.2	13.7	2.3	0.8		16.7	9.2	15.3	7		31.4	2.5	1.6	15.5		19.6	7.9	92.1	

	Goetz Road Southbound				Audie Murphy Road S Westbound				Goetz Road Northbound				Canyon Lake Drive N Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	140	5	148	55	6	2	63	25	62	32	119	**13**	**10**	78	101	431
07:15 AM	**6**	**145**	5	**156**	**94**	10	5	**109**	20	**69**	27	116	13	9	**83**	**105**	**486**
07:30 AM	5	131	**11**	147	55	8	2	65	32	66	**35**	**133**	10	5	56	71	416
07:45 AM	4	89	3	96	41	**12**	**6**	59	**35**	65	20	120	8	5	44	57	332
Total Volume	18	505	24	547	245	36	15	296	112	262	114	488	44	29	261	334	1665
% App. Total	3.3	92.3	4.4		82.8	12.2	5.1		23	53.7	23.4		13.2	8.7	78.1		
PHF	.750	.871	.545	.877	.652	.750	.625	.679	.800	.949	.814	.917	.846	.725	.786	.795	.856

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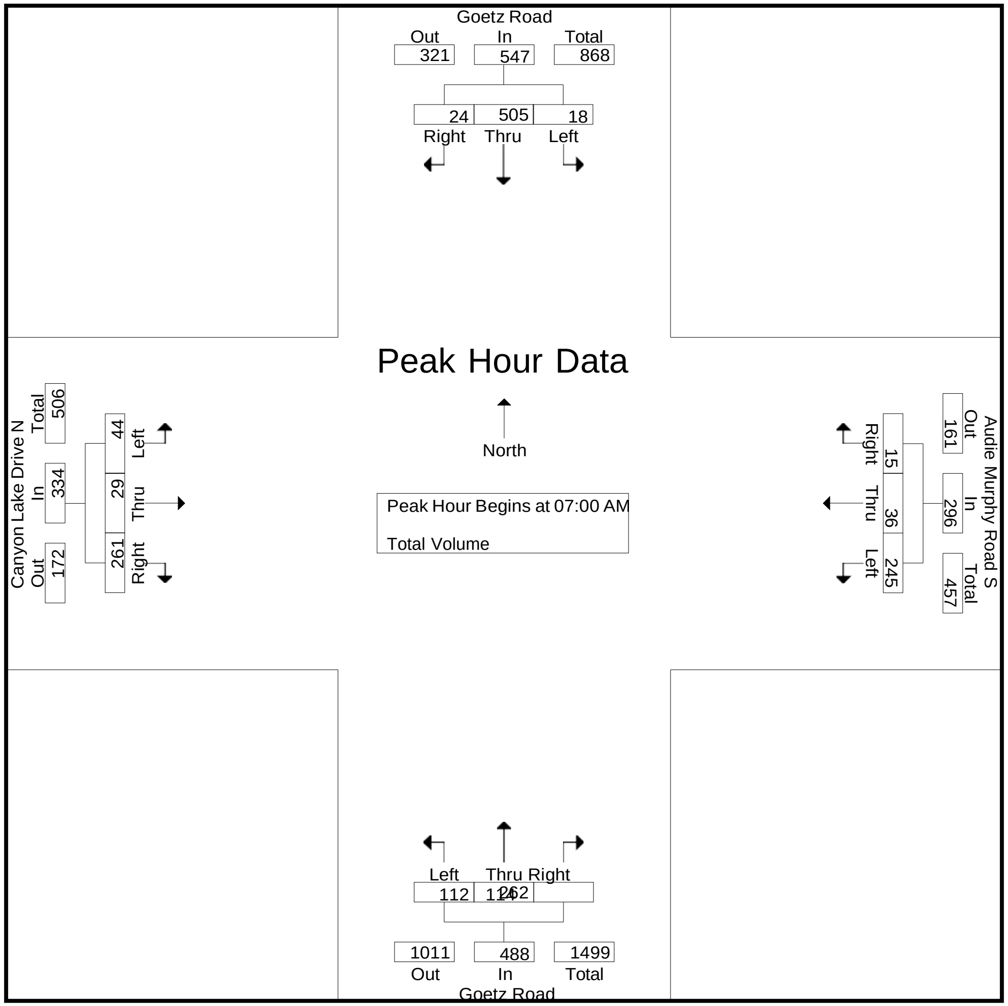
City of Menifee
N/S: Goetz Road
E/W: Canyon Lake Dr N/Audie Murphy Rd S
Weather: Clear

File Name : 04_MEN_GO_CL AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 16



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City of Menifee
N/S: Goetz Road
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File Name : 04_MEN_GO_CL AM
Site Code : 05121444
Start Date : 8/26/2021

	Goetz Road Southbound				Audie Murphy Road S Westbound				Goetz Road Northbound				Canyon Lake Drive N Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	3	140	5	148	55	6	2	63	25	62	32	119	**13**	**10**	78	101	
+15 mins.	**6**	**145**	5	**156**	**94**	10	5	**109**	20	**69**	27	116	13	9	**83**	**105**	
+30 mins.	5	131	**11**	147	55	8	2	65	32	66	**35**	**133**	10	5	56	71	
+45 mins.	4	89	3	96	41	**12**	**6**	59	**35**	65	20	120	8	5	44	57	
Total Volume	18	505	24	547	245	36	15	296	112	262	114	488	44	29	261	334	
% App. Total	3.3	92.3	4.4		82.8	12.2	5.1		23	53.7	23.4		13.2	8.7	78.1		
PHF	.750	.871	.545	.877	.652	.750	.625	.679	.800	.949	.814	.917	.846	.725	.786	.795	

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City of Menifee
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Weather: Clear

File Name : 04_MEN_GO_CL PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

	Goetz Road Southbound					Audie Murphy Road S Westbound					Goetz Road Northbound					Canyon Lake Drive N Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	6	85	6	1	97	22	11	0	0	33	45	91	33	8	169	8	3	23	19	34	28	333	361
04:15 PM	5	80	14	5	99	27	17	4	2	48	77	110	55	24	242	7	7	41	23	55	54	444	498
04:30 PM	2	72	6	1	80	46	11	2	1	59	56	100	41	13	197	5	7	44	29	56	44	392	436
04:45 PM	3	92	8	2	103	35	14	1	0	50	58	92	35	12	185	15	5	31	12	51	26	389	415
Total	16	329	34	9	379	130	53	7	3	190	236	393	164	57	793	35	22	139	83	196	152	1558	1710
05:00 PM	9	68	9	3	86	35	11	2	2	48	51	88	42	9	181	16	7	38	18	61	32	376	408
05:15 PM	3	72	6	1	81	33	10	2	2	45	63	91	48	16	202	9	8	36	20	53	39	381	420
05:30 PM	7	85	11	5	103	42	6	5	1	53	44	115	39	15	198	12	8	48	18	68	39	422	461
05:45 PM	8	76	8	4	92	27	10	2	1	39	64	99	55	14	218	10	8	39	16	57	35	406	441
Total	27	301	34	13	362	137	37	11	6	185	222	393	184	54	799	47	31	161	72	239	145	1585	1730
Grand Total	43	630	68	22	741	267	90	18	9	375	458	786	348	111	1592	82	53	300	155	435	297	3143	3440
Apprch %	5.8	85	9.2			71.2	24	4.8			28.8	49.4	21.9			18.9	12.2	69					
Total %	1.4	20	2.2		23.6	8.5	2.9	0.6		11.9	14.6	25	11.1		50.7	2.6	1.7	9.5		13.8	8.6	91.4	

	Goetz Road Southbound				Audie Murphy Road S Westbound				Goetz Road Northbound				Canyon Lake Drive N Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	5	80	**14**	99	27	**17**	**4**	48	**77**	**110**	**55**	**242**	7	**7**	41	55	**444**
04:30 PM	2	72	6	80	**46**	11	2	**59**	56	100	41	197	5	7	**44**	56	392
04:45 PM	3	**92**	8	**103**	35	14	1	50	58	92	35	185	15	5	31	51	389
05:00 PM	**9**	68	9	86	35	11	2	48	51	88	42	181	**16**	7	38	**61**	376
Total Volume	19	312	37	368	143	53	9	205	242	390	173	805	43	26	154	223	1601
% App. Total	5.2	84.8	10.1		69.8	25.9	4.4		30.1	48.4	21.5		19.3	11.7	69.1		
PHF	.528	.848	.661	.893	.777	.779	.563	.869	.786	.886	.786	.832	.672	.929	.875	.914	.901

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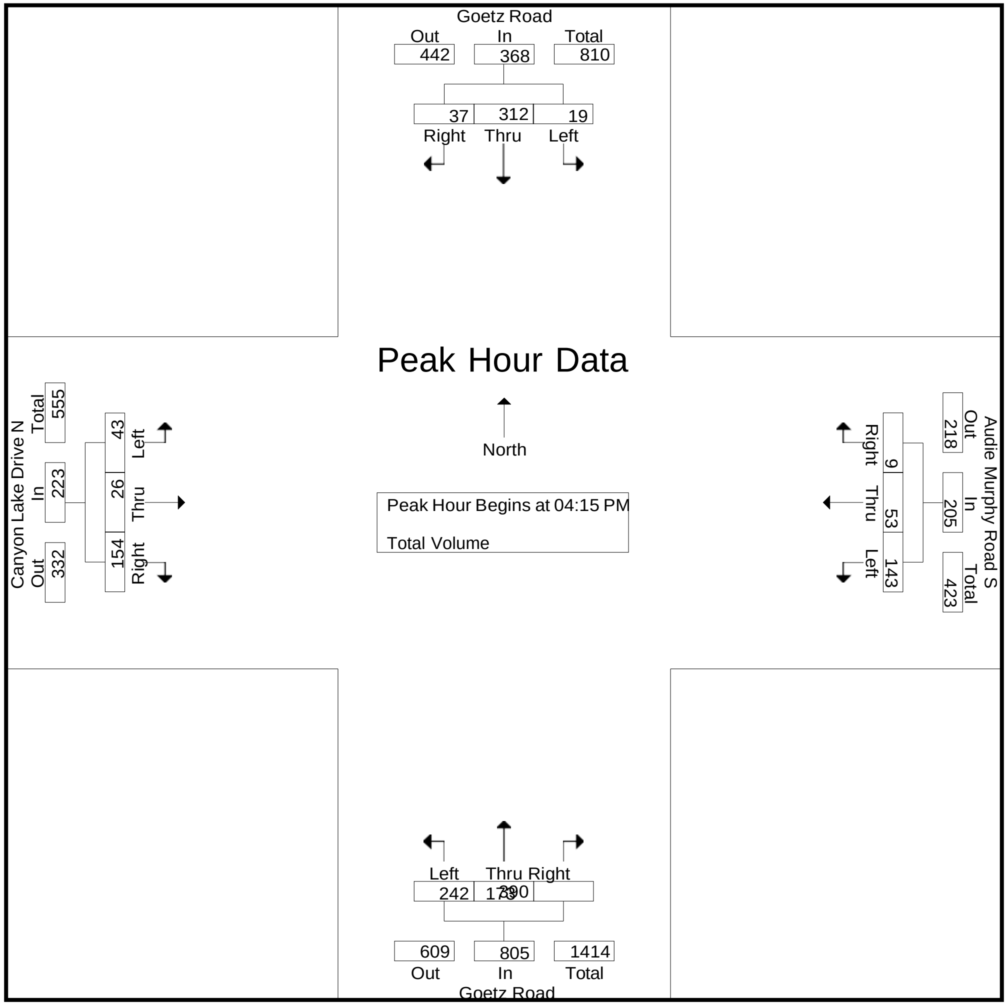
City of Menifee
N/S: Goetz Road
E/W: Canyon Lake Dr N/Audie Murphy Rd S
Weather: Clear

File Name : 04_MEN_GO_CL PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: Goetz Road
E/W: Canyon Lake Dr N/Audie Murphy Rd S
Weather: Clear

File Name : 04_MEN_GO_CL PM
Site Code : 05121444
Start Date : 8/26/2021

	Goetz Road Southbound				Audie Murphy Road S Westbound				Goetz Road Northbound				Canyon Lake Drive N Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:15 PM				04:15 PM				05:00 PM				
+0 mins.	**6**	85	6	97	27	**17**	**4**	48	**77**	**110**	**55**	**242**	**16**	7	38	61	
+15 mins.	5	80	**14**	99	**46**	11	2	**59**	56	100	41	197	9	**8**	36	53	
+30 mins.	2	72	6	80	35	14	1	50	58	92	35	185	12	8	**48**	**68**	
+45 mins.	3	**92**	8	**103**	35	11	2	48	51	88	42	181	10	8	39	57	
Total Volume	16	329	34	379	143	53	9	205	242	390	173	805	47	31	161	239	
% App. Total	4.2	86.8	9		69.8	25.9	4.4		30.1	48.4	21.5		19.7	13	67.4		
PHF	.667	.894	.607	.920	.777	.779	.563	.869	.786	.886	.786	.832	.734	.969	.839	.879	

Location:	Menifee		Date: 8/26/2021
N/S:	Goetz Road		Day: Thursday
E/W:	Canyon Lake Dr N/Audie Murphy Rd		

PEDESTRIANS

	North Leg Goetz Road	East Leg Audie Murphy Rd	South Leg Goetz Road	West Leg Canyon Lake Dr N	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	1	1	0	0	2
7:30 AM	0	0	0	0	0
7:45 AM	0	2	0	0	2
8:00 AM	0	1	0	0	1
8:15 AM	1	2	0	0	3
8:30 AM	1	1	0	0	2
8:45 AM	2	1	0	0	3
TOTAL VOLUMES:	5	8	0	0	13

	North Leg Goetz Road	East Leg Audie Murphy Rd	South Leg Goetz Road	West Leg Canyon Lake Dr N	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1
4:45 PM	0	0	1	1	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	1	2
5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1
TOTAL VOLUMES:	2	0	2	2	6

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Location: Menifee
N/S: Goetz Road
E/W: Canyon Lake Dr N/Audie Murphy Rd

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Goetz Road			Westbound Audie Murphy Rd			Northbound Goetz Road			Eastbound Canyon Lake Dr N			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	1	0	0	2	0	0	0	1	0	4
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	1	2
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	2	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL VOLUMES:	0	1	0	1	2	0	2	1	0	0	3	4	14

	Southbound Goetz Road			Westbound Audie Murphy Rd			Northbound Goetz Road			Eastbound Canyon Lake Dr N			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	1	0	1	0	0	0	3	5

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City of Menifee
N/S: Goetz Road/Buckstone Lane
E/W: Railroad Canyon Road/Newport Road
Weather: Clear

File Name : 05_MEN_GO_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 23

Groups Printed- Total Volume

	Goetz Road Southbound					Newport Road Westbound					Buckstone Lane Northbound					Railroad Canyon Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	145	0	153	69	298	1	168	43	11	212	3	1	1	1	5	73	140	1	0	214	81	729	810
07:15 AM	159	0	150	63	309	3	179	56	21	238	0	1	13	8	14	68	136	0	0	204	92	765	857
07:30 AM	134	1	120	59	255	1	156	75	37	232	4	0	6	3	10	58	144	0	0	202	99	699	798
07:45 AM	87	0	88	49	175	8	148	57	22	213	3	0	2	1	5	69	174	0	0	243	72	636	708
Total	525	1	511	240	1037	13	651	231	91	895	10	2	22	13	34	268	594	1	0	863	344	2829	3173
08:00 AM	78	1	75	46	154	5	141	49	26	195	0	1	2	1	3	70	167	0	0	237	73	589	662
08:15 AM	98	5	109	55	212	0	146	51	13	197	2	2	3	1	7	53	142	3	0	198	69	614	683
08:30 AM	91	1	102	45	194	1	192	76	34	269	0	0	4	2	4	51	112	1	0	164	81	631	712
08:45 AM	75	1	76	36	152	2	157	45	18	204	5	1	1	0	7	31	139	0	0	170	54	533	587
Total	342	8	362	182	712	8	636	221	91	865	7	4	10	4	21	205	560	4	0	769	277	2367	2644
Grand Total	867	9	873	422	1749	21	1287	452	182	1760	17	6	32	17	55	473	1154	5	0	1632	621	5196	5817
Apprch %	49.6	0.5	49.9			1.2	73.1	25.7			30.9	10.9	58.2			29	70.7	0.3					
Total %	16.7	0.2	16.8		33.7	0.4	24.8	8.7		33.9	0.3	0.1	0.6		1.1	9.1	22.2	0.1		31.4	10.7	89.3	

	Goetz Road Southbound				Newport Road Westbound				Buckstone Lane Northbound				Railroad Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	145	0	**153**	298	1	168	43	212	3	**1**	1	5	**73**	140	**1**	214	729
07:15 AM	**159**	0	150	**309**	3	**179**	56	**238**	0	1	**13**	**14**	68	136	0	204	**765**
07:30 AM	134	**1**	120	255	1	156	**75**	232	**4**	0	6	10	58	144	0	202	699
07:45 AM	87	0	88	175	**8**	148	57	213	3	0	2	5	69	**174**	0	**243**	636
Total Volume	525	1	511	1037	13	651	231	895	10	2	22	34	268	594	1	863	2829
% App. Total	50.6	0.1	49.3		1.5	72.7	25.8		29.4	5.9	64.7		31.1	68.8	0.1		
PHF	.825	.250	.835	.839	.406	.909	.770	.940	.625	.500	.423	.607	.918	.853	.250	.888	.925

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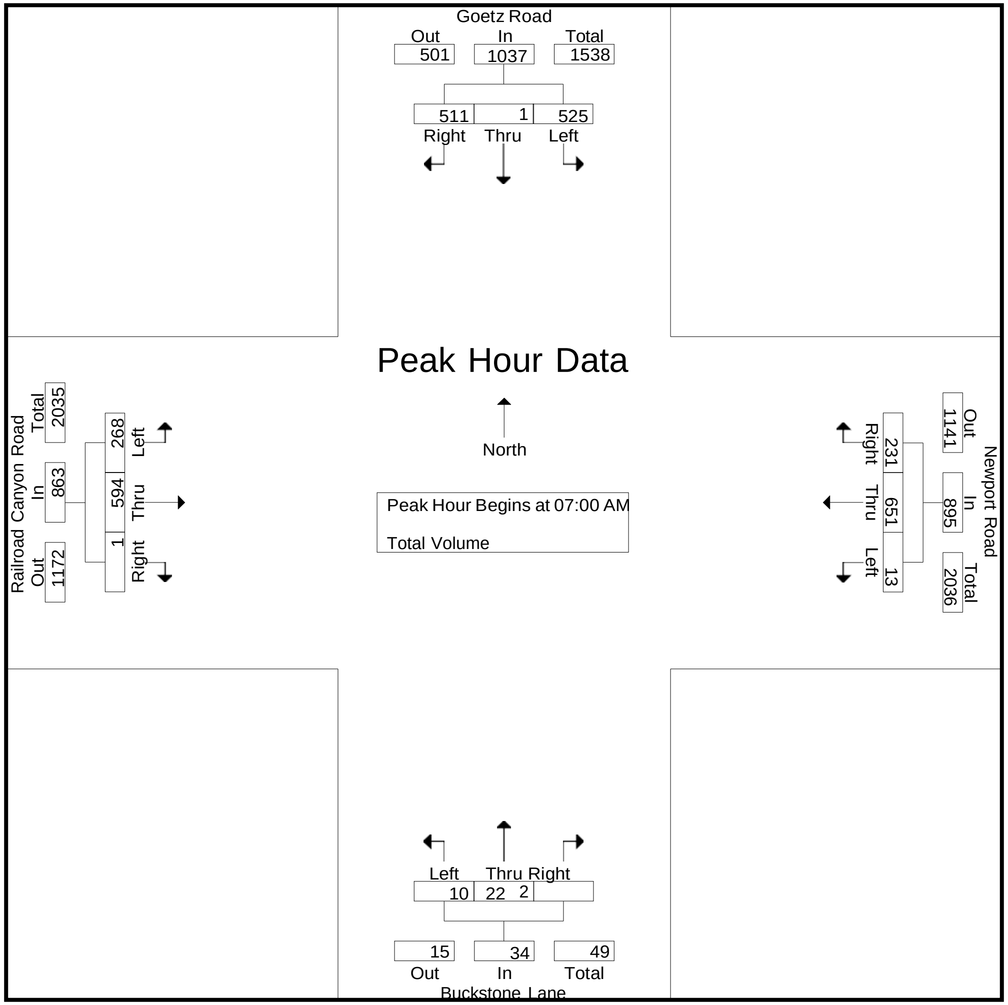
City of Menifee
N/S: Goetz Road/Buckstone Lane
E/W: Railroad Canyon Road/Newport Road
Weather: Clear

File Name : 05_MEN_GO_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 24



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City of Menifee
N/S: Goetz Road/Buckstone Lane
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File Name : 05_MEN_GO_NP AM
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Start Date : 8/26/2021

	Goetz Road Southbound				Newport Road Westbound				Buckstone Lane Northbound				Railroad Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:15 AM				
+0 mins.	145	0	**153**	298	1	168	43	212	3	**1**	1	5	68	136	0	204	
+15 mins.	**159**	0	150	**309**	3	**179**	56	**238**	0	1	**13**	**14**	58	144	0	202	
+30 mins.	134	**1**	120	255	1	156	**75**	232	**4**	0	6	10	69	**174**	0	**243**	
+45 mins.	87	0	88	175	**8**	148	57	213	3	0	2	5	**70**	167	0	237	
Total Volume	525	1	511	1037	13	651	231	895	10	2	22	34	265	621	0	886	
% App. Total	50.6	0.1	49.3		1.5	72.7	25.8		29.4	5.9	64.7		29.9	70.1	0		
PHF	.825	.250	.835	.839	.406	.909	.770	.940	.625	.500	.423	.607	.946	.892	.000	.912	

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City of Menifee
N/S: Goetz Road/Buckstone Lane
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Weather: Clear

File Name : 05_MEN_GO_NP PM
Site Code : 05121444
Start Date : 8/26/2021

Groups Printed- Total Volume

	Goetz Road Southbound					Newport Road Westbound					Buckstone Lane Northbound					Railroad Canyon Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	48	2	75	38	125	2	143	74	41	219	0	1	2	1	3	95	189	0	0	284	80	631	711
04:15 PM	62	0	85	44	147	4	186	103	41	293	1	0	3	2	4	130	196	0	0	326	87	770	857
04:30 PM	79	1	88	40	168	2	123	80	35	205	0	0	4	3	4	118	213	2	0	333	78	710	788
04:45 PM	83	1	84	43	168	1	146	77	30	224	0	1	0	0	1	111	235	1	0	347	73	740	813
Total	272	4	332	165	608	9	598	334	147	941	1	2	9	6	12	454	833	3	0	1290	318	2851	3169
05:00 PM	66	3	71	37	140	5	162	73	28	240	0	0	2	0	2	119	249	3	1	371	66	753	819
05:15 PM	65	2	75	33	142	2	130	81	33	213	2	2	1	0	5	123	252	1	0	376	66	736	802
05:30 PM	83	0	91	44	174	5	130	64	27	199	0	1	1	1	2	133	210	2	1	345	73	720	793
05:45 PM	82	1	69	38	152	3	132	72	33	207	1	1	1	1	3	133	245	0	0	378	72	740	812
Total	296	6	306	152	608	15	554	290	121	859	3	4	5	2	12	508	956	6	2	1470	277	2949	3226
Grand Total	568	10	638	317	1216	24	1152	624	268	1800	4	6	14	8	24	962	1789	9	2	2760	595	5800	6395
Apprch %	46.7	0.8	52.5			1.3	64	34.7			16.7	25	58.3			34.9	64.8	0.3					
Total %	9.8	0.2	11		21	0.4	19.9	10.8		31	0.1	0.1	0.2		0.4	16.6	30.8	0.2		47.6	9.3	90.7	

	Goetz Road Southbound				Newport Road Westbound				Buckstone Lane Northbound				Railroad Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	62	0	85	147	4	**186**	**103**	**293**	**1**	0	3	**4**	**130**	196	0	326	**770**
04:30 PM	79	1	**88**	**168**	2	123	80	205	0	0	**4**	4	118	213	2	333	710
04:45 PM	**83**	1	84	168	1	146	77	224	0	**1**	0	1	111	235	1	347	740
05:00 PM	66	**3**	71	140	**5**	162	73	240	0	0	2	2	119	**249**	**3**	**371**	753
Total Volume	290	5	328	623	12	617	333	962	1	1	9	11	478	893	6	1377	2973
% App. Total	46.5	0.8	52.6		1.2	64.1	34.6		9.1	9.1	81.8		34.7	64.9	0.4		
PHF	.873	.417	.932	.927	.600	.829	.808	.821	.250	.250	.563	.688	.919	.897	.500	.928	.965

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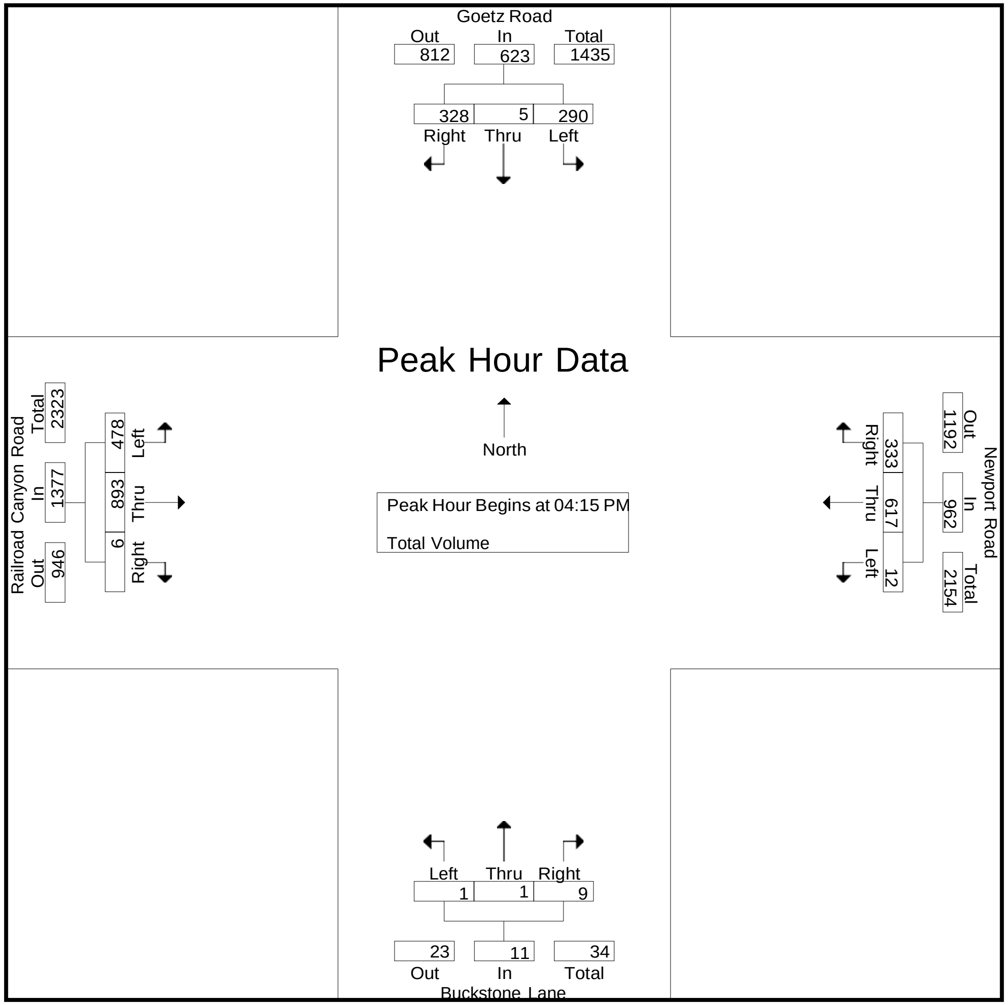
City of Menifee
N/S: Goetz Road/Buckstone Lane
E/W: Railroad Canyon Road/Newport Road
Weather: Clear

File Name : 05_MEN_GO_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: Goetz Road/Buckstone Lane
E/W: Railroad Canyon Road/Newport Road
Weather: Clear

File Name : 05_MEN_GO_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	Goetz Road Southbound				Newport Road Westbound				Buckstone Lane Northbound				Railroad Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:15 PM				04:00 PM				05:00 PM				
+0 mins.	**83**	1	84	168	4	**186**	**103**	**293**	0	**1**	2	3	119	249	**3**	371	
+15 mins.	66	**3**	71	140	2	123	80	205	**1**	0	3	**4**	123	**252**	1	376	
+30 mins.	65	2	75	142	1	146	77	224	0	0	**4**	4	**133**	210	2	345	
+45 mins.	83	0	**91**	**174**	**5**	162	73	240	0	1	0	1	133	245	0	**378**	
Total Volume	297	6	321	624	12	617	333	962	1	2	9	12	508	956	6	1470	
% App. Total	47.6	1	51.4		1.2	64.1	34.6		8.3	16.7	75		34.6	65	0.4		
PHF	.895	.500	.882	.897	.600	.829	.808	.821	.250	.500	.563	.750	.955	.948	.500	.972	

Location: Menifee
N/S: Goetz Rd/Buckstone Ln
E/W: Railroad Cyn Rd/Newport Rd

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Goetz Road	East Leg Newport Road	South Leg Buckstone Lane	West Leg Railroad Canyon Rd	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	0	1
8:45 AM	0	2	0	0	2
TOTAL VOLUMES:	0	5	0	0	5

	North Leg Goetz Road	East Leg Newport Road	South Leg Buckstone Lane	West Leg Railroad Canyon Rd	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	0	0	0	1	1

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Location: Menifee
N/S: Goetz Rd/Buckstone Ln
E/W: Railroad Cyn Rd/Newport Rd

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Goetz Road			Westbound Newport Road			Northbound Buckstone Lane			Eastbound Railroad Canyon Rd			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	2
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	2	0	0	0	1	1	0	0	0	1	2	0	7

	Southbound Goetz Road			Westbound Newport Road			Northbound Buckstone Lane			Eastbound Railroad Canyon Rd			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	2	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	2	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	3	2	0	0	0	0	0	2	0	0	0	0	7

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City of Menifee
N/S: Berea Rd/Murphy Ranch Rd
E/W: Newport Road
Weather: Clear

File Name : 06_MEN_Berea_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 31

Groups Printed- Total Volume

	Berea Road Southbound					Newport Road Westbound					Murphy Ranch Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	65	39	22	6	126	1	198	36	15	235	17	4	2	2	23	11	257	56	17	324	40	708	748
07:15 AM	85	71	30	8	186	2	182	34	19	218	49	19	3	2	71	13	276	62	19	351	48	826	874
07:30 AM	67	38	35	16	140	0	198	44	11	242	36	23	1	1	60	31	315	47	11	393	39	835	874
07:45 AM	65	26	2	0	93	0	215	49	8	264	28	30	1	1	59	9	297	36	17	342	26	758	784
Total	282	174	89	30	545	3	793	163	53	959	130	76	7	6	213	64	1145	201	64	1410	153	3127	3280
08:00 AM	60	23	8	1	91	2	193	35	11	230	25	18	2	1	45	6	268	15	3	289	16	655	671
08:15 AM	57	25	8	2	90	2	201	47	11	250	19	17	2	0	38	2	249	15	8	266	21	644	665
08:30 AM	58	12	8	6	78	2	249	53	12	304	15	14	1	1	30	7	224	11	5	242	24	654	678
08:45 AM	55	13	6	3	74	0	194	45	12	239	9	7	1	1	17	5	235	11	7	251	23	581	604
Total	230	73	30	12	333	6	837	180	46	1023	68	56	6	3	130	20	976	52	23	1048	84	2534	2618
Grand Total	512	247	119	42	878	9	1630	343	99	1982	198	132	13	9	343	84	2121	253	87	2458	237	5661	5898
Apprch %	58.3	28.1	13.6			0.5	82.2	17.3			57.7	38.5	3.8			3.4	86.3	10.3					
Total %	9	4.4	2.1		15.5	0.2	28.8	6.1		35	3.5	2.3	0.2		6.1	1.5	37.5	4.5		43.4	4	96	

	Berea Road Southbound				Newport Road Westbound				Murphy Ranch Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	65	39	22	126	1	198	36	235	17	4	2	23	11	257	56	324	708
07:15 AM	**85**	**71**	30	**186**	**2**	182	34	218	**49**	19	**3**	**71**	13	276	**62**	351	826
07:30 AM	67	38	**35**	140	0	198	44	242	36	23	1	60	**31**	**315**	47	**393**	**835**
07:45 AM	65	26	2	93	0	**215**	**49**	**264**	28	**30**	1	59	9	297	36	342	758
Total Volume	282	174	89	545	3	793	163	959	130	76	7	213	64	1145	201	1410	3127
% App. Total	51.7	31.9	16.3		0.3	82.7	17		61	35.7	3.3		4.5	81.2	14.3		
PHF	.829	.613	.636	.733	.375	.922	.832	.908	.663	.633	.583	.750	.516	.909	.810	.897	.936

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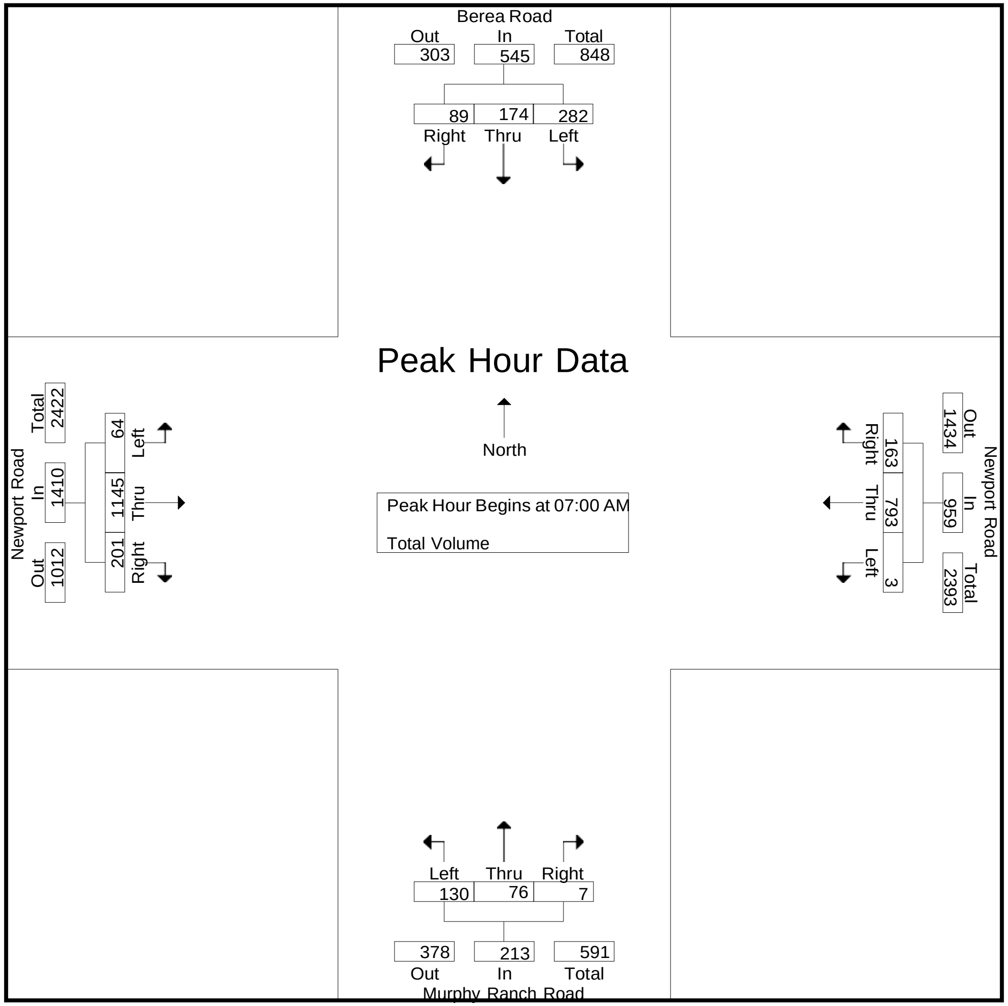
City of Menifee
N/S: Berea Rd/Murphy Ranch Rd
E/W: Newport Road
Weather: Clear

File Name : 06_MEN_Berea_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 32



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City of Menifee
N/S: Berea Rd/Murphy Ranch Rd
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File Name : 06_MEN_Berea_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	Berea Road Southbound				Newport Road Westbound				Murphy Ranch Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:45 AM				07:15 AM				07:00 AM				
+0 mins.	65	39	22	126	0	215	49	264	**49**	19	**3**	**71**	11	257	56	324	
+15 mins.	**85**	**71**	30	**186**	**2**	193	35	230	36	23	1	60	13	276	**62**	351	
+30 mins.	67	38	**35**	140	2	201	47	250	28	**30**	1	59	**31**	**315**	47	**393**	
+45 mins.	65	26	2	93	2	**249**	**53**	**304**	25	18	2	45	9	297	36	342	
Total Volume	282	174	89	545	6	858	184	1048	138	90	7	235	64	1145	201	1410	
% App. Total	51.7	31.9	16.3		0.6	81.9	17.6		58.7	38.3	3		4.5	81.2	14.3		
PHF	.829	.613	.636	.733	.750	.861	.868	.862	.704	.750	.583	.827	.516	.909	.810	.897	

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City of Menifee
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Weather: Clear

File Name : 06_MEN_Berea_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

	Berea Road Southbound					Newport Road Westbound					Murphy Ranch Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	55	9	3	0	67	0	249	54	14	303	14	14	2	2	30	11	249	14	2	274	18	674	692
04:15 PM	61	15	8	4	84	2	252	54	20	308	19	11	3	2	33	5	250	20	9	275	35	700	735
04:30 PM	44	9	3	3	56	2	246	59	18	307	15	14	2	1	31	4	279	22	6	305	28	699	727
04:45 PM	60	8	8	3	76	4	220	63	18	287	28	11	3	0	42	10	291	22	7	323	28	728	756
Total	220	41	22	10	283	8	967	230	70	1205	76	50	10	5	136	30	1069	78	24	1177	109	2801	2910
05:00 PM	55	13	8	4	76	5	245	61	20	311	22	11	2	1	35	10	315	28	9	353	34	775	809
05:15 PM	48	11	7	1	66	1	244	58	19	303	22	22	1	0	45	13	321	19	6	353	26	767	793
05:30 PM	66	15	9	3	90	4	217	65	20	286	18	14	2	1	34	8	290	19	5	317	29	727	756
05:45 PM	57	12	12	3	81	1	183	70	17	254	25	23	0	0	48	10	286	14	7	310	27	693	720
Total	226	51	36	11	313	11	889	254	76	1154	87	70	5	2	162	41	1212	80	27	1333	116	2962	3078
Grand Total	446	92	58	21	596	19	1856	484	146	2359	163	120	15	7	298	71	2281	158	51	2510	225	5763	5988
Apprch %	74.8	15.4	9.7			0.8	78.7	20.5			54.7	40.3	5			2.8	90.9	6.3					
Total %	7.7	1.6	1		10.3	0.3	32.2	8.4		40.9	2.8	2.1	0.3		5.2	1.2	39.6	2.7		43.6	3.8	96.2	

	Berea Road Southbound				Newport Road Westbound				Murphy Ranch Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	60	8	8	76	4	220	63	287	**28**	11	**3**	42	10	291	22	323	728
05:00 PM	55	13	8	76	**5**	**245**	61	**311**	22	11	2	35	10	315	**28**	**353**	**775**
05:15 PM	48	11	7	66	1	244	58	303	22	**22**	1	**45**	**13**	**321**	19	353	767
05:30 PM	**66**	**15**	**9**	**90**	4	217	**65**	286	18	14	2	34	8	290	19	317	727
Total Volume	229	47	32	308	14	926	247	1187	90	58	8	156	41	1217	88	1346	2997
% App. Total	74.4	15.3	10.4		1.2	78	20.8		57.7	37.2	5.1		3	90.4	6.5		
PHF	.867	.783	.889	.856	.700	.945	.950	.954	.804	.659	.667	.867	.788	.948	.786	.953	.967

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City of Menifee
N/S: Berea Rd/Murphy Ranch Rd
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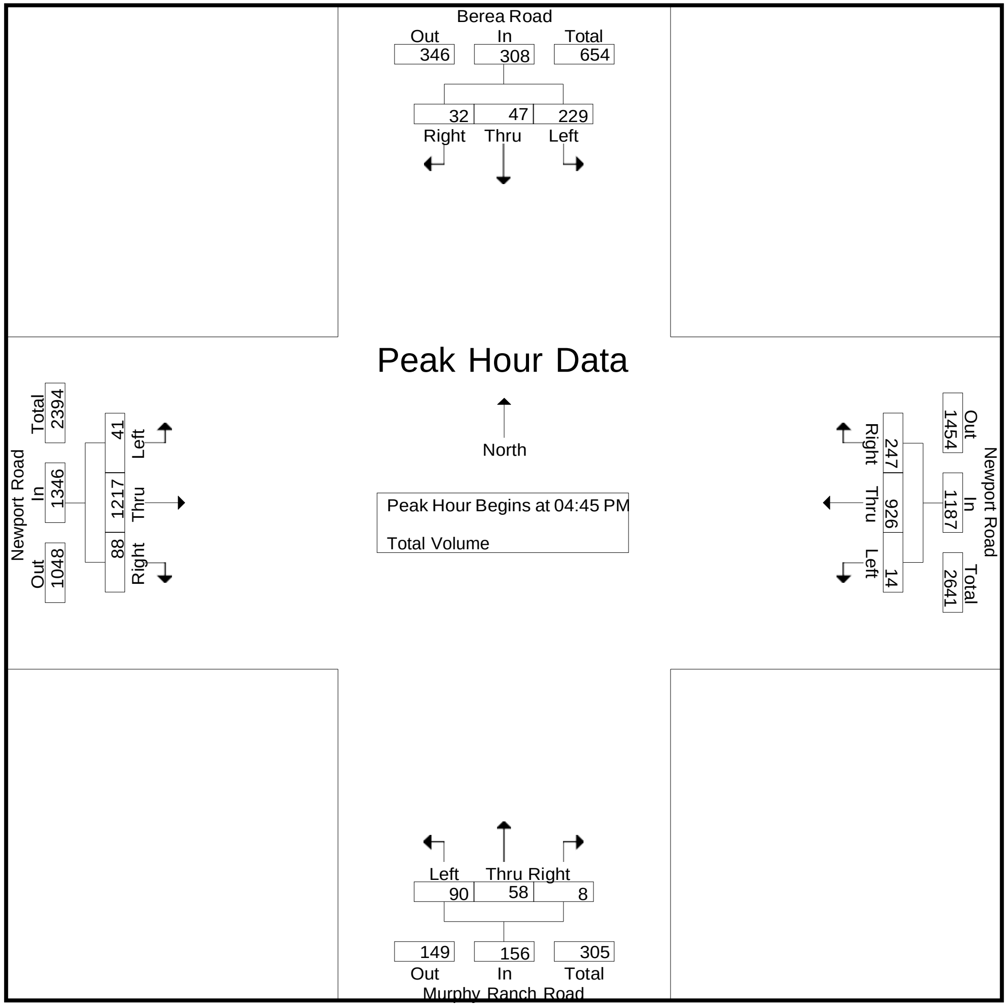
File Name : 06_MEN_Berea_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: Berea Rd/Murphy Ranch Rd
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File Name : 06_MEN_Berea_NP PM
Site Code : 05121444
Start Date : 8/26/2021

	Berea Road Southbound				Newport Road Westbound				Murphy Ranch Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				04:15 PM				05:00 PM				04:45 PM				
+0 mins.	55	13	8	76	2	**252**	54	308	22	11	**2**	35	10	291	22	323	
+15 mins.	48	11	7	66	2	246	59	307	22	22	1	45	10	315	**28**	**353**	
+30 mins.	**66**	**15**	9	**90**	4	220	**63**	287	18	14	2	34	**13**	**321**	19	353	
+45 mins.	57	12	**12**	81	**5**	245	61	**311**	**25**	**23**	0	**48**	8	290	19	317	
Total Volume	226	51	36	313	13	963	237	1213	87	70	5	162	41	1217	88	1346	
% App. Total	72.2	16.3	11.5		1.1	79.4	19.5		53.7	43.2	3.1		3	90.4	6.5		
PHF	.856	.850	.750	.869	.650	.955	.940	.975	.870	.761	.625	.844	.788	.948	.786	.953	

Location: Menifee
N/S: Berea Rd/Murphy Ranch Rd
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Berea Road	East Leg Newport Road	South Leg Murphy Ranch Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	1	0	2
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	2	2	0	0	4
8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1
8:30 AM	1	0	0	0	1
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	4	3	2	1	10

	North Leg Berea Road	East Leg Newport Road	South Leg Murphy Ranch Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Menifee
N/S: Berea Rd/Murphy Ranch Rd
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Berea Road			Westbound Newport Road			Northbound Murphy Ranch Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	1	0	0	0	0	0	0	0	0	2	0	3
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
TOTAL VOLUMES:	0	2	0	0	1	0	0	0	0	0	5	0	8

	Southbound Berea Road			Westbound Newport Road			Northbound Murphy Ranch Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	3	0	3

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City of Menifee
N/S: Murrieta Road
E/W: Newport Road
Weather: Clear

File Name : 07_MEN_MR_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 39

Groups Printed- Total Volume

	Murrieta Road Southbound					Newport Road Westbound					Murrieta Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	30	23	12	9	65	41	211	30	19	282	29	36	32	17	97	20	249	43	23	312	68	756	824
07:15 AM	37	22	14	9	73	31	158	22	15	211	43	63	53	33	159	20	233	71	44	324	101	767	868
07:30 AM	21	18	9	4	48	51	186	35	19	272	44	68	54	32	166	30	274	50	28	354	83	840	923
07:45 AM	35	22	7	6	64	35	224	22	12	281	48	73	47	21	168	49	254	45	26	348	65	861	926
Total	123	85	42	28	250	158	779	109	65	1046	164	240	186	103	590	119	1010	209	121	1338	317	3224	3541
08:00 AM	27	23	11	7	61	31	194	25	12	250	24	63	37	23	124	20	272	36	14	328	56	763	819
08:15 AM	26	15	20	10	61	52	237	32	16	321	28	56	29	21	113	37	257	23	11	317	58	812	870
08:30 AM	36	18	14	7	68	55	242	31	10	328	39	29	26	19	94	28	227	18	10	273	46	763	809
08:45 AM	22	17	10	7	49	41	225	29	13	295	19	24	17	15	60	36	214	19	7	269	42	673	715
Total	111	73	55	31	239	179	898	117	51	1194	110	172	109	78	391	121	970	96	42	1187	202	3011	3213
Grand Total	234	158	97	59	489	337	1677	226	116	2240	274	412	295	181	981	240	1980	305	163	2525	519	6235	6754
Apprch %	47.9	32.3	19.8			15	74.9	10.1			27.9	42	30.1			9.5	78.4	12.1					
Total %	3.8	2.5	1.6		7.8	5.4	26.9	3.6		35.9	4.4	6.6	4.7		15.7	3.8	31.8	4.9		40.5	7.7	92.3	

	Murrieta Road Southbound				Newport Road Westbound				Murrieta Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	21	18	9	48	51	186	**35**	272	44	68	**54**	166	30	**274**	**50**	**354**	840
07:45 AM	**35**	22	7	**64**	35	224	22	281	**48**	**73**	47	**168**	**49**	254	45	348	**861**
08:00 AM	27	**23**	11	61	31	194	25	250	24	63	37	124	20	272	36	328	763
08:15 AM	26	15	**20**	61	**52**	**237**	32	**321**	28	56	29	113	37	257	23	317	812
Total Volume	109	78	47	234	169	841	114	1124	144	260	167	571	136	1057	154	1347	3276
% App. Total	46.6	33.3	20.1		15	74.8	10.1		25.2	45.5	29.2		10.1	78.5	11.4		
PHF	.779	.848	.588	.914	.813	.887	.814	.875	.750	.890	.773	.850	.694	.964	.770	.951	.951

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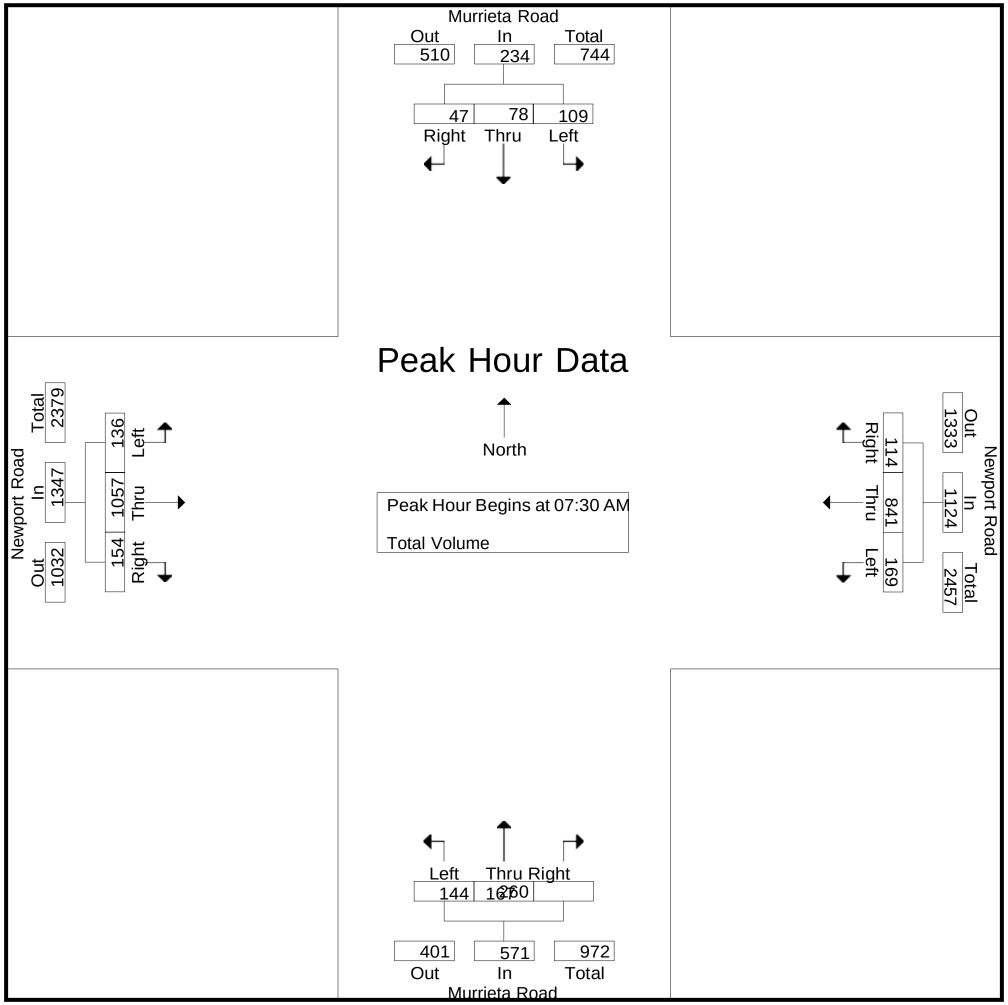
City of Menifee
N/S: Murrieta Road
E/W: Newport Road
Weather: Clear

File Name : 07_MEN_MR_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 40



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City of Menifee
N/S: Murrieta Road
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	Murrieta Road Southbound				Newport Road Westbound				Murrieta Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				08:00 AM				07:15 AM				07:15 AM				
+0 mins.	35	22	7	64	31	194	25	250	43	63	53	159	20	233	**71**	324	
+15 mins.	27	**23**	11	61	52	237	**32**	321	44	68	**54**	166	30	**274**	50	**354**	
+30 mins.	26	15	**20**	61	**55**	**242**	31	**328**	**48**	**73**	47	**168**	**49**	254	45	348	
+45 mins.	**36**	18	14	**68**	41	225	29	295	24	63	37	124	20	272	36	328	
Total Volume	124	78	52	254	179	898	117	1194	159	267	191	617	119	1033	202	1354	
% App. Total	48.8	30.7	20.5		15	75.2	9.8		25.8	43.3	31		8.8	76.3	14.9		
PHF	.861	.848	.650	.934	.814	.928	.914	.910	.828	.914	.884	.918	.607	.943	.711	.956	

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City of Menifee
N/S: Murrieta Road
E/W: Newport Road
Weather: Clear

File Name : 07_MEN_MR_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

	Murrieta Road Southbound					Newport Road Westbound					Murrieta Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	28	24	8	6	60	58	284	36	13	378	45	45	22	13	112	41	217	22	14	280	46	830	876
04:15 PM	26	35	9	6	70	49	238	42	16	329	55	62	25	19	142	47	242	17	7	306	48	847	895
04:30 PM	31	27	14	10	72	65	250	36	19	351	39	41	21	18	101	55	227	22	11	304	58	828	886
04:45 PM	30	24	8	7	62	62	259	45	24	366	41	55	23	16	119	63	247	19	8	329	55	876	931
Total	115	110	39	29	264	234	1031	159	72	1424	180	203	91	66	474	206	933	80	40	1219	207	3381	3588
05:00 PM	33	30	12	8	75	54	255	43	21	352	41	61	20	14	122	48	277	21	8	346	51	895	946
05:15 PM	31	32	13	11	76	50	227	46	22	323	54	60	31	19	145	43	257	27	11	327	63	871	934
05:30 PM	39	29	12	8	80	47	231	52	25	330	44	68	22	15	134	48	254	31	23	333	71	877	948
05:45 PM	24	26	8	6	58	55	230	49	20	334	41	57	36	23	134	54	264	25	12	343	61	869	930
Total	127	117	45	33	289	206	943	190	88	1339	180	246	109	71	535	193	1052	104	54	1349	246	3512	3758
Grand Total	242	227	84	62	553	440	1974	349	160	2763	360	449	200	137	1009	399	1985	184	94	2568	453	6893	7346
Apprch %	43.8	41	15.2			15.9	71.4	12.6			35.7	44.5	19.8			15.5	77.3	7.2					
Total %	3.5	3.3	1.2		8	6.4	28.6	5.1		40.1	5.2	6.5	2.9		14.6	5.8	28.8	2.7		37.3	6.2	93.8	

	Murrieta Road Southbound				Newport Road Westbound				Murrieta Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	30	24	8	62	**62**	**259**	45	**366**	41	55	23	119	**63**	247	19	329	876
05:00 PM	33	30	12	75	54	255	43	352	41	61	20	122	48	**277**	21	**346**	**895**
05:15 PM	31	**32**	**13**	76	50	227	46	323	**54**	60	**31**	**145**	43	257	27	327	871
05:30 PM	**39**	29	12	**80**	47	231	**52**	330	44	**68**	22	134	48	254	**31**	333	877
Total Volume	133	115	45	293	213	972	186	1371	180	244	96	520	202	1035	98	1335	3519
% App. Total	45.4	39.2	15.4		15.5	70.9	13.6		34.6	46.9	18.5		15.1	77.5	7.3		
PHF	.853	.898	.865	.916	.859	.938	.894	.936	.833	.897	.774	.897	.802	.934	.790	.965	.983

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City of Menifee
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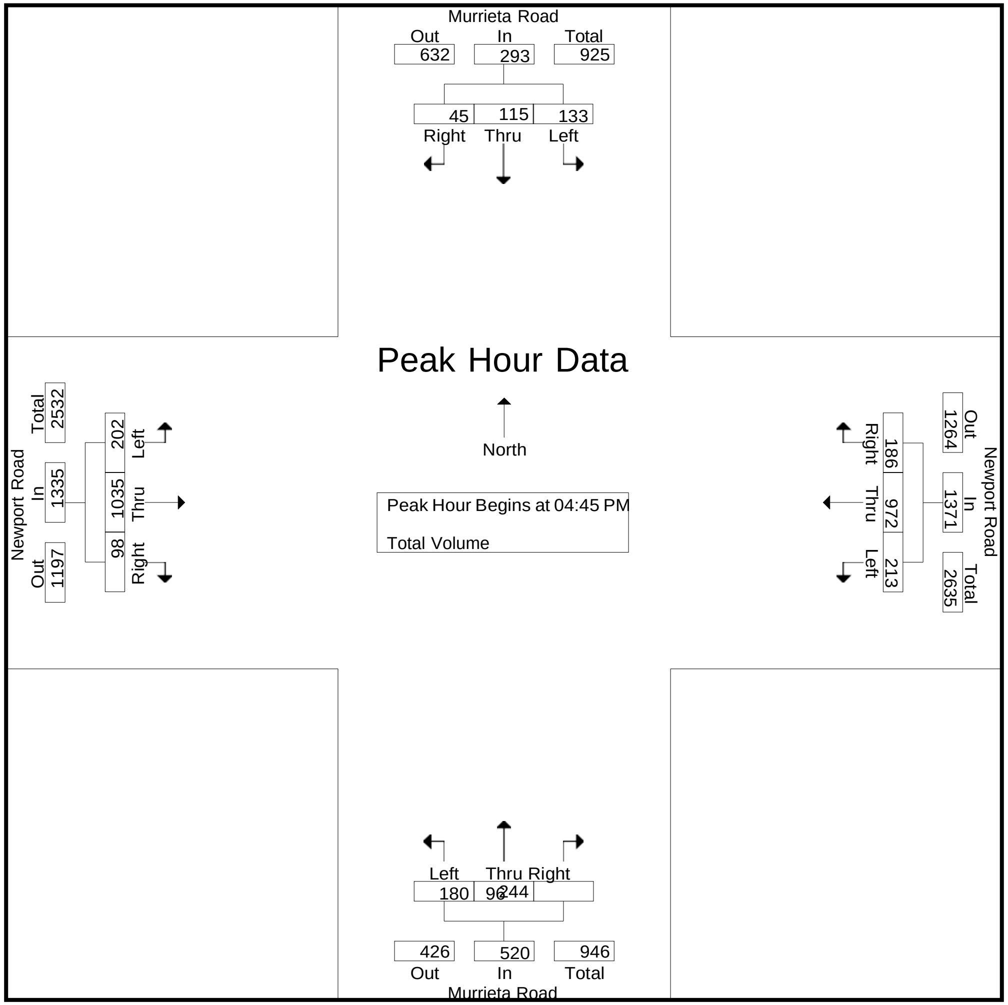
File Name : 07_MEN_MR_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: Murrieta Road
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	Murrieta Road Southbound				Newport Road Westbound				Murrieta Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:00 PM				05:00 PM				05:00 PM				
+0 mins.	30	24	8	62	58	**284**	36	**378**	41	61	20	122	48	**277**	21	**346**	
+15 mins.	33	30	12	75	49	238	42	329	**54**	60	31	**145**	43	257	27	327	
+30 mins.	31	**32**	**13**	76	**65**	250	36	351	44	**68**	22	134	48	254	**31**	333	
+45 mins.	**39**	29	12	**80**	62	259	**45**	366	41	57	**36**	134	**54**	264	25	343	
Total Volume	133	115	45	293	234	1031	159	1424	180	246	109	535	193	1052	104	1349	
% App. Total	45.4	39.2	15.4		16.4	72.4	11.2		33.6	46	20.4		14.3	78	7.7		
PHF	.853	.898	.865	.916	.900	.908	.883	.942	.833	.904	.757	.922	.894	.949	.839	.975	

Location:	Menifee
N/S:	Murrieta Road
E/W:	Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Murrieta Road	East Leg Newport Road	South Leg Murrieta Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	0	1	3	4
8:00 AM	0	0	0	0	0
8:15 AM	1	1	0	0	2
8:30 AM	2	0	0	0	2
8:45 AM	1	1	1	0	3
TOTAL VOLUMES:	4	2	3	4	13

	North Leg Murrieta Road	East Leg Newport Road	South Leg Murrieta Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	1	0	0	1
4:15 PM	0	2	0	0	2
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	3	3
TOTAL VOLUMES:	0	3	0	3	6

Location: Menifee
N/S: Murrieta Road
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Murrieta Road			Westbound Newport Road			Northbound Murrieta Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	2
7:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	4	0	0	0	0	0	0	0	1	2	0	7

	Southbound Murrieta Road			Westbound Newport Road			Northbound Murrieta Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
5:30 PM	0	0	0	0	1	0	0	2	0	0	0	0	3
5:45 PM	1	0	0	0	0	0	0	0	0	0	1	0	2
TOTAL VOLUMES:	1	0	0	1	1	0	0	3	0	0	4	1	11

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City of Menifee
N/S: Evans Road
E/W: Newport Road
Weather: Clear

File Name : 08_MEN_EV_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 47

Groups Printed- Total Volume

	Evans Road Southbound					Newport Road Westbound					Evans Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	11	36	10	5	57	19	249	5	1	273	7	8	17	13	32	0	280	11	3	291	22	653	675
07:15 AM	20	60	5	0	85	24	218	2	1	244	14	8	23	18	45	2	296	19	4	317	23	691	714
07:30 AM	15	32	4	2	51	28	242	4	2	274	32	41	47	10	120	4	369	7	2	380	16	825	841
07:45 AM	12	9	11	3	32	10	258	12	1	280	14	12	16	6	42	6	345	8	2	359	12	713	725
Total	58	137	30	10	225	81	967	23	5	1071	67	69	103	47	239	12	1290	45	11	1347	73	2882	2955
08:00 AM	13	10	4	1	27	9	266	10	2	285	5	5	12	8	22	3	330	3	0	336	11	670	681
08:15 AM	10	4	6	3	20	10	286	5	1	301	7	3	16	12	26	7	285	3	0	295	16	642	658
08:30 AM	13	3	7	4	23	6	329	8	1	343	5	4	8	4	17	2	302	0	0	304	9	687	696
08:45 AM	13	1	4	3	18	5	316	6	2	327	6	0	5	2	11	1	260	6	0	267	7	623	630
Total	49	18	21	11	88	30	1197	29	6	1256	23	12	41	26	76	13	1177	12	0	1202	43	2622	2665
Grand Total	107	155	51	21	313	111	2164	52	11	2327	90	81	144	73	315	25	2467	57	11	2549	116	5504	5620
Apprch %	34.2	49.5	16.3			4.8	93	2.2			28.6	25.7	45.7			1	96.8	2.2					
Total %	1.9	2.8	0.9		5.7	2	39.3	0.9		42.3	1.6	1.5	2.6		5.7	0.5	44.8	1		46.3	2.1	97.9	

	Evans Road Southbound				Newport Road Westbound				Evans Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**20**	**60**	5	**85**	24	218	2	244	14	8	23	45	2	296	**19**	317	691
07:30 AM	15	32	4	51	**28**	242	4	274	**32**	**41**	**47**	**120**	4	**369**	7	**380**	**825**
07:45 AM	12	9	**11**	32	10	258	**12**	280	14	12	16	42	**6**	345	8	359	713
08:00 AM	13	10	4	27	9	**266**	10	**285**	5	5	12	22	3	330	3	336	670
Total Volume	60	111	24	195	71	984	28	1083	65	66	98	229	15	1340	37	1392	2899
% App. Total	30.8	56.9	12.3		6.6	90.9	2.6		28.4	28.8	42.8		1.1	96.3	2.7		
PHF	.750	.463	.545	.574	.634	.925	.583	.950	.508	.402	.521	.477	.625	.908	.487	.916	.878

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City of Menifee
N/S: Evans Road
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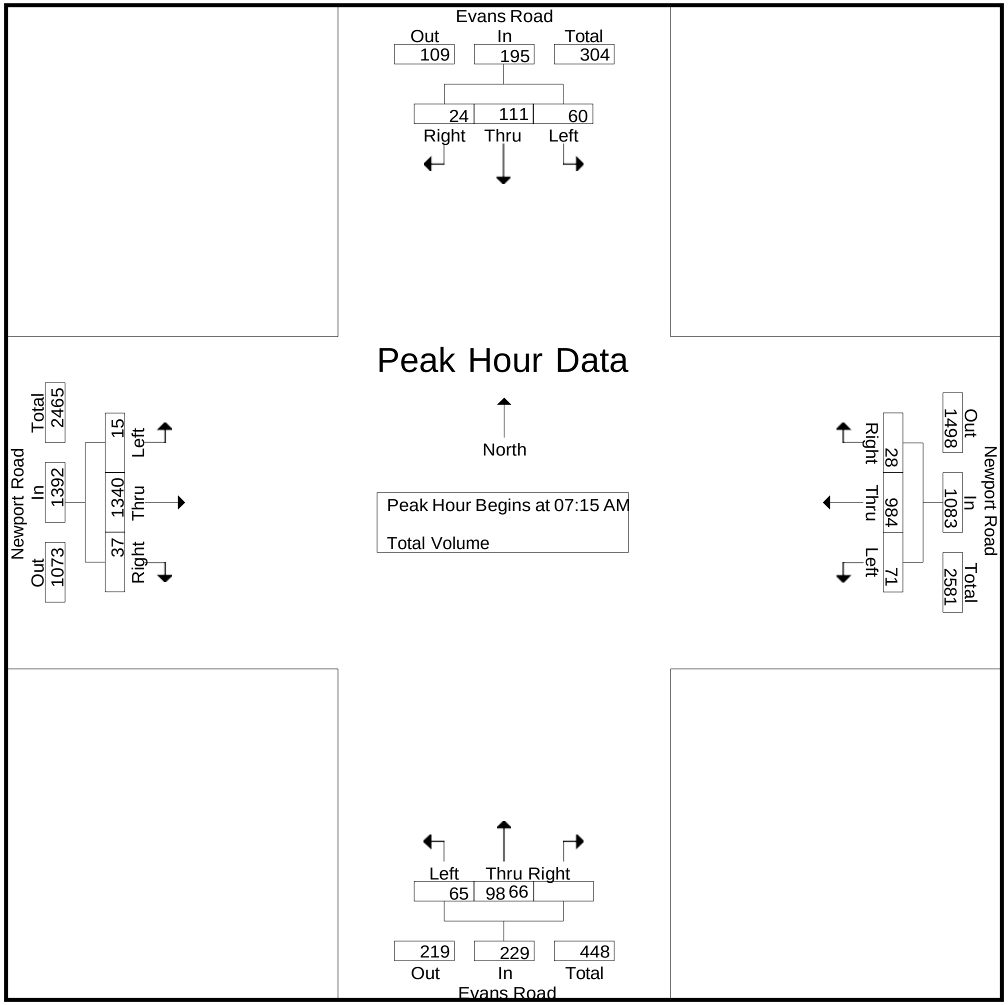
Weather: Clear

File Name : 08_MEN_EV_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 48



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City of Menifee
N/S: Evans Road
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Start Date : 8/26/2021

	Evans Road Southbound				Newport Road Westbound				Evans Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				08:00 AM				07:00 AM				07:15 AM				
+0 mins.	11	36	10	57	9	266	**10**	285	7	8	17	32	2	296	**19**	317	
+15 mins.	**20**	**60**	5	**85**	**10**	286	5	301	14	8	23	45	4	**369**	7	**380**	
+30 mins.	15	32	4	51	6	**329**	8	**343**	**32**	**41**	**47**	**120**	**6**	345	8	359	
+45 mins.	12	9	**11**	32	5	316	6	327	14	12	16	42	3	330	3	336	
Total Volume	58	137	30	225	30	1197	29	1256	67	69	103	239	15	1340	37	1392	
% App. Total	25.8	60.9	13.3		2.4	95.3	2.3		28	28.9	43.1		1.1	96.3	2.7		
PHF	.725	.571	.682	.662	.750	.910	.725	.915	.523	.421	.548	.498	.625	.908	.487	.916	

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Page No : 1

Groups Printed- Total Volume

	Evans Road Southbound					Newport Road Westbound					Evans Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	16	2	6	2	24	19	365	9	0	393	6	6	9	8	21	9	240	4	2	253	12	691	703
04:15 PM	9	0	6	5	15	9	351	10	0	370	2	6	3	3	11	4	295	4	0	303	8	699	707
04:30 PM	5	2	5	4	12	11	327	8	1	346	4	5	3	2	12	7	288	1	1	296	8	666	674
04:45 PM	11	8	9	5	28	16	386	10	1	412	9	4	11	10	24	4	291	6	3	301	19	765	784
Total	41	12	26	16	79	55	1429	37	2	1521	21	21	26	23	68	24	1114	15	6	1153	47	2821	2868
05:00 PM	12	6	2	0	20	8	342	8	0	358	4	6	6	6	16	6	314	6	1	326	7	720	727
05:15 PM	5	4	4	2	13	8	334	13	1	355	6	5	8	6	19	6	297	7	1	310	10	697	707
05:30 PM	16	2	4	3	22	9	326	12	3	347	6	5	8	4	19	6	320	3	0	329	10	717	727
05:45 PM	12	2	6	5	20	8	288	11	1	307	6	4	13	9	23	7	333	6	1	346	16	696	712
Total	45	14	16	10	75	33	1290	44	5	1367	22	20	35	25	77	25	1264	22	3	1311	43	2830	2873
Grand Total	86	26	42	26	154	88	2719	81	7	2888	43	41	61	48	145	49	2378	37	9	2464	90	5651	5741
Apprch %	55.8	16.9	27.3			3	94.1	2.8			29.7	28.3	42.1			2	96.5	1.5					
Total %	1.5	0.5	0.7		2.7	1.6	48.1	1.4		51.1	0.8	0.7	1.1		2.6	0.9	42.1	0.7		43.6	1.6	98.4	

	Evans Road Southbound				Newport Road Westbound				Evans Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	11	**8**	**9**	**28**	**16**	**386**	10	**412**	**9**	4	**11**	**24**	4	291	6	301	**765**
05:00 PM	12	6	2	20	8	342	8	358	4	**6**	6	16	**6**	314	6	326	720
05:15 PM	5	4	4	13	8	334	**13**	355	6	5	8	19	6	297	**7**	310	697
05:30 PM	**16**	2	4	22	9	326	12	347	6	5	8	19	6	**320**	3	**329**	717
Total Volume	44	20	19	83	41	1388	43	1472	25	20	33	78	22	1222	22	1266	2899
% App. Total	53	24.1	22.9		2.8	94.3	2.9		32.1	25.6	42.3		1.7	96.5	1.7		
PHF	.688	.625	.528	.741	.641	.899	.827	.893	.694	.833	.750	.813	.917	.955	.786	.962	.947

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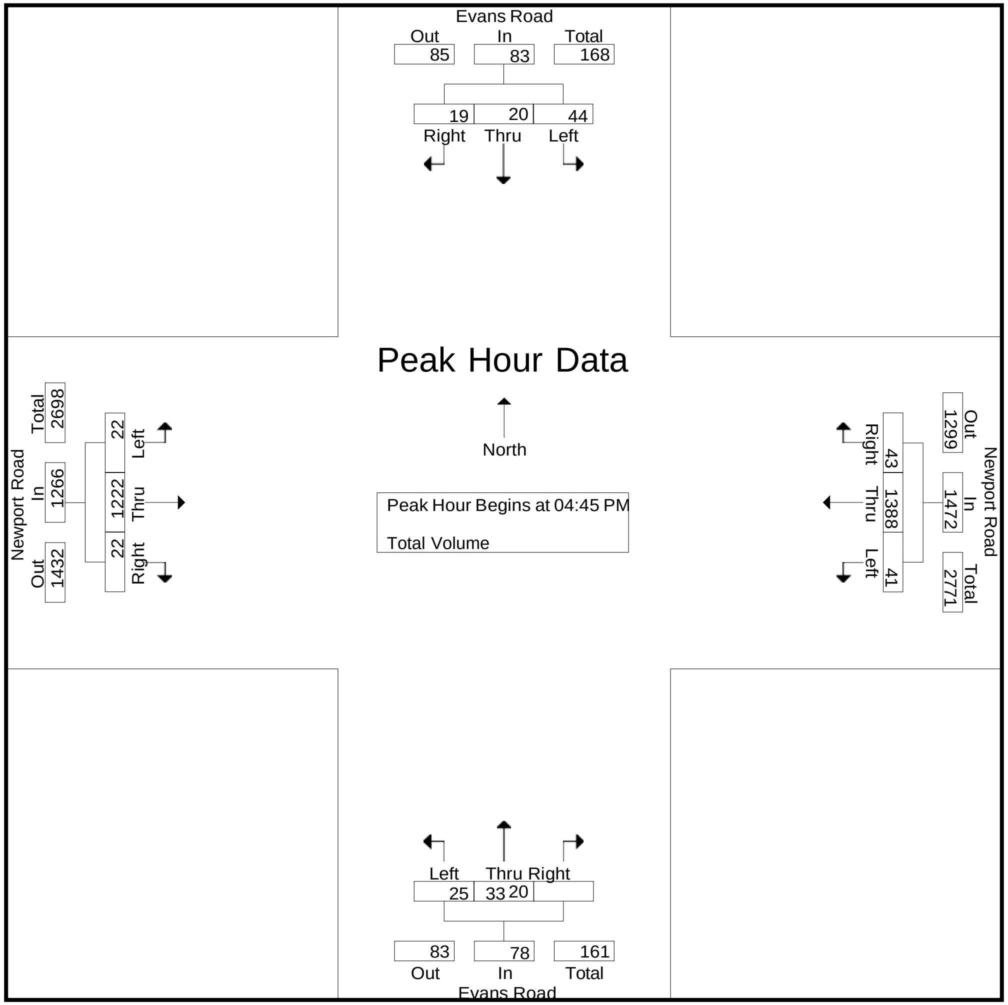

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	Evans Road Southbound				Newport Road Westbound				Evans Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:00 PM				04:45 PM				05:00 PM				
+0 mins.	11	**8**	**9**	**28**	**19**	365	9	393	**9**	4	**11**	**24**	6	314	6	326	
+15 mins.	12	6	2	20	9	351	**10**	370	4	**6**	6	16	6	297	**7**	310	
+30 mins.	5	4	4	13	11	327	8	346	6	5	8	19	6	320	3	329	
+45 mins.	**16**	2	4	22	16	**386**	10	**412**	6	5	8	19	**7**	**333**	6	**346**	
Total Volume	44	20	19	83	55	1429	37	1521	25	20	33	78	25	1264	22	1311	
% App. Total	53	24.1	22.9		3.6	94	2.4		32.1	25.6	42.3		1.9	96.4	1.7		
PHF	.688	.625	.528	.741	.724	.926	.925	.923	.694	.833	.750	.813	.893	.949	.786	.947	

Location: Menifee
N/S: Evans Road
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Evans Road	East Leg Newport Road	South Leg Evans Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	2	1	0	3
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	2	0	0	3	5
8:00 AM	1	0	0	1	2
8:15 AM	0	1	0	4	5
8:30 AM	0	0	0	0	0
8:45 AM	1	1	1	0	3
TOTAL VOLUMES:	4	4	2	8	18

	North Leg Evans Road	East Leg Newport Road	South Leg Evans Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1
5:30 PM	0	0	0	1	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	2	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Menifee
N/S: Evans Road
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Evans Road			Westbound Newport Road			Northbound Evans Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	1	0	2	0	4

	Southbound Evans Road			Westbound Newport Road			Northbound Evans Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	1	2
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	1	2
TOTAL VOLUMES:	0	1	0	0	2	0	1	0	1	0	3	2	10

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Corona, CA 92878
(951)268-6268

City of Menifee
N/S: Bradley Road
E/W: Newport Road
Weather: Clear

File Name : 09_MEN_BR_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 55

Groups Printed- Total Volume

	Bradley Road Southbound					Newport Road Westbound					Bradley Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	49	87	25	8	161	84	222	14	5	320	21	24	54	22	99	15	257	32	6	304	41	884	925
07:15 AM	51	112	24	5	187	97	222	25	8	344	33	38	82	23	153	21	300	35	8	356	44	1040	1084
07:30 AM	48	88	25	8	161	68	191	37	9	296	52	70	96	29	218	37	312	24	10	373	56	1048	1104
07:45 AM	53	68	36	6	157	39	236	55	13	330	44	68	89	28	201	25	302	11	3	338	50	1026	1076
Total	201	355	110	27	666	288	871	131	35	1290	150	200	321	102	671	98	1171	102	27	1371	191	3998	4189
08:00 AM	34	46	69	13	149	49	240	49	14	338	47	38	52	29	137	60	240	11	3	311	59	935	994
08:15 AM	67	42	58	11	167	59	273	36	10	368	33	40	53	11	126	66	324	17	6	407	38	1068	1106
08:30 AM	74	50	65	11	189	41	261	46	18	348	36	28	48	14	112	51	311	15	6	377	49	1026	1075
08:45 AM	65	44	48	18	157	39	227	63	19	329	26	37	55	26	118	49	221	13	4	283	67	887	954
Total	240	182	240	53	662	188	1001	194	61	1383	142	143	208	80	493	226	1096	56	19	1378	213	3916	4129
Grand Total	441	537	350	80	1328	476	1872	325	96	2673	292	343	529	182	1164	324	2267	158	46	2749	404	7914	8318
Apprch %	33.2	40.4	26.4			17.8	70	12.2			25.1	29.5	45.4			11.8	82.5	5.7					
Total %	5.6	6.8	4.4		16.8	6	23.7	4.1		33.8	3.7	4.3	6.7		14.7	4.1	28.6	2		34.7	4.9	95.1	

	Bradley Road Southbound				Newport Road Westbound				Bradley Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	48	**88**	25	161	**68**	191	37	296	**52**	**70**	**96**	**218**	37	312	**24**	373	1048
07:45 AM	53	68	36	157	39	236	**55**	330	44	68	89	201	25	302	11	338	1026
08:00 AM	34	46	**69**	149	49	240	49	338	47	38	52	137	60	240	11	311	935
08:15 AM	**67**	42	58	**167**	59	**273**	36	**368**	33	40	53	126	**66**	**324**	17	**407**	**1068**
Total Volume	202	244	188	634	215	940	177	1332	176	216	290	682	188	1178	63	1429	4077
% App. Total	31.9	38.5	29.7		16.1	70.6	13.3		25.8	31.7	42.5		13.2	82.4	4.4		
PHF	.754	.693	.681	.949	.790	.861	.805	.905	.846	.771	.755	.782	.712	.909	.656	.878	.954

Counts Unlimited, Inc.
PO Box 1178
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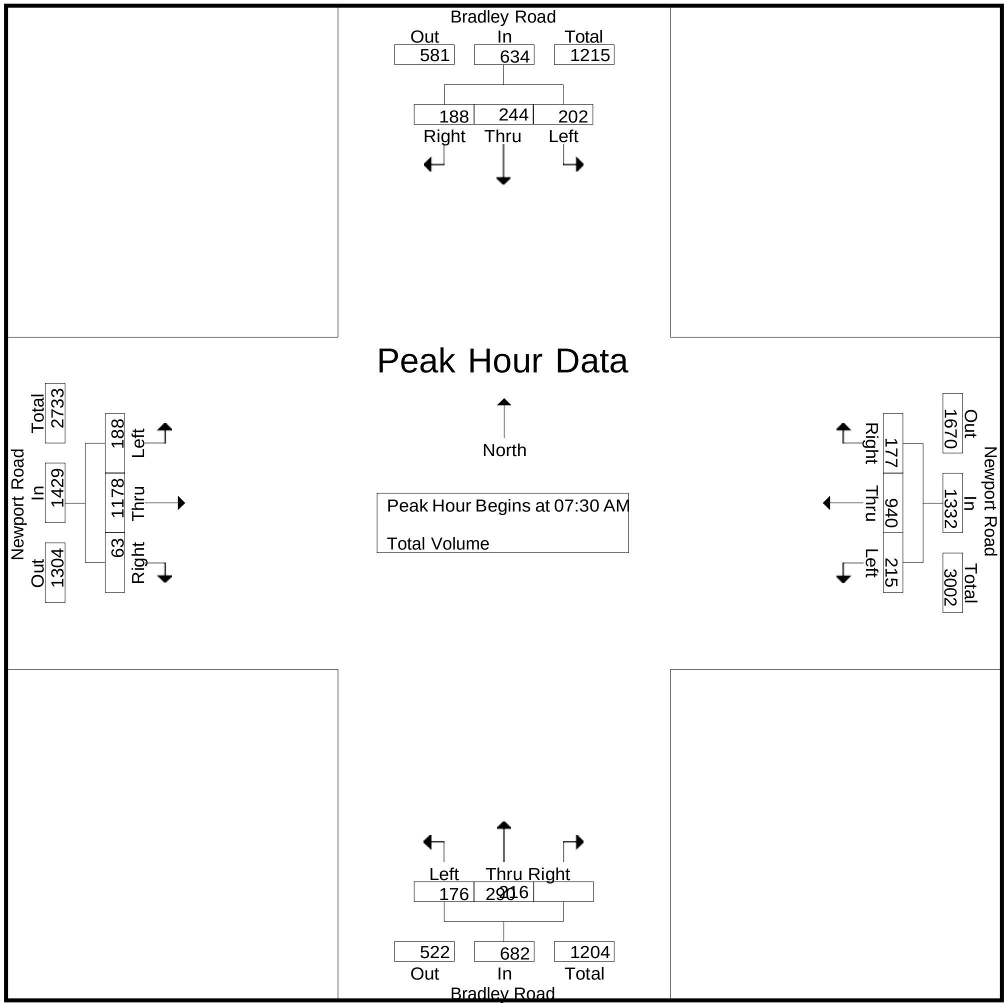
City of Menifee
N/S: Bradley Road
E/W: Newport Road
Weather: Clear

File Name : 09_MEN_BR_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 56



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City of Menifee
N/S: Bradley Road
E/W: Newport Road
Weather: Clear

File Name : 09_MEN_BR_NP AM
Site Code : 05121444
Start Date : 8/26/2021

	Bradley Road Southbound				Newport Road Westbound				Bradley Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:45 AM				07:15 AM				07:45 AM				
+0 mins.	49	87	25	161	39	236	**55**	330	33	38	82	153	25	302	11	338	
+15 mins.	51	**112**	24	**187**	49	240	49	338	**52**	**70**	**96**	**218**	60	240	11	311	
+30 mins.	48	88	25	161	**59**	**273**	36	**368**	44	68	89	201	**66**	**324**	**17**	**407**	
+45 mins.	**53**	68	**36**	157	41	261	46	348	47	38	52	137	51	311	15	377	
Total Volume	201	355	110	666	188	1010	186	1384	176	214	319	709	202	1177	54	1433	
% App. Total	30.2	53.3	16.5		13.6	73	13.4		24.8	30.2	45		14.1	82.1	3.8		
PHF	.948	.792	.764	.890	.797	.925	.845	.940	.846	.764	.831	.813	.765	.908	.794	.880	

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City of Menifee
N/S: Bradley Road
E/W: Newport Road
Weather: Clear

File Name : 09_MEN_BR_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

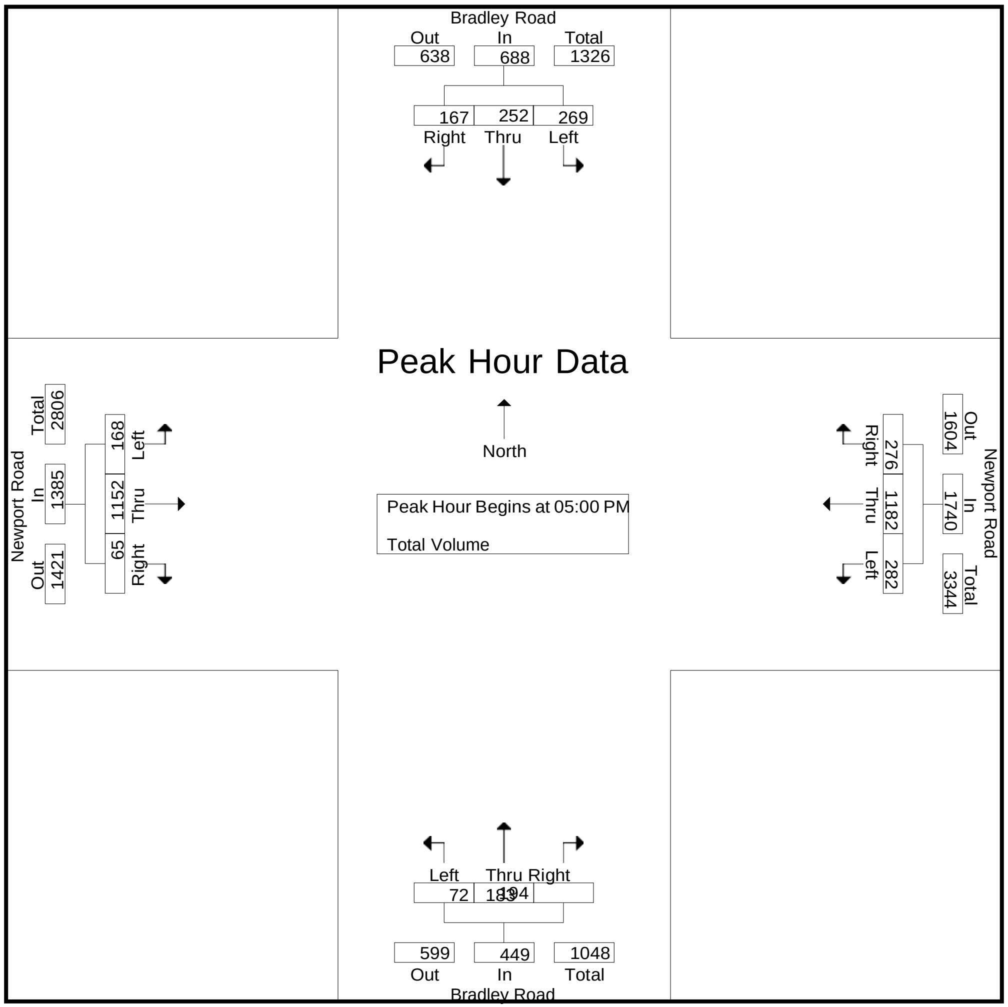
	Bradley Road Southbound					Newport Road Westbound					Bradley Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	68	39	68	10	175	74	313	68	26	455	30	58	43	13	131	47	256	15	5	318	54	1079	1133
04:15 PM	65	61	53	11	179	72	300	68	21	440	20	51	39	14	110	41	238	12	2	291	48	1020	1068
04:30 PM	44	46	41	13	131	63	295	53	10	411	25	42	39	20	106	46	287	16	3	349	46	997	1043
04:45 PM	75	74	56	7	205	56	316	76	18	448	28	41	36	11	105	31	248	18	3	297	39	1055	1094
Total	252	220	218	41	690	265	1224	265	75	1754	103	192	157	58	452	165	1029	61	13	1255	187	4151	4338
05:00 PM	68	59	40	12	167	72	326	68	14	466	15	49	45	20	109	26	308	15	1	349	47	1091	1138
05:15 PM	74	68	53	16	195	59	267	55	22	381	17	53	33	12	103	48	244	12	5	304	55	983	1038
05:30 PM	55	53	35	12	143	77	297	78	8	452	13	39	46	24	98	40	295	22	4	357	48	1050	1098
05:45 PM	72	72	39	7	183	74	292	75	31	441	27	53	59	16	139	54	305	16	3	375	57	1138	1195
Total	269	252	167	47	688	282	1182	276	75	1740	72	194	183	72	449	168	1152	65	13	1385	207	4262	4469
Grand Total	521	472	385	88	1378	547	2406	541	150	3494	175	386	340	130	901	333	2181	126	26	2640	394	8413	8807
Apprch %	37.8	34.3	27.9			15.7	68.9	15.5			19.4	42.8	37.7			12.6	82.6	4.8					
Total %	6.2	5.6	4.6		16.4	6.5	28.6	6.4		41.5	2.1	4.6	4		10.7	4	25.9	1.5		31.4	4.5	95.5	

	Bradley Road Southbound				Newport Road Westbound				Bradley Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	68	59	40	167	72	**326**	68	**466**	15	49	45	109	26	**308**	15	349	1091
05:15 PM	**74**	68	**53**	**195**	59	267	55	381	17	**53**	33	103	48	244	12	304	983
05:30 PM	55	53	35	143	**77**	297	**78**	452	13	39	46	98	40	295	**22**	357	1050
05:45 PM	72	**72**	39	183	74	292	75	441	**27**	53	**59**	**139**	**54**	305	16	**375**	**1138**
Total Volume	269	252	167	688	282	1182	276	1740	72	194	183	449	168	1152	65	1385	4262
% App. Total	39.1	36.6	24.3		16.2	67.9	15.9		16	43.2	40.8		12.1	83.2	4.7		
PHF	.909	.875	.788	.882	.916	.906	.885	.933	.667	.915	.775	.808	.778	.935	.739	.923	.936

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Menifee
N/S: Bradley Road
E/W: Newport Road
Weather: Clear

File Name : 09_MEN_BR_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



Counts Unlimited, Inc.
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Corona, CA 92878
(951)268-6268

City of Menifee
N/S: Bradley Road
E/W: Newport Road
Weather: Clear

File Name : 09_MEN_BR_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	Bradley Road Southbound				Newport Road Westbound				Bradley Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:15 PM				04:00 PM				05:00 PM				
+0 mins.	**75**	**74**	**56**	**205**	**72**	300	68	440	**30**	**58**	**43**	**131**	26	**308**	15	349	
+15 mins.	68	59	40	167	63	295	53	411	20	51	39	110	48	244	12	304	
+30 mins.	74	68	53	195	56	316	**76**	448	25	42	39	106	40	295	**22**	357	
+45 mins.	55	53	35	143	72	**326**	68	**466**	28	41	36	105	**54**	305	16	**375**	
Total Volume	272	254	184	710	263	1237	265	1765	103	192	157	452	168	1152	65	1385	
% App. Total	38.3	35.8	25.9		14.9	70.1	15		22.8	42.5	34.7		12.1	83.2	4.7		
PHF	.907	.858	.821	.866	.913	.949	.872	.947	.858	.828	.913	.863	.778	.935	.739	.923	

Location: Menifee
N/S: Bradley Road
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Bradley Road	East Leg Newport Road	South Leg Bradley Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	1	1
7:30 AM	1	0	1	1	3
7:45 AM	1	0	0	0	1
8:00 AM	2	0	1	1	4
8:15 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1
8:45 AM	1	0	0	0	1
TOTAL VOLUMES:	6	0	3	3	12

	North Leg Bradley Road	East Leg Newport Road	South Leg Bradley Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	1	2
TOTAL VOLUMES:	0	0	1	2	3

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Menifee
N/S: Bradley Road
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Bradley Road			Westbound Newport Road			Northbound Bradley Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	9	0	0	1	0	0	0	0	0	0	0	10
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	10	0	0	3	0	0	0	0	0	0	0	13

	Southbound Bradley Road			Westbound Newport Road			Northbound Bradley Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	3	0	3

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City of Menifee
N/S: Avenida De Cortez/Town Center Dr
E/W: Newport Road
Weather: Clear

File Name : 10_MEN_ADC_NP AM
Site Code : 05121444
Start Date : 8/26/2021

Groups Printed- Total Volume

	Avenida De Cortez Southbound					Newport Road Westbound					Town Center Drive Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	22	7	3	3	32	64	309	5	1	378	20	1	47	27	68	0	340	26	8	366	39	844	883
07:15 AM	23	3	9	6	35	74	289	3	2	366	27	5	58	22	90	2	398	22	6	422	36	913	949
07:30 AM	18	5	4	3	27	49	261	12	5	322	23	3	62	22	88	2	405	36	18	443	48	880	928
07:45 AM	14	6	2	2	22	47	339	7	5	393	22	9	52	16	83	1	448	24	13	473	36	971	1007
Total	77	21	18	14	116	234	1198	27	13	1459	92	18	219	87	329	5	1591	108	45	1704	159	3608	3767
08:00 AM	16	4	1	1	21	41	354	8	1	403	25	5	42	22	72	2	343	25	6	370	30	866	896
08:15 AM	13	4	3	2	20	30	340	6	1	376	17	3	35	23	55	1	422	28	11	451	37	902	939
08:30 AM	14	5	2	0	21	39	307	7	0	353	23	6	57	16	86	2	389	22	7	413	23	873	896
08:45 AM	21	1	1	1	23	38	341	10	3	389	25	4	45	22	74	0	361	28	10	389	36	875	911
Total	64	14	7	4	85	148	1342	31	5	1521	90	18	179	83	287	5	1515	103	34	1623	126	3516	3642
Grand Total	141	35	25	18	201	382	2540	58	18	2980	182	36	398	170	616	10	3106	211	79	3327	285	7124	7409
Apprch %	70.1	17.4	12.4			12.8	85.2	1.9			29.5	5.8	64.6			0.3	93.4	6.3					
Total %	2	0.5	0.4		2.8	5.4	35.7	0.8		41.8	2.6	0.5	5.6		8.6	0.1	43.6	3		46.7	3.8	96.2	

	Avenida De Cortez Southbound				Newport Road Westbound				Town Center Drive Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**23**	3	**9**	**35**	**74**	289	3	366	**27**	5	58	**90**	**2**	398	22	422	913
07:30 AM	18	5	4	27	49	261	**12**	322	23	3	**62**	88	2	405	**36**	443	880
07:45 AM	14	**6**	2	22	47	339	7	393	22	**9**	52	83	1	**448**	24	**473**	**971**
08:00 AM	16	4	1	21	41	**354**	8	**403**	25	5	42	72	2	343	25	370	866
Total Volume	71	18	16	105	211	1243	30	1484	97	22	214	333	7	1594	107	1708	3630
% App. Total	67.6	17.1	15.2		14.2	83.8	2		29.1	6.6	64.3		0.4	93.3	6.3		
PHF	.772	.750	.444	.750	.713	.878	.625	.921	.898	.611	.863	.925	.875	.890	.743	.903	.935

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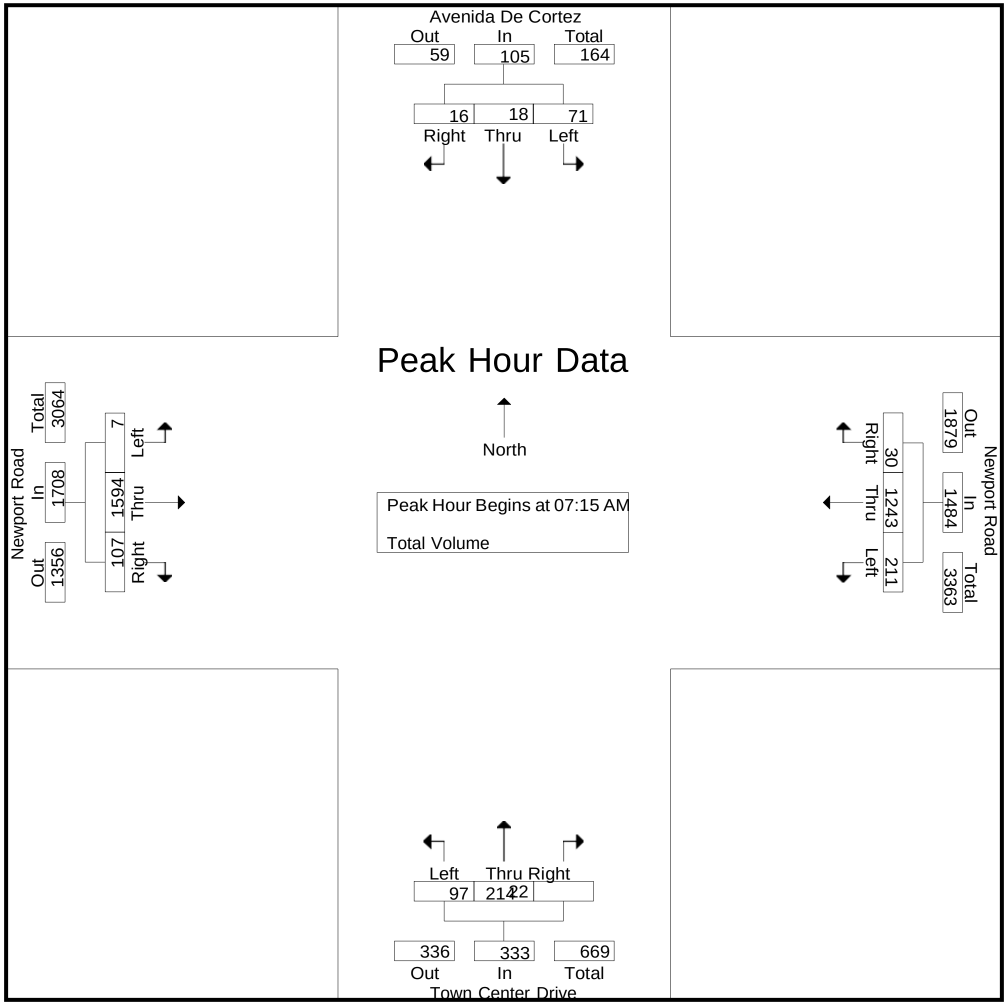
City of Menifee
N/S: Avenida De Cortez/Town Center Dr
E/W: Newport Road
Weather: Clear

File Name : 10_MEN_ADC_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 64



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City of Menifee
N/S: Avenida De Cortez/Town Center Dr
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File Name : 10_MEN_ADC_NP AM
Site Code : 05121444
Start Date : 8/26/2021

	Avenida De Cortez Southbound				Newport Road Westbound				Town Center Drive Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:45 AM				07:15 AM				07:30 AM				
+0 mins.	22	**7**	3	32	**47**	339	7	393	**27**	5	58	**90**	**2**	405	**36**	443	
+15 mins.	**23**	3	**9**	**35**	41	**354**	**8**	**403**	23	3	**62**	88	1	**448**	24	**473**	
+30 mins.	18	5	4	27	30	340	6	376	22	**9**	52	83	2	343	25	370	
+45 mins.	14	6	2	22	39	307	7	353	25	5	42	72	1	422	28	451	
Total Volume	77	21	18	116	157	1340	28	1525	97	22	214	333	6	1618	113	1737	
% App. Total	66.4	18.1	15.5		10.3	87.9	1.8		29.1	6.6	64.3		0.3	93.1	6.5		
PHF	.837	.750	.500	.829	.835	.946	.875	.946	.898	.611	.863	.925	.750	.903	.785	.918	

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City of Menifee
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Weather: Clear

File Name : 10_MEN_ADC_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Total Volume

	Avenida De Cortez Southbound					Newport Road Westbound					Town Center Drive Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	15	5	3	1	23	61	397	13	4	471	22	9	43	20	74	1	361	22	11	384	36	952	988
04:15 PM	16	4	0	0	20	49	428	13	4	490	23	5	24	8	52	1	357	17	8	375	20	937	957
04:30 PM	19	3	1	1	23	57	388	18	2	463	21	2	26	16	49	1	366	11	3	378	22	913	935
04:45 PM	20	9	1	0	30	30	449	16	3	495	17	3	24	11	44	1	376	16	6	393	20	962	982
Total	70	21	5	2	96	197	1662	60	13	1919	83	19	117	55	219	4	1460	66	28	1530	98	3764	3862
05:00 PM	13	2	2	2	17	29	414	17	2	460	9	3	40	13	52	4	404	10	3	418	20	947	967
05:15 PM	19	4	1	0	24	43	395	10	3	448	14	5	17	10	36	1	370	11	5	382	18	890	908
05:30 PM	18	5	3	3	26	51	422	19	2	492	13	7	27	11	47	0	393	17	3	410	19	975	994
05:45 PM	13	4	2	0	19	72	421	21	6	514	15	4	35	10	54	3	403	31	13	437	29	1024	1053
Total	63	15	8	5	86	195	1652	67	13	1914	51	19	119	44	189	8	1570	69	24	1647	86	3836	3922
Grand Total	133	36	13	7	182	392	3314	127	26	3833	134	38	236	99	408	12	3030	135	52	3177	184	7600	7784
Apprch %	73.1	19.8	7.1			10.2	86.5	3.3			32.8	9.3	57.8			0.4	95.4	4.2					
Total %	1.8	0.5	0.2		2.4	5.2	43.6	1.7		50.4	1.8	0.5	3.1		5.4	0.2	39.9	1.8		41.8	2.4	97.6	

	Avenida De Cortez Southbound				Newport Road Westbound				Town Center Drive Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	13	2	2	17	29	414	17	460	9	3	**40**	52	**4**	**404**	10	418	947
05:15 PM	**19**	4	1	24	43	395	10	448	14	5	17	36	1	370	11	382	890
05:30 PM	18	**5**	**3**	**26**	51	**422**	19	492	13	**7**	27	47	0	393	17	410	975
05:45 PM	13	4	2	19	**72**	421	**21**	**514**	**15**	4	35	**54**	3	403	**31**	**437**	**1024**
Total Volume	63	15	8	86	195	1652	67	1914	51	19	119	189	8	1570	69	1647	3836
% App. Total	73.3	17.4	9.3		10.2	86.3	3.5		27	10.1	63		0.5	95.3	4.2		
PHF	.829	.750	.667	.827	.677	.979	.798	.931	.850	.679	.744	.875	.500	.972	.556	.942	.937

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City of Menifee
N/S: Avenida De Cortez/Town Center Dr
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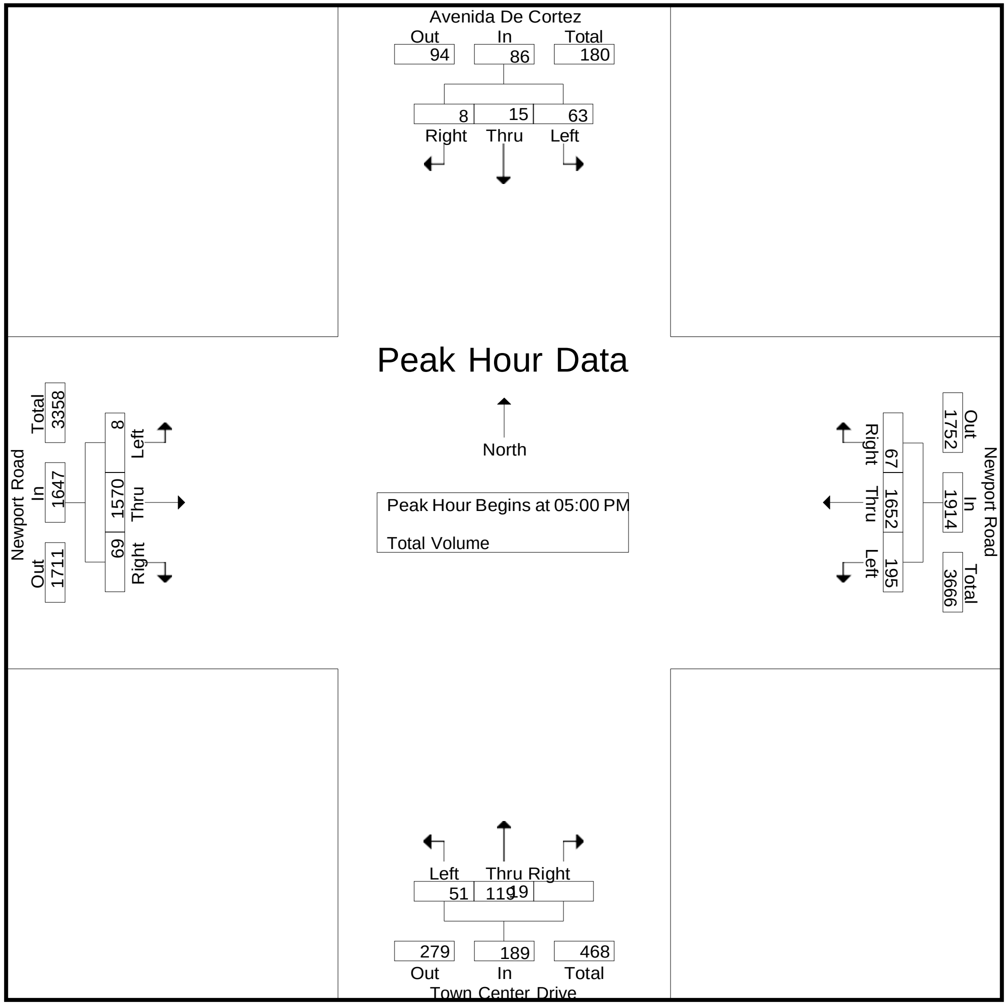
Weather: Clear

File Name : 10_MEN_ADC_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: Avenida De Cortez/Town Center Dr
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Weather: Clear

File Name : 10_MEN_ADC_NP PM
Site Code : 05121444
Start Date : 8/26/2021

	Avenida De Cortez Southbound				Newport Road Westbound				Town Center Drive Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:00 PM				04:00 PM				05:00 PM				
+0 mins.	**20**	**9**	1	**30**	**61**	397	13	471	22	**9**	**43**	**74**	**4**	**404**	10	418	
+15 mins.	13	2	2	17	49	428	13	490	**23**	5	24	52	1	370	11	382	
+30 mins.	19	4	1	24	57	388	**18**	463	21	2	26	49	0	393	17	410	
+45 mins.	18	5	**3**	26	30	**449**	16	**495**	17	3	24	44	3	403	**31**	**437**	
Total Volume	70	20	7	97	197	1662	60	1919	83	19	117	219	8	1570	69	1647	
% App. Total	72.2	20.6	7.2		10.3	86.6	3.1		37.9	8.7	53.4		0.5	95.3	4.2		
PHF	.875	.556	.583	.808	.807	.925	.833	.969	.902	.528	.680	.740	.500	.972	.556	.942	

Location: Menifee
N/S: Ave De Cortez/Town Center Dr
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Avenida De Cortez	East Leg Newport Road	South Leg Town Center Drive	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	2	0	0	1	3
7:15 AM	0	1	0	0	1
7:30 AM	2	0	0	0	2
7:45 AM	0	0	0	1	1
8:00 AM	1	2	1	0	4
8:15 AM	1	0	1	1	3
8:30 AM	1	0	0	0	1
8:45 AM	0	1	0	1	2
TOTAL VOLUMES:	7	4	2	4	17

	North Leg Avenida De Cortez	East Leg Newport Road	South Leg Town Center Drive	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	2	0	0	2
5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	0	3

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Location: Menifee
N/S: Ave De Cortez/Town Center Dr
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Avenida De Cortez			Westbound Newport Road			Northbound Town Center Drive			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	2	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	1	0	0	0	0	0	0	2
TOTAL VOLUMES:	0	0	0	0	4	1	0	2	1	0	1	0	9

	Southbound Avenida De Cortez			Westbound Newport Road			Northbound Town Center Drive			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	2	0	3
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	1	0	0	1	0	0	1	0	0	2	0	5

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City of Menifee
N/S: Haun Road
E/W: Newport Road
Weather: Clear

File Name : 11_MEN_Haun_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 71

Groups Printed- Total Volume

	Haun Road Southbound					Newport Road Westbound					Haun Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	17	7	5	3	29	135	338	50	11	523	17	8	78	12	103	28	324	14	10	366	36	1021	1057
07:15 AM	33	5	12	7	50	134	319	81	42	534	21	12	134	7	167	29	443	22	17	494	73	1245	1318
07:30 AM	21	8	16	8	45	140	312	85	38	537	22	14	119	11	155	33	410	23	15	466	72	1203	1275
07:45 AM	18	15	13	8	46	134	337	106	45	577	42	15	121	10	178	58	439	34	19	531	82	1332	1414
Total	89	35	46	26	170	543	1306	322	136	2171	102	49	452	40	603	148	1616	93	61	1857	263	4801	5064
08:00 AM	39	9	18	14	66	106	317	92	40	515	51	14	121	11	186	38	307	27	17	372	82	1139	1221
08:15 AM	46	6	14	6	66	122	333	85	31	540	33	15	58	20	106	45	344	28	21	417	78	1129	1207
08:30 AM	50	15	16	8	81	119	279	80	39	478	38	7	73	14	118	56	364	41	23	461	84	1138	1222
08:45 AM	48	12	28	17	88	115	286	66	29	467	29	12	79	20	120	25	307	41	19	373	85	1048	1133
Total	183	42	76	45	301	462	1215	323	139	2000	151	48	331	65	530	164	1322	137	80	1623	329	4454	4783
Grand Total	272	77	122	71	471	1005	2521	645	275	4171	253	97	783	105	1133	312	2938	230	141	3480	592	9255	9847
Apprch %	57.7	16.3	25.9			24.1	60.4	15.5			22.3	8.6	69.1			9	84.4	6.6					
Total %	2.9	0.8	1.3		5.1	10.9	27.2	7		45.1	2.7	1	8.5		12.2	3.4	31.7	2.5		37.6	6	94	

	Haun Road Southbound				Newport Road Westbound				Haun Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	33	5	12	50	134	319	81	534	21	12	**134**	167	29	**443**	22	494	1245
07:30 AM	21	8	16	45	**140**	312	85	537	22	14	119	155	33	410	23	466	1203
07:45 AM	18	**15**	13	46	134	**337**	**106**	**577**	42	**15**	121	178	**58**	439	**34**	**531**	**1332**
08:00 AM	**39**	9	**18**	**66**	106	317	92	515	**51**	14	121	**186**	38	307	27	372	1139
Total Volume	111	37	59	207	514	1285	364	2163	136	55	495	686	158	1599	106	1863	4919
% App. Total	53.6	17.9	28.5		23.8	59.4	16.8		19.8	8	72.2		8.5	85.8	5.7		
PHF	.712	.617	.819	.784	.918	.953	.858	.937	.667	.917	.924	.922	.681	.902	.779	.877	.923

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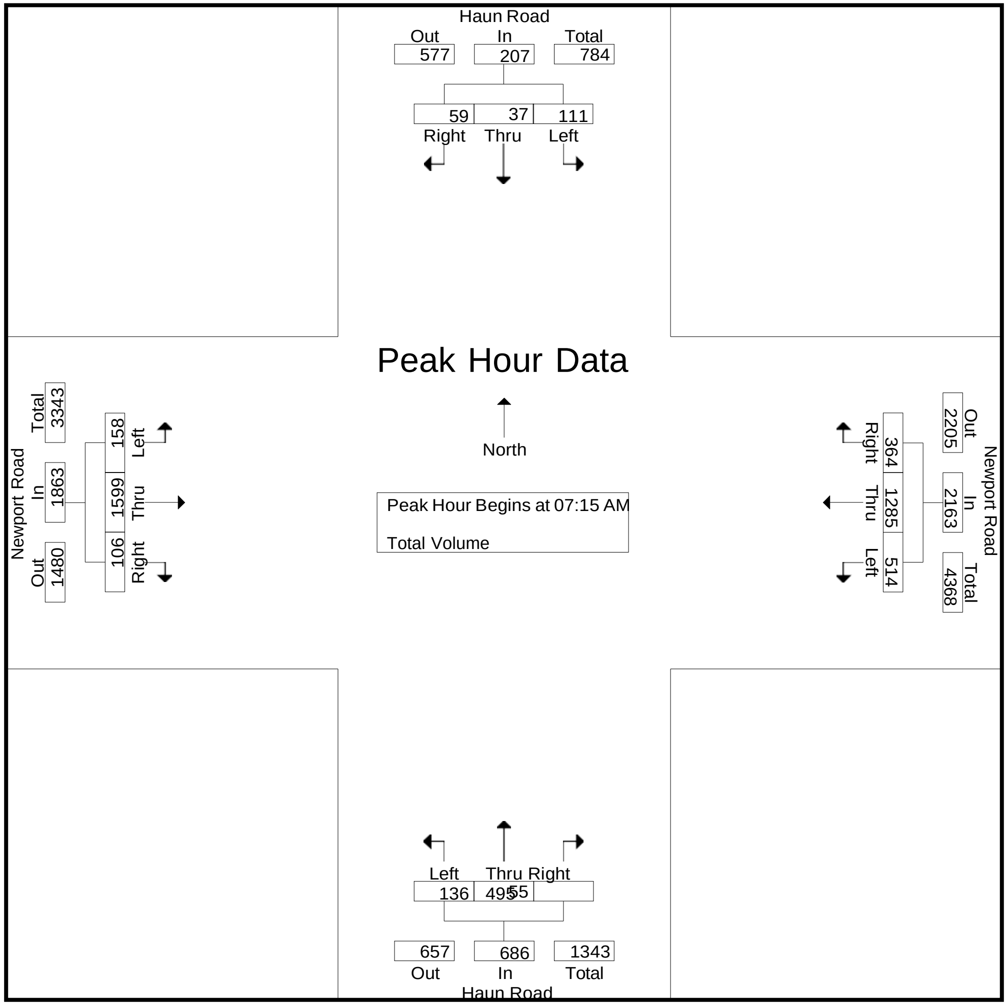
City of Menifee
N/S: Haun Road
E/W: Newport Road
Weather: Clear

File Name : 11_MEN_Haun_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 72



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City of Menifee
N/S: Haun Road
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File Name : 11_MEN_Haun_NP AM
Site Code : 05121444
Start Date : 8/26/2021

	Haun Road Southbound				Newport Road Westbound				Haun Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	08:00 AM				07:00 AM				07:15 AM				07:15 AM				
+0 mins.	39	9	18	66	135	**338**	50	523	21	12	**134**	167	29	**443**	22	494	
+15 mins.	46	6	14	66	134	319	81	534	22	14	119	155	33	410	23	466	
+30 mins.	**50**	**15**	16	81	**140**	312	85	537	42	**15**	121	178	**58**	439	**34**	**531**	
+45 mins.	48	12	**28**	**88**	134	337	**106**	**577**	**51**	14	121	**186**	38	307	27	372	
Total Volume	183	42	76	301	543	1306	322	2171	136	55	495	686	158	1599	106	1863	
% App. Total	60.8	14	25.2		25	60.2	14.8		19.8	8	72.2		8.5	85.8	5.7		
PHF	.915	.700	.679	.855	.970	.966	.759	.941	.667	.917	.924	.922	.681	.902	.779	.877	

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File Name : 11_MEN_Haun_NP PM
Site Code : 05121444
Start Date : 8/26/2021

Groups Printed- Total Volume

	Haun Road Southbound					Newport Road Westbound					Haun Road Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	74	33	32	17	139	205	359	50	25	614	83	23	234	18	340	35	312	60	42	407	102	1500	1602
04:15 PM	62	24	28	21	114	205	357	58	26	620	76	16	234	25	326	30	289	77	44	396	116	1456	1572
04:30 PM	106	24	31	18	161	203	360	54	19	617	59	14	201	8	274	32	294	61	27	387	72	1439	1511
04:45 PM	78	27	25	11	130	217	369	58	30	644	101	18	241	10	360	34	300	51	28	385	79	1519	1598
Total	320	108	116	67	544	830	1445	220	100	2495	319	71	910	61	1300	131	1195	249	141	1575	369	5914	6283
05:00 PM	109	33	40	21	182	169	297	42	18	508	78	23	197	10	298	39	305	50	21	394	70	1382	1452
05:15 PM	98	31	30	13	159	186	349	50	33	585	81	22	218	19	321	31	305	62	36	398	101	1463	1564
05:30 PM	94	42	30	14	166	190	362	71	29	623	79	15	206	10	300	35	293	68	42	396	95	1485	1580
05:45 PM	92	35	31	12	158	196	368	67	48	631	87	20	215	11	322	44	305	69	33	418	104	1529	1633
Total	393	141	131	60	665	741	1376	230	128	2347	325	80	836	50	1241	149	1208	249	132	1606	370	5859	6229
Grand Total	713	249	247	127	1209	1571	2821	450	228	4842	644	151	1746	111	2541	280	2403	498	273	3181	739	11773	12512
Apprch %	59	20.6	20.4			32.4	58.3	9.3			25.3	5.9	68.7			8.8	75.5	15.7					
Total %	6.1	2.1	2.1		10.3	13.3	24	3.8		41.1	5.5	1.3	14.8		21.6	2.4	20.4	4.2		27	5.9	94.1	

	Haun Road Southbound				Newport Road Westbound				Haun Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	74	**33**	**32**	139	205	359	50	614	83	**23**	234	340	**35**	**312**	60	**407**	1500
04:15 PM	62	24	28	114	205	357	**58**	620	76	16	234	326	30	289	**77**	396	1456
04:30 PM	**106**	24	31	**161**	203	360	54	617	59	14	201	274	32	294	61	387	1439
04:45 PM	78	27	25	130	**217**	**369**	58	**644**	**101**	18	**241**	**360**	34	300	51	385	**1519**
Total Volume	320	108	116	544	830	1445	220	2495	319	71	910	1300	131	1195	249	1575	5914
% App. Total	58.8	19.9	21.3		33.3	57.9	8.8		24.5	5.5	70		8.3	75.9	15.8		
PHF	.755	.818	.906	.845	.956	.979	.948	.969	.790	.772	.944	.903	.936	.958	.808	.967	.973

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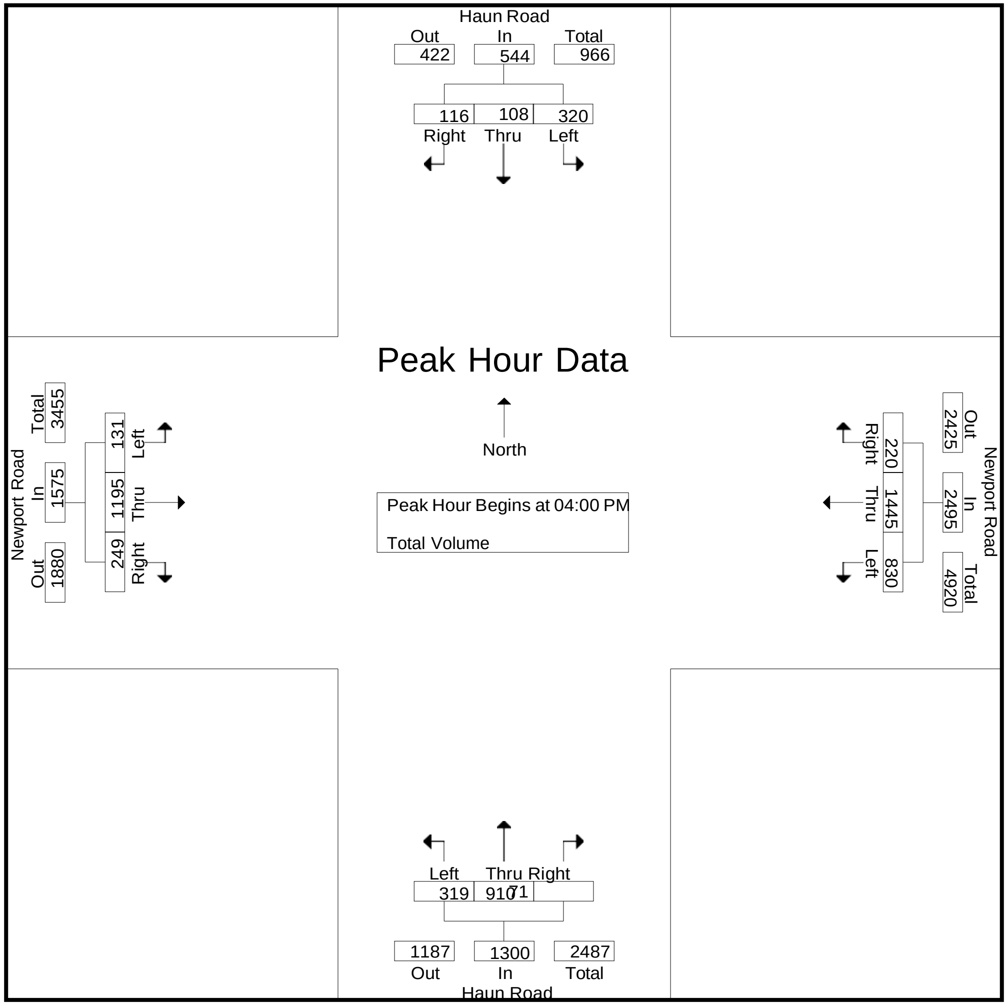
City of Menifee
N/S: Haun Road
E/W: Newport Road
Weather: Clear

File Name : 11_MEN_Haun_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: Haun Road
E/W: Newport Road
Weather: Clear

File Name : 11_MEN_Haun_NP PM
Site Code : 05121444
Start Date : 8/26/2021

	Haun Road Southbound				Newport Road Westbound				Haun Road Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				04:00 PM				04:00 PM				05:00 PM				
+0 mins.	**109**	33	**40**	**182**	205	359	50	614	83	**23**	234	340	39	**305**	50	394	
+15 mins.	98	31	30	159	205	357	**58**	620	76	16	234	326	31	305	62	398	
+30 mins.	94	**42**	30	166	203	360	54	617	59	14	201	274	35	293	68	396	
+45 mins.	92	35	31	158	**217**	**369**	58	**644**	**101**	18	**241**	**360**	**44**	305	**69**	**418**	
Total Volume	393	141	131	665	830	1445	220	2495	319	71	910	1300	149	1208	249	1606	
% App. Total	59.1	21.2	19.7		33.3	57.9	8.8		24.5	5.5	70		9.3	75.2	15.5		
PHF	.901	.839	.819	.913	.956	.979	.948	.969	.790	.772	.944	.903	.847	.990	.902	.961	

Location: Menifee
N/S: Haun Road
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg Haun Road	East Leg Newport Road	South Leg Haun Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	2	0	0	1	3
7:15 AM	1	0	0	0	1
7:30 AM	1	0	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	2	2
8:15 AM	0	0	0	1	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	4	0	0	4	8

	North Leg Haun Road	East Leg Newport Road	South Leg Haun Road	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1
5:30 PM	0	0	1	0	1
5:45 PM	1	0	0	1	2
TOTAL VOLUMES:	1	0	1	2	4

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Location: Menifee
N/S: Haun Road
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound Haun Road			Westbound Newport Road			Northbound Haun Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	1	2	2	0	0	0	0	0	1	0	6

	Southbound Haun Road			Westbound Newport Road			Northbound Haun Road			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	1	0	1	1	0	0	0	0	0	1	0	4

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 79

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	82	0	139	31	221	0	390	209	0	599	0	0	0	0	0	0	291	126	0	417	31	1237	1268
07:15 AM	95	0	129	26	224	0	425	215	0	640	0	0	0	0	0	0	446	165	0	611	26	1475	1501
07:30 AM	97	0	157	39	254	0	390	219	0	609	0	0	0	0	0	0	392	176	0	568	39	1431	1470
07:45 AM	98	0	157	35	255	0	435	189	0	624	0	0	0	0	0	0	432	151	0	583	35	1462	1497
Total	372	0	582	131	954	0	1640	832	0	2472	0	0	0	0	0	0	1561	618	0	2179	131	5605	5736
08:00 AM	85	0	129	40	214	0	388	196	0	584	0	0	0	0	0	0	344	139	0	483	40	1281	1321
08:15 AM	80	0	156	44	236	0	400	202	0	602	0	0	0	0	0	0	323	130	0	453	44	1291	1335
08:30 AM	75	0	147	42	222	0	365	234	0	599	0	0	0	0	0	0	347	145	0	492	42	1313	1355
08:45 AM	86	0	119	37	205	0	358	185	0	543	0	0	0	0	0	0	296	135	0	431	37	1179	1216
Total	326	0	551	163	877	0	1511	817	0	2328	0	0	0	0	0	0	1310	549	0	1859	163	5064	5227
Grand Total	698	0	1133	294	1831	0	3151	1649	0	4800	0	0	0	0	0	0	2871	1167	0	4038	294	10669	10963
Apprch %	38.1	0	61.9			0	65.6	34.4			0	0	0			0	71.1	28.9					
Total %	6.5	0	10.6		17.2	0	29.5	15.5		45	0	0	0		0	0	26.9	10.9		37.8	2.7	97.3	
Passenger Vehicles	642	0	1064		1981	0	3078	1612		4690	0	0	0		0	0	2788	1146		3934	0	0	10605
% Passenger Vehicles	92	0	93.9	93.5	93.2	0	97.7	97.8	0	97.7	0	0	0	0	0	0	97.1	98.2	0	97.4	0	0	96.7
Large 2 Axle Vehicles	39	0	49		104	0	56	22		78	0	0	0		0	0	59	18		77	0	0	259
% Large 2 Axle Vehicles	5.6	0	4.3	5.4	4.9	0	1.8	1.3	0	1.6	0	0	0	0	0	0	2.1	1.5	0	1.9	0	0	2.4
3 Axle Vehicles	10	0	9		22	0	3	5		8	0	0	0		0	0	7	1		8	0	0	38
% 3 Axle Vehicles	1.4	0	0.8	1	1	0	0.1	0.3	0	0.2	0	0	0	0	0	0	0.2	0.1	0	0.2	0	0	0.3
4+ Axle Trucks	7	0	11		18	0	14	10		24	0	0	0		0	0	17	2		19	0	0	61
% 4+ Axle Trucks	1	0	1	0	0.8	0	0.4	0.6	0	0.5	0	0	0	0	0	0	0.6	0.2	0	0.5	0	0	0.6

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	95	0	129	224	0	425	215	**640**	0	0	0	0	0	**446**	165	**611**	**1475**
07:30 AM	97	0	**157**	254	0	390	**219**	609	0	0	0	0	0	392	**176**	568	1431
07:45 AM	**98**	0	157	**255**	0	**435**	189	624	0	0	0	0	0	432	151	583	1462
08:00 AM	85	0	129	214	0	388	196	584	0	0	0	0	0	344	139	483	1281
Total Volume	375	0	572	947	0	1638	819	2457	0	0	0	0	0	1614	631	2245	5649
% App. Total	39.6	0	60.4		0	66.7	33.3		0	0	0		0	71.9	28.1		
PHF	.957	.000	.911	.928	.000	.941	.935	.960	.000	.000	.000	.000	.000	.905	.896	.919	.957

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
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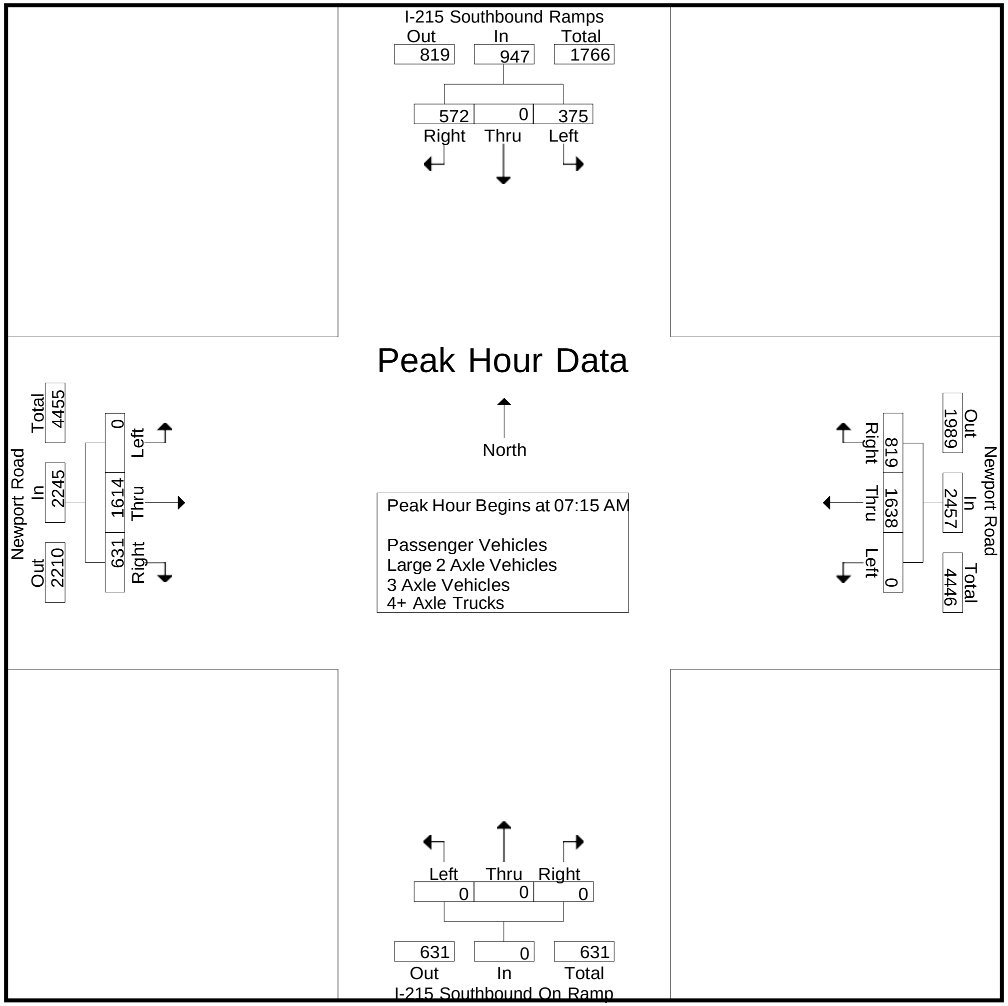

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City of Menifee
N/S: I-215 Southbound Ramps
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File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
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	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:00 AM				07:00 AM				07:15 AM				
+0 mins.	97	0	**157**	254	0	390	209	599	0	0	0	0	0	**446**	165	**611**	
+15 mins.	**98**	0	157	**255**	0	425	215	**640**	0	0	0	0	0	392	**176**	568	
+30 mins.	85	0	129	214	0	390	**219**	609	0	0	0	0	0	432	151	583	
+45 mins.	80	0	156	236	0	**435**	189	624	0	0	0	0	0	344	139	483	
Total Volume	360	0	599	959	0	1640	832	2472	0	0	0	0	0	1614	631	2245	
% App. Total	37.5	0	62.5		0	66.3	33.7		0	0	0		0	71.9	28.1		
PHF	.918	.000	.954	.940	.000	.943	.950	.966	.000	.000	.000	.000	.000	.905	.896	.919	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021

Groups Printed- Passenger Vehicles

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	73	0	127	28	200	0	384	208	0	592	0	0	0	0	0	0	285	125	0	410	28	1202	1230
07:15 AM	81	0	125	25	206	0	414	214	0	628	0	0	0	0	0	0	436	163	0	599	25	1433	1458
07:30 AM	91	0	149	37	240	0	380	215	0	595	0	0	0	0	0	0	386	174	0	560	37	1395	1432
07:45 AM	95	0	147	32	242	0	425	184	0	609	0	0	0	0	0	0	424	147	0	571	32	1422	1454
Total	340	0	548	122	888	0	1603	821	0	2424	0	0	0	0	0	0	1531	609	0	2140	122	5452	5574
08:00 AM	80	0	126	39	206	0	380	188	0	568	0	0	0	0	0	0	328	137	0	465	39	1239	1278
08:15 AM	75	0	144	42	219	0	393	196	0	589	0	0	0	0	0	0	314	127	0	441	42	1249	1291
08:30 AM	67	0	136	40	203	0	355	228	0	583	0	0	0	0	0	0	332	141	0	473	40	1259	1299
08:45 AM	80	0	110	32	190	0	347	179	0	526	0	0	0	0	0	0	283	132	0	415	32	1131	1163
Total	302	0	516	153	818	0	1475	791	0	2266	0	0	0	0	0	0	1257	537	0	1794	153	4878	5031
Grand Total	642	0	1064	275	1706	0	3078	1612	0	4690	0	0	0	0	0	0	2788	1146	0	3934	275	10330	10605
Apprch %	37.6	0	62.4			0	65.6	34.4			0	0	0			0	70.9	29.1					
Total %	6.2	0	10.3		16.5	0	29.8	15.6		45.4	0	0	0		0	0	27	11.1		38.1	2.6	97.4	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	81	0	125	206	0	414	214	**628**	0	0	0	0	0	**436**	163	**599**	**1433**
07:30 AM	91	0	**149**	240	0	380	**215**	595	0	0	0	0	0	386	**174**	560	1395
07:45 AM	**95**	0	147	**242**	0	**425**	184	609	0	0	0	0	0	424	147	571	1422
08:00 AM	80	0	126	206	0	380	188	568	0	0	0	0	0	328	137	465	1239
Total Volume	347	0	547	894	0	1599	801	2400	0	0	0	0	0	1574	621	2195	5489
% App. Total	38.8	0	61.2		0	66.6	33.4		0	0	0		0	71.7	28.3		
PHF	.913	.000	.918	.924	.000	.941	.931	.955	.000	.000	.000	.000	.000	.903	.892	.916	.958

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
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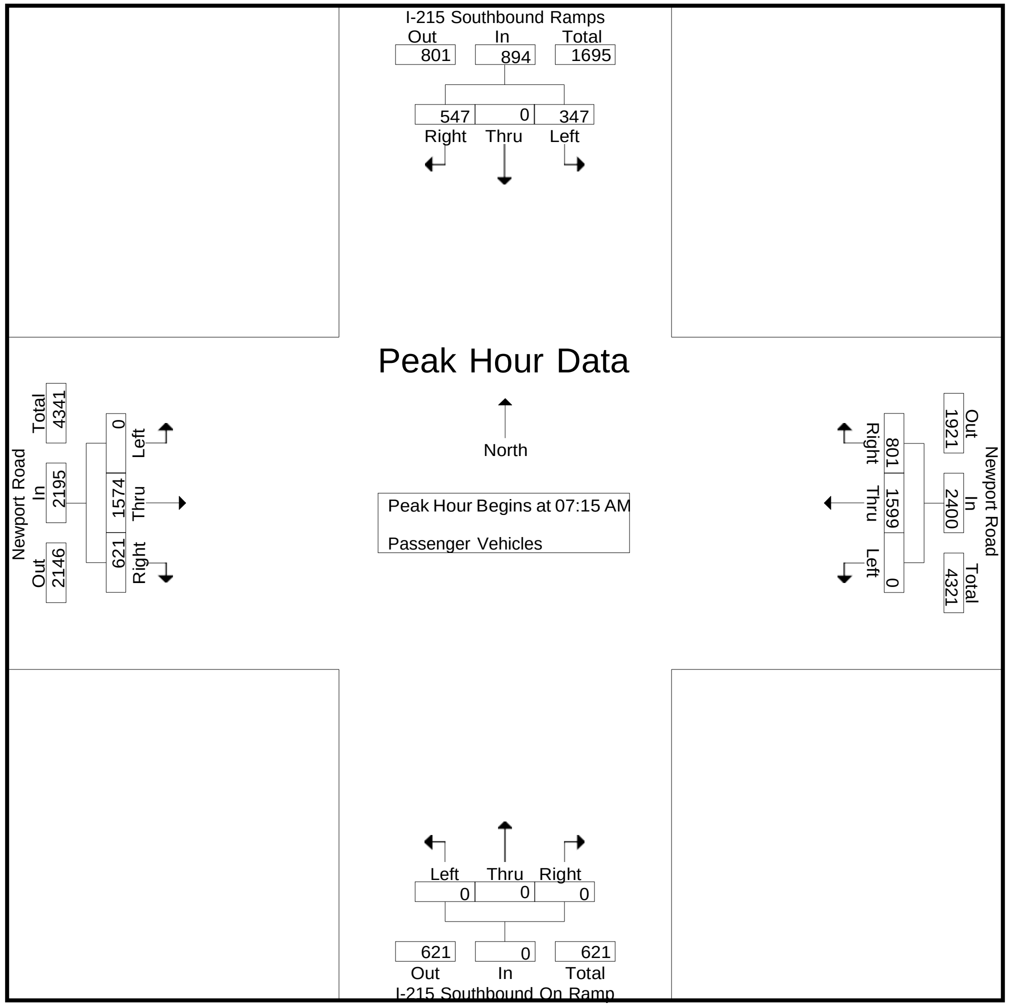

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
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	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	81	0	125	206	0	414	214	**628**	0	0	0	0	0	**436**	163	**599**	
+15 mins.	91	0	**149**	240	0	380	**215**	595	0	0	0	0	0	386	**174**	560	
+30 mins.	**95**	0	147	**242**	0	**425**	184	609	0	0	0	0	0	424	147	571	
+45 mins.	80	0	126	206	0	380	188	568	0	0	0	0	0	328	137	465	
Total Volume	347	0	547	894	0	1599	801	2400	0	0	0	0	0	1574	621	2195	
% App. Total	38.8	0	61.2		0	66.6	33.4		0	0	0		0	71.7	28.3		
PHF	.913	.000	.918	.924	.000	.941	.931	.955	.000	.000	.000	.000	.000	.903	.892	.916	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
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File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021

Groups Printed- Large 2 Axle Vehicles

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	6	0	11	2	17	0	5	1	0	6	0	0	0	0	0	0	2	1	0	3	2	26	28
07:15 AM	10	0	3	1	13	0	8	0	0	8	0	0	0	0	0	0	7	2	0	9	1	30	31
07:30 AM	4	0	7	2	11	0	7	3	0	10	0	0	0	0	0	0	5	2	0	7	2	28	30
07:45 AM	3	0	6	2	9	0	8	3	0	11	0	0	0	0	0	0	5	2	0	7	2	27	29
Total	23	0	27	7	50	0	28	7	0	35	0	0	0	0	0	0	19	7	0	26	7	111	118
08:00 AM	4	0	1	1	5	0	7	6	0	13	0	0	0	0	0	0	13	2	0	15	1	33	34
08:15 AM	2	0	8	2	10	0	4	2	0	6	0	0	0	0	0	0	5	3	0	8	2	24	26
08:30 AM	6	0	8	2	14	0	8	3	0	11	0	0	0	0	0	0	13	3	0	16	2	41	43
08:45 AM	4	0	5	4	9	0	9	4	0	13	0	0	0	0	0	0	9	3	0	12	4	34	38
Total	16	0	22	9	38	0	28	15	0	43	0	0	0	0	0	0	40	11	0	51	9	132	141
Grand Total	39	0	49	16	88	0	56	22	0	78	0	0	0	0	0	0	59	18	0	77	16	243	259
Apprch %	44.3	0	55.7			0	71.8	28.2			0	0	0			0	76.6	23.4					
Total %	16	0	20.2		36.2	0	23	9.1		32.1	0	0	0		0	0	24.3	7.4		31.7	6.2	93.8	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**10**	0	3	**13**	0	**8**	0	8	0	0	0	0	0	7	**2**	9	30
07:30 AM	4	0	**7**	11	0	7	3	10	0	0	0	0	0	5	2	7	28
07:45 AM	3	0	6	9	0	8	3	11	0	0	0	0	0	5	2	7	27
08:00 AM	4	0	1	5	0	7	**6**	**13**	0	0	0	0	0	**13**	2	**15**	**33**
Total Volume	21	0	17	38	0	30	12	42	0	0	0	0	0	30	8	38	118
% App. Total	55.3	0	44.7		0	71.4	28.6		0	0	0		0	78.9	21.1		
PHF	.525	.000	.607	.731	.000	.938	.500	.808	.000	.000	.000	.000	.000	.577	1.00	.633	.894

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PO Box 1178
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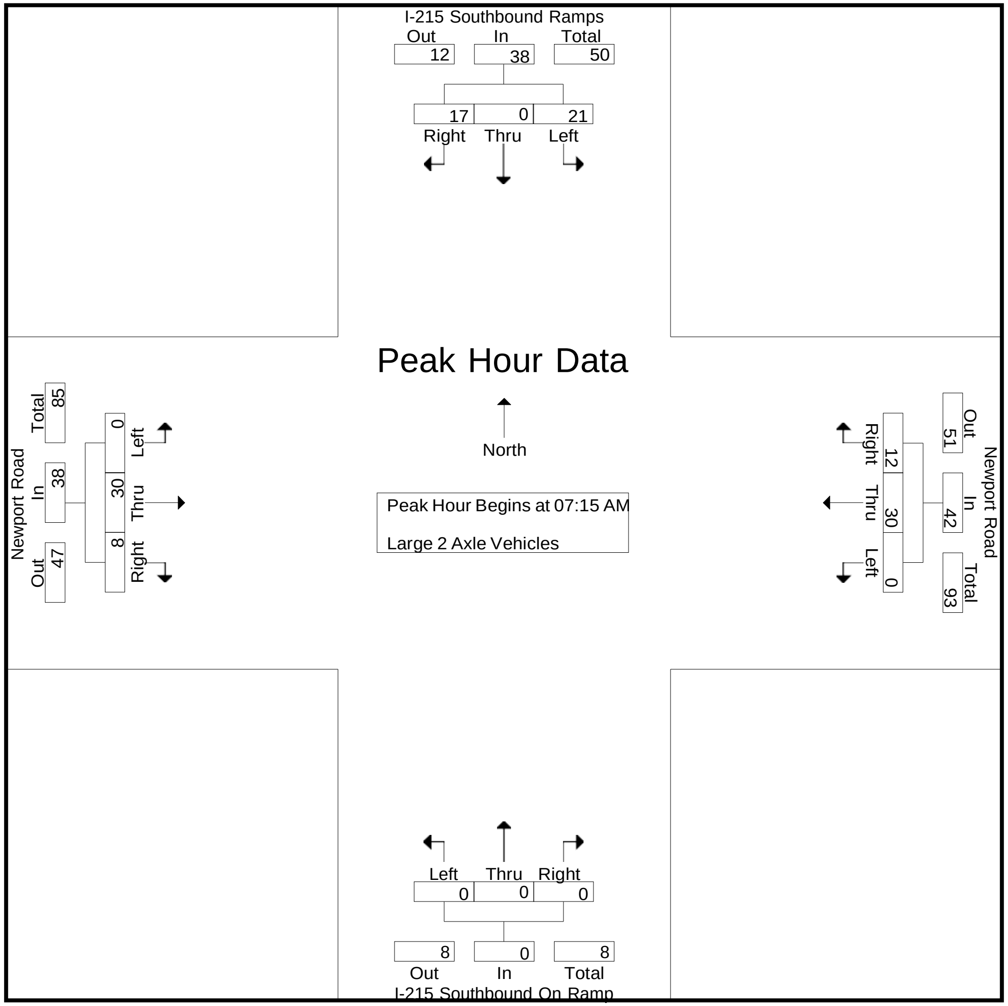
City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 86



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 87

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	**10**	0	3	**13**	0	**8**	0	8	0	0	0	0	0	7	**2**	9	
+15 mins.	4	0	**7**	11	0	7	3	10	0	0	0	0	0	5	2	7	
+30 mins.	3	0	6	9	0	8	3	11	0	0	0	0	0	5	2	7	
+45 mins.	4	0	1	5	0	7	**6**	**13**	0	0	0	0	0	**13**	2	**15**	
Total Volume	21	0	17	38	0	30	12	42	0	0	0	0	0	30	8	38	
% App. Total	55.3	0	44.7		0	71.4	28.6		0	0	0		0	78.9	21.1		
PHF	.525	.000	.607	.731	.000	.938	.500	.808	.000	.000	.000	.000	.000	.577	1.000	.633	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021

Groups Printed- 3 Axle Vehicles

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	3	4
07:15 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	4	4
07:30 AM	2	0	1	0	3	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	5	5
07:45 AM	0	0	2	1	2	0	0	1	0	1	0	0	0	0	0	0	1	1	0	2	1	5	6
Total	6	0	4	2	10	0	1	1	0	2	0	0	0	0	0	0	4	1	0	5	2	17	19
08:00 AM	1	0	1	0	2	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	5	5
08:15 AM	2	0	1	0	3	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	0	6	6
08:30 AM	1	0	1	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	4	4
08:45 AM	0	0	2	1	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3	4
Total	4	0	5	1	9	0	2	4	0	6	0	0	0	0	0	0	3	0	0	3	1	18	19
Grand Total	10	0	9	3	19	0	3	5	0	8	0	0	0	0	0	0	7	1	0	8	3	35	38
Apprch %	52.6	0	47.4			0	37.5	62.5			0	0	0			0	87.5	12.5					
Total %	28.6	0	25.7		54.3	0	8.6	14.3		22.9	0	0	0		0	0	20	2.9		22.9	7.9	92.1	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**3**	0	0	**3**	0	0	0	0	0	0	0	0	0	1	0	1	4
07:30 AM	2	0	1	3	0	**1**	0	**1**	0	0	0	0	0	1	0	1	**5**
07:45 AM	0	0	**2**	2	0	0	**1**	1	0	0	0	0	0	1	**1**	**2**	5
08:00 AM	1	0	1	2	0	0	1	1	0	0	0	0	0	**2**	0	2	5
Total Volume	6	0	4	10	0	1	2	3	0	0	0	0	0	5	1	6	19
% App. Total	60	0	40		0	33.3	66.7		0	0	0		0	83.3	16.7		
PHF	.500	.000	.500	.833	.000	.250	.500	.750	.000	.000	.000	.000	.000	.625	.250	.750	.950

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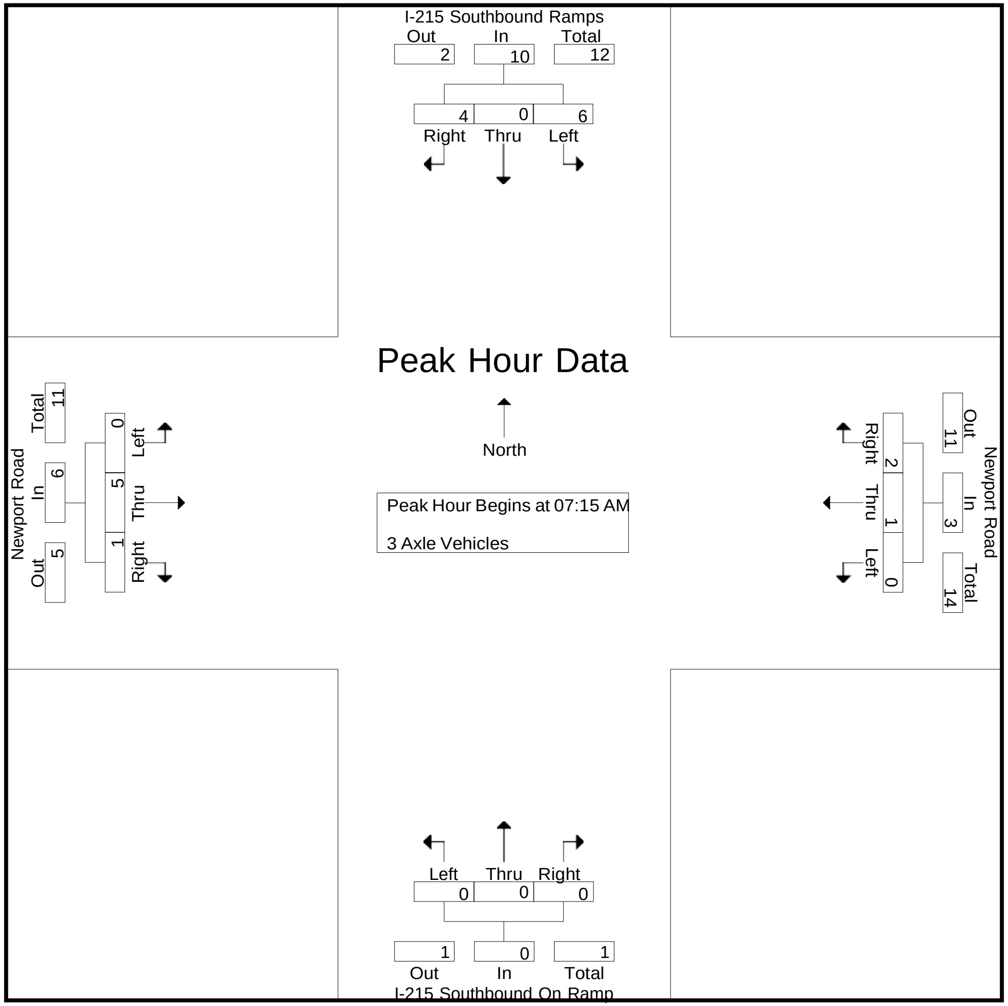
City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 89



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 90

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	**3**	0	0	**3**	0	0	0	0	0	0	0	0	0	1	0	1	
+15 mins.	2	0	1	3	0	**1**	0	**1**	0	0	0	0	0	1	0	1	
+30 mins.	0	0	**2**	2	0	0	**1**	1	0	0	0	0	0	1	**1**	**2**	
+45 mins.	1	0	1	2	0	0	1	1	0	0	0	0	0	**2**	0	2	
Total Volume	6	0	4	10	0	1	2	3	0	0	0	0	0	5	1	6	
% App. Total	60	0	40		0	33.3	66.7		0	0	0		0	83.3	16.7		
PHF	.500	.000	.500	.833	.000	.250	.500	.750	.000	.000	.000	.000	.000	.625	.250	.750	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 91

Groups Printed- 4+ Axle Trucks

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	6	6
07:15 AM	1	0	1	0	2	0	3	1	0	4	0	0	0	0	0	0	2	0	0	2	0	8	8
07:30 AM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	3	3
07:45 AM	0	0	2	0	2	0	2	1	0	3	0	0	0	0	0	0	2	1	0	3	0	8	8
Total	3	0	3	0	6	0	8	3	0	11	0	0	0	0	0	0	7	1	0	8	0	25	25
08:00 AM	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	4	4
08:15 AM	1	0	3	0	4	0	3	2	0	5	0	0	0	0	0	0	3	0	0	3	0	12	12
08:30 AM	1	0	2	0	3	0	1	2	0	3	0	0	0	0	0	0	2	1	0	3	0	9	9
08:45 AM	2	0	2	0	4	0	1	2	0	3	0	0	0	0	0	0	4	0	0	4	0	11	11
Total	4	0	8	0	12	0	6	7	0	13	0	0	0	0	0	0	10	1	0	11	0	36	36
Grand Total	7	0	11	0	18	0	14	10	0	24	0	0	0	0	0	0	17	2	0	19	0	61	61
Apprch %	38.9	0	61.1			0	58.3	41.7			0	0	0			0	89.5	10.5					
Total %	11.5	0	18		29.5	0	23	16.4		39.3	0	0	0		0	0	27.9	3.3		31.1	0	100	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**1**	0	1	**2**	0	**3**	**1**	**4**	0	0	0	0	0	**2**	0	2	**8**
07:30 AM	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	3
07:45 AM	0	0	**2**	2	0	2	1	3	0	0	0	0	0	2	**1**	**3**	8
08:00 AM	0	0	1	1	0	1	1	2	0	0	0	0	0	1	0	1	4
Total Volume	1	0	4	5	0	8	4	12	0	0	0	0	0	5	1	6	23
% App. Total	20	0	80		0	66.7	33.3		0	0	0		0	83.3	16.7		
PHF	.250	.000	.500	.625	.000	.667	1.00	.750	.000	.000	.000	.000	.000	.625	.250	.500	.719

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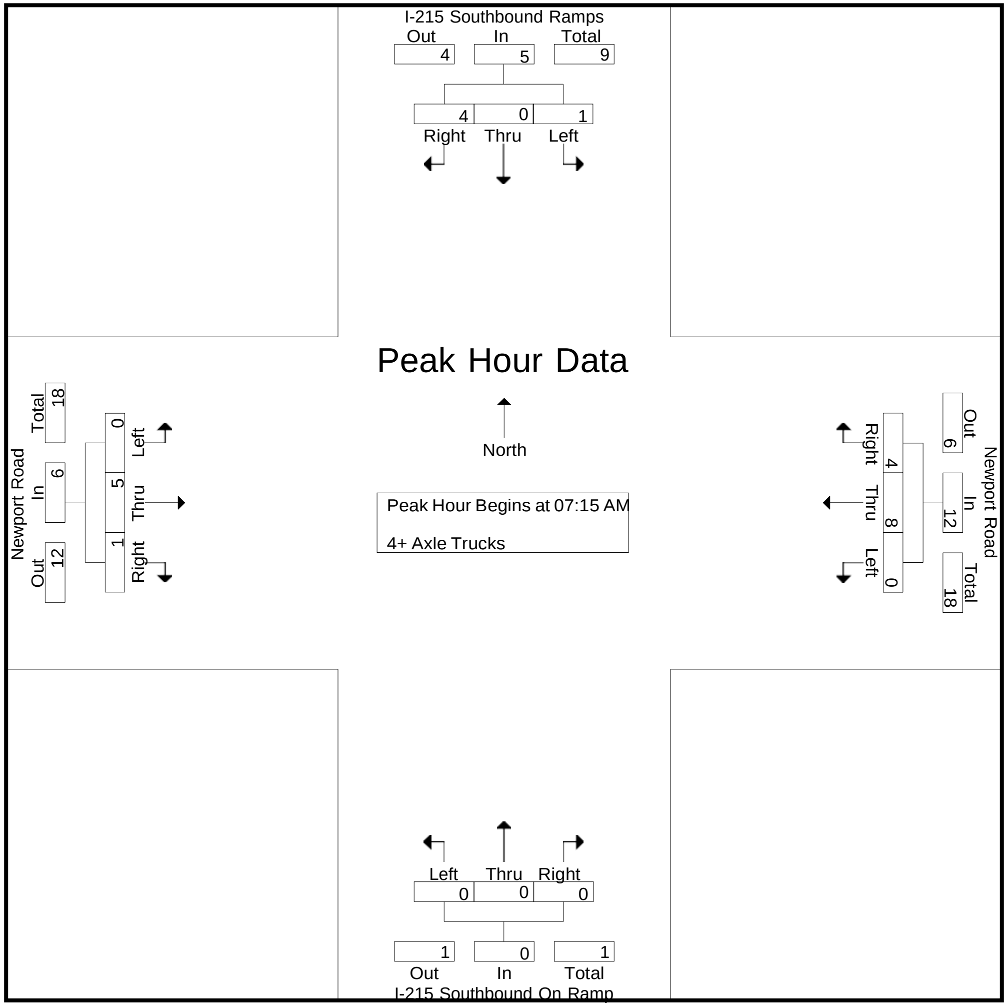
City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 92



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	**1**	0	1	**2**	0	**3**	**1**	**4**	0	0	0	0	0	**2**	0	2	
+15 mins.	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	
+30 mins.	0	0	**2**	2	0	2	1	3	0	0	0	0	0	2	**1**	**3**	
+45 mins.	0	0	1	1	0	1	1	2	0	0	0	0	0	1	0	1	
Total Volume	1	0	4	5	0	8	4	12	0	0	0	0	0	5	1	6	
% App. Total	20	0	80		0	66.7	33.3		0	0	0		0	83.3	16.7		
PHF	.250	.000	.500	.625	.000	.667	1.000	.750	.000	.000	.000	.000	.000	.625	.250	.500	

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City of Menifee
N/S: I-215 Southbound Ramps
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File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	146	0	145	7	291	0	479	148	0	627	0	0	0	0	0	0	509	122	0	631	7	1549	1556
04:15 PM	136	0	168	21	304	0	448	147	0	595	0	0	0	0	0	0	479	109	0	588	21	1487	1508
04:30 PM	119	0	155	4	274	0	465	143	0	608	0	0	0	0	0	0	479	123	0	602	4	1484	1488
04:45 PM	133	0	177	32	310	0	462	163	0	625	0	0	0	0	0	0	498	113	0	611	32	1546	1578
Total	534	0	645	64	1179	0	1854	601	0	2455	0	0	0	0	0	0	1965	467	0	2432	64	6066	6130
05:00 PM	175	0	161	51	336	0	362	111	0	473	0	0	0	0	0	0	501	105	0	606	51	1415	1466
05:15 PM	120	0	140	28	260	0	439	116	0	555	0	0	0	0	0	0	526	110	0	636	28	1451	1479
05:30 PM	128	0	174	2	302	0	452	98	0	550	0	0	0	0	0	0	483	109	0	592	2	1444	1446
05:45 PM	114	0	151	5	265	0	500	117	0	617	0	0	0	0	0	0	503	104	0	607	5	1489	1494
Total	537	0	626	86	1163	0	1753	442	0	2195	0	0	0	0	0	0	2013	428	0	2441	86	5799	5885
Grand Total	1071	0	1271	150	2342	0	3607	1043	0	4650	0	0	0	0	0	0	3978	895	0	4873	150	11865	12015
Apprch %	45.7	0	54.3			0	77.6	22.4			0	0	0			0	81.6	18.4					
Total %	9	0	10.7		19.7	0	30.4	8.8		39.2	0	0	0		0	0	33.5	7.5		41.1	1.2	98.8	
Passenger Vehicles	1054	0	1251		2451	0	3586	1026		4612	0	0	0		0	0	3927	885		4812	0	0	11875
% Passenger Vehicles	98.4	0	98.4	97.3	98.4	0	99.4	98.4	0	99.2	0	0	0	0	0	0	98.7	98.9	0	98.7	0	0	98.8
Large 2 Axle Vehicles	9	0	13		26	0	16	11		27	0	0	0		0	0	38	8		46	0	0	99
% Large 2 Axle Vehicles	0.8	0	1	2.7	1	0	0.4	1.1	0	0.6	0	0	0	0	0	0	1	0.9	0	0.9	0	0	0.8
3 Axle Vehicles	2	0	2		4	0	1	1		2	0	0	0		0	0	7	0		7	0	0	13
% 3 Axle Vehicles	0.2	0	0.2	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0.1
4+ Axle Trucks	6	0	5		11	0	4	5		9	0	0	0		0	0	6	2		8	0	0	28
% 4+ Axle Trucks	0.6	0	0.4	0	0.4	0	0.1	0.5	0	0.2	0	0	0	0	0	0	0.2	0.2	0	0.2	0	0	0.2

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**146**	0	145	291	0	**479**	148	**627**	0	0	0	0	0	**509**	122	**631**	**1549**
04:15 PM	136	0	168	304	0	448	147	595	0	0	0	0	0	479	109	588	1487
04:30 PM	119	0	155	274	0	465	143	608	0	0	0	0	0	479	**123**	602	1484
04:45 PM	133	0	**177**	**310**	0	462	**163**	625	0	0	0	0	0	498	113	611	1546
Total Volume	534	0	645	1179	0	1854	601	2455	0	0	0	0	0	1965	467	2432	6066
% App. Total	45.3	0	54.7		0	75.5	24.5		0	0	0		0	80.8	19.2		
PHF	.914	.000	.911	.951	.000	.968	.922	.979	.000	.000	.000	.000	.000	.965	.949	.964	.979

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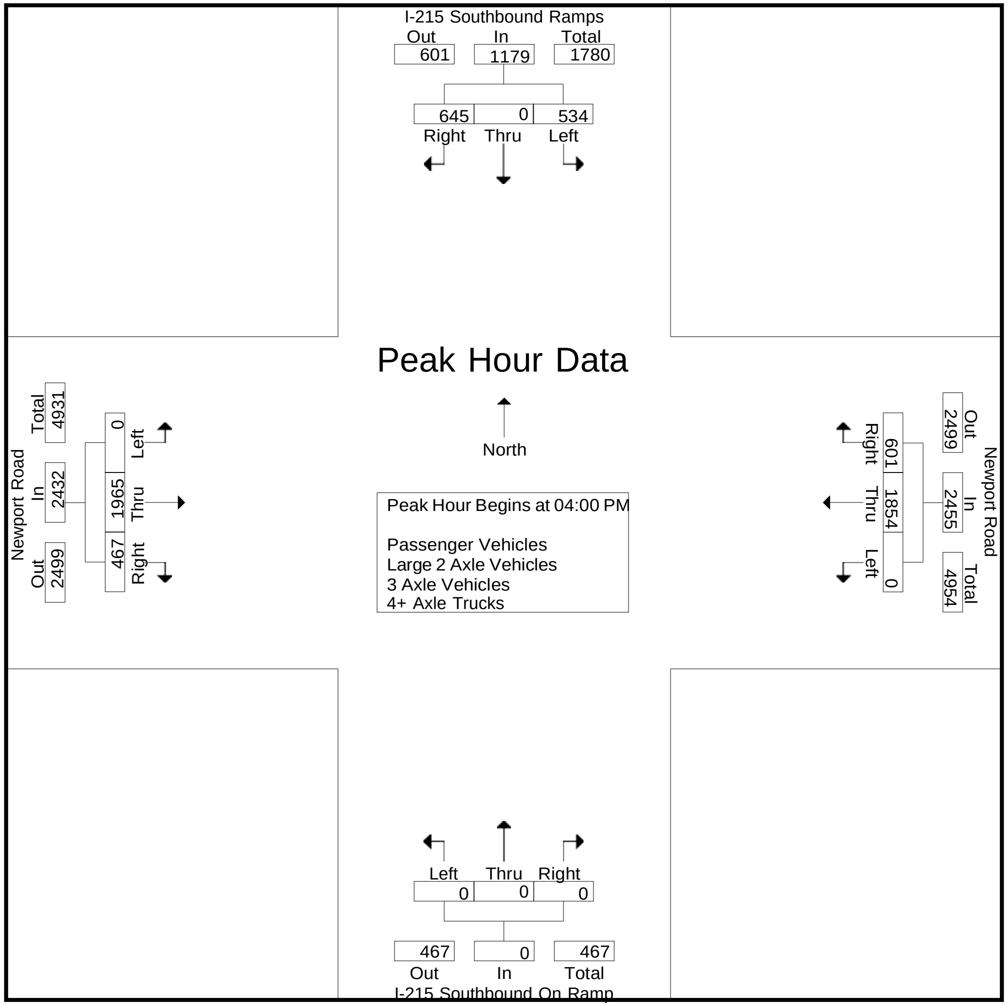
City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
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	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:00 PM				04:00 PM				04:30 PM				
+0 mins.	136	0	168	304	0	**479**	148	**627**	0	0	0	0	0	479	**123**	602	
+15 mins.	119	0	155	274	0	448	147	595	0	0	0	0	0	498	113	611	
+30 mins.	133	0	**177**	310	0	465	143	608	0	0	0	0	0	501	105	606	
+45 mins.	**175**	0	161	**336**	0	462	**163**	625	0	0	0	0	0	**526**	110	**636**	
Total Volume	563	0	661	1224	0	1854	601	2455	0	0	0	0	0	2004	451	2455	
% App. Total	46	0	54		0	75.5	24.5		0	0	0		0	81.6	18.4		
PHF	.804	.000	.934	.911	.000	.968	.922	.979	.000	.000	.000	.000	.000	.952	.917	.965	

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(951)268-6268

City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

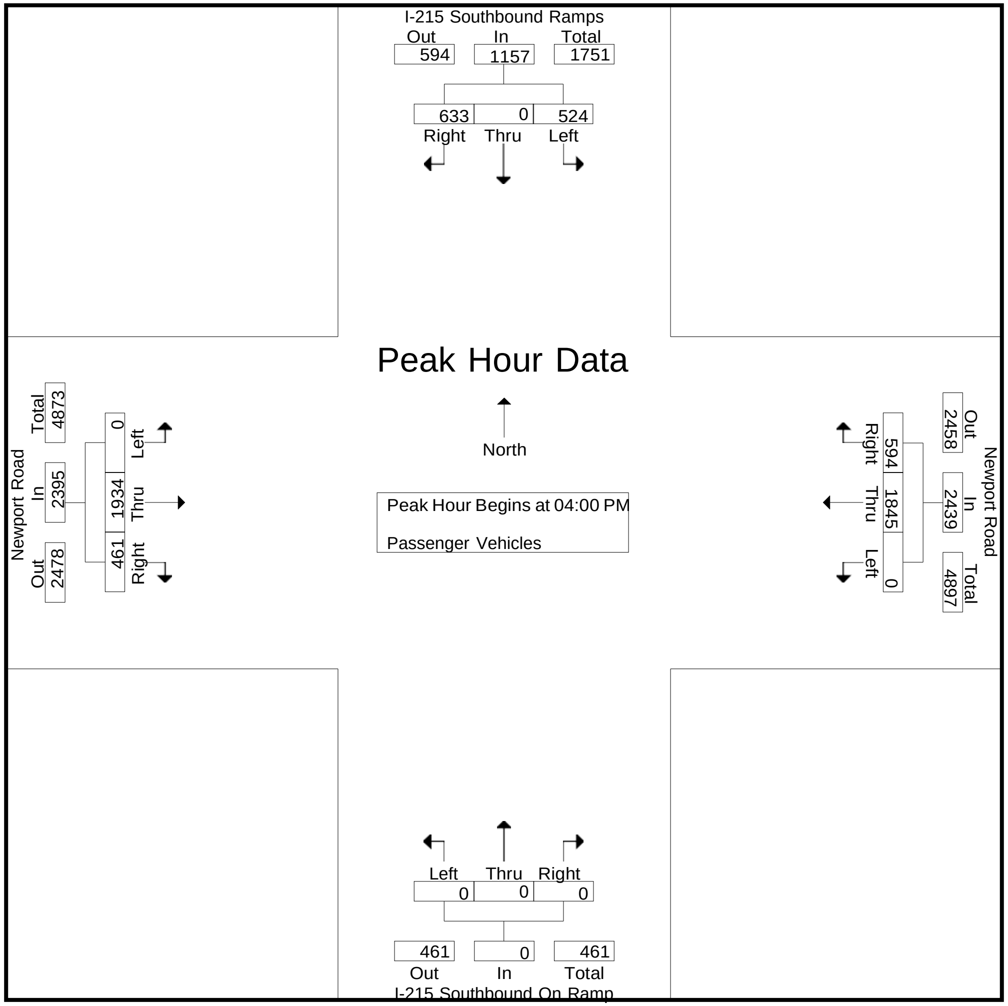
Groups Printed- Passenger Vehicles

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	141	0	141	7	282	0	477	145	0	622	0	0	0	0	0	0	501	121	0	622	7	1526	1533
04:15 PM	134	0	163	20	297	0	446	147	0	593	0	0	0	0	0	0	468	107	0	575	20	1465	1485
04:30 PM	117	0	154	4	271	0	464	141	0	605	0	0	0	0	0	0	473	120	0	593	4	1469	1473
04:45 PM	132	0	175	31	307	0	458	161	0	619	0	0	0	0	0	0	492	113	0	605	31	1531	1562
Total	524	0	633	62	1157	0	1845	594	0	2439	0	0	0	0	0	0	1934	461	0	2395	62	5991	6053
05:00 PM	171	0	159	49	330	0	360	110	0	470	0	0	0	0	0	0	494	105	0	599	49	1399	1448
05:15 PM	117	0	139	28	256	0	436	114	0	550	0	0	0	0	0	0	522	107	0	629	28	1435	1463
05:30 PM	128	0	171	2	299	0	447	92	0	539	0	0	0	0	0	0	479	108	0	587	2	1425	1427
05:45 PM	114	0	149	5	263	0	498	116	0	614	0	0	0	0	0	0	498	104	0	602	5	1479	1484
Total	530	0	618	84	1148	0	1741	432	0	2173	0	0	0	0	0	0	1993	424	0	2417	84	5738	5822
Grand Total	1054	0	1251	146	2305	0	3586	1026	0	4612	0	0	0	0	0	0	3927	885	0	4812	146	11729	11875
Apprch %	45.7	0	54.3			0	77.8	22.2			0	0	0			0	81.6	18.4					
Total %	9	0	10.7		19.7	0	30.6	8.7		39.3	0	0	0		0	0	33.5	7.5		41	1.2	98.8	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**141**	0	141	282	0	**477**	145	**622**	0	0	0	0	0	**501**	**121**	**622**	1526
04:15 PM	134	0	163	297	0	446	147	593	0	0	0	0	0	468	107	575	1465
04:30 PM	117	0	154	271	0	464	141	605	0	0	0	0	0	473	120	593	1469
04:45 PM	132	0	**175**	**307**	0	458	**161**	619	0	0	0	0	0	492	113	605	**1531**
Total Volume	524	0	633	1157	0	1845	594	2439	0	0	0	0	0	1934	461	2395	5991
% App. Total	45.3	0	54.7		0	75.6	24.4		0	0	0		0	80.8	19.2		
PHF	.929	.000	.904	.942	.000	.967	.922	.980	.000	.000	.000	.000	.000	.965	.952	.963	.978

City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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Corona, CA 92878
(951)268-6268

City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
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	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	**141**	0	141	282	0	**477**	145	**622**	0	0	0	0	0	**501**	**121**	**622**	
+15 mins.	134	0	163	297	0	446	147	593	0	0	0	0	0	468	107	575	
+30 mins.	117	0	154	271	0	464	141	605	0	0	0	0	0	473	120	593	
+45 mins.	132	0	**175**	**307**	0	458	**161**	619	0	0	0	0	0	492	113	605	
Total Volume	524	0	633	1157	0	1845	594	2439	0	0	0	0	0	1934	461	2395	
% App. Total	45.3	0	54.7		0	75.6	24.4		0	0	0		0	80.8	19.2		
PHF	.929	.000	.904	.942	.000	.967	.922	.980	.000	.000	.000	.000	.000	.965	.952	.963	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	3	0	2	0	5	0	2	3	0	5	0	0	0	0	0	0	7	1	0	8	0	18	18
04:15 PM	1	0	4	1	5	0	1	0	0	1	0	0	0	0	0	0	7	1	0	8	1	14	15
04:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	4	2	0	6	0	7	7
04:45 PM	1	0	2	1	3	0	3	2	0	5	0	0	0	0	0	0	6	0	0	6	1	14	15
Total	5	0	8	2	13	0	6	6	0	12	0	0	0	0	0	0	24	4	0	28	2	53	55
05:00 PM	2	0	2	2	4	0	2	1	0	3	0	0	0	0	0	0	4	0	0	4	2	11	13
05:15 PM	2	0	1	0	3	0	1	1	0	2	0	0	0	0	0	0	3	3	0	6	0	11	11
05:30 PM	0	0	1	0	1	0	5	3	0	8	0	0	0	0	0	0	4	1	0	5	0	14	14
05:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	6	6
Total	4	0	5	2	9	0	10	5	0	15	0	0	0	0	0	0	14	4	0	18	2	42	44
Grand Total	9	0	13	4	22	0	16	11	0	27	0	0	0	0	0	0	38	8	0	46	4	95	99
Apprch %	40.9	0	59.1			0	59.3	40.7			0	0	0			0	82.6	17.4					
Total %	9.5	0	13.7		23.2	0	16.8	11.6		28.4	0	0	0		0	0	40	8.4		48.4	4	96	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**3**	0	2	**5**	0	2	**3**	**5**	0	0	0	0	0	**7**	1	**8**	**18**
04:15 PM	1	0	**4**	5	0	1	0	1	0	0	0	0	0	7	1	8	14
04:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	4	**2**	6	7
04:45 PM	1	0	2	3	0	**3**	2	5	0	0	0	0	0	6	0	6	14
Total Volume	5	0	8	13	0	6	6	12	0	0	0	0	0	24	4	28	53
% App. Total	38.5	0	61.5		0	50	50		0	0	0		0	85.7	14.3		
PHF	.417	.000	.500	.650	.000	.500	.500	.600	.000	.000	.000	.000	.000	.857	.500	.875	.736

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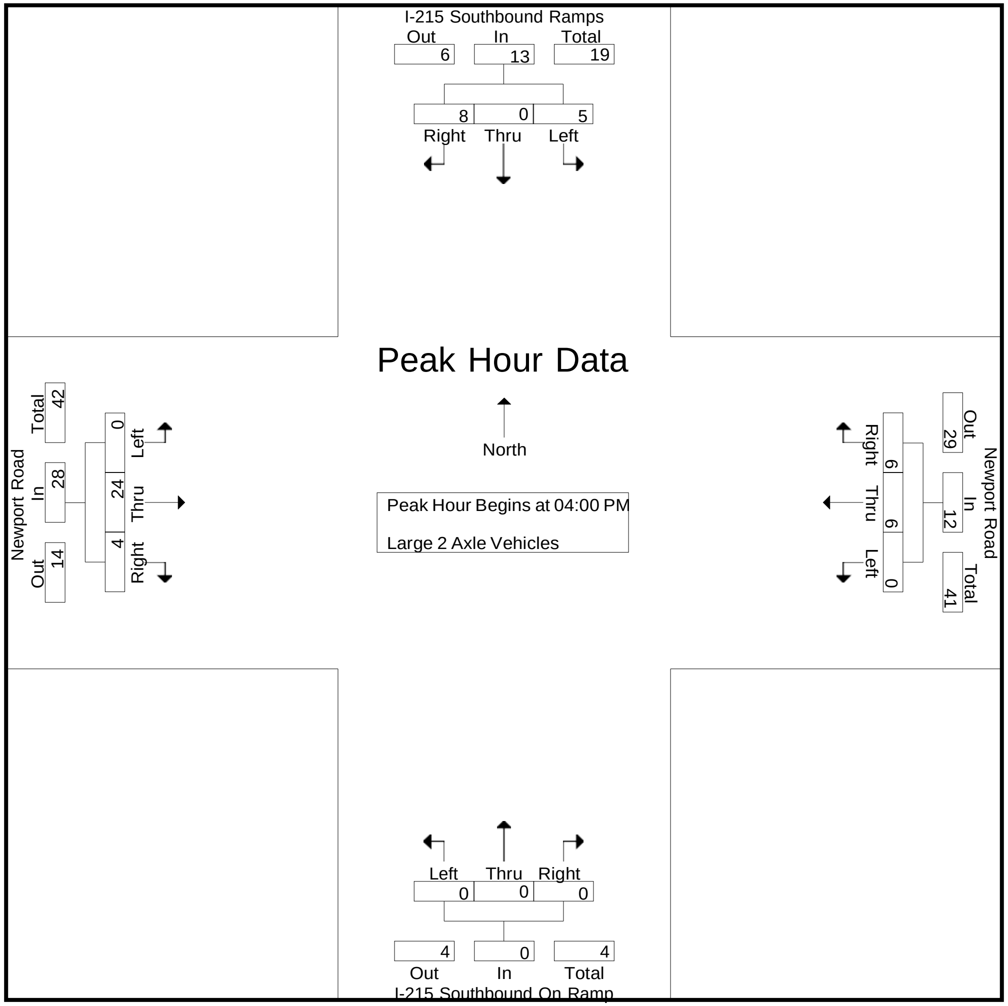
City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	**3**	0	2	**5**	0	2	**3**	**5**	0	0	0	0	0	**7**	1	**8**	
+15 mins.	1	0	**4**	5	0	1	0	1	0	0	0	0	0	7	1	8	
+30 mins.	0	0	0	0	0	0	1	1	0	0	0	0	0	4	**2**	6	
+45 mins.	1	0	2	3	0	**3**	2	5	0	0	0	0	0	6	0	6	
Total Volume	5	0	8	13	0	6	6	12	0	0	0	0	0	24	4	28	
% App. Total	38.5	0	61.5		0	50	50		0	0	0		0	85.7	14.3		
PHF	.417	.000	.500	.650	.000	.500	.500	.600	.000	.000	.000	.000	.000	.857	.500	.875	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	4	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	6	6
05:00 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	3
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
05:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	2	0	1	0	3	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	7	7
Grand Total	2	0	2	0	4	0	1	1	0	2	0	0	0	0	0	0	7	0	0	7	0	13	13
Apprch %	50	0	50			0	50	50			0	0	0			0	100	0					
Total %	15.4	0	15.4		30.8	0	7.7	7.7		15.4	0	0	0		0	0	53.8	0		53.8	0	100	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	1	0	1	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	0	**4**	**4**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	5	0	5	6
% App. Total	0	0	100		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.313	.000	.313	.375

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
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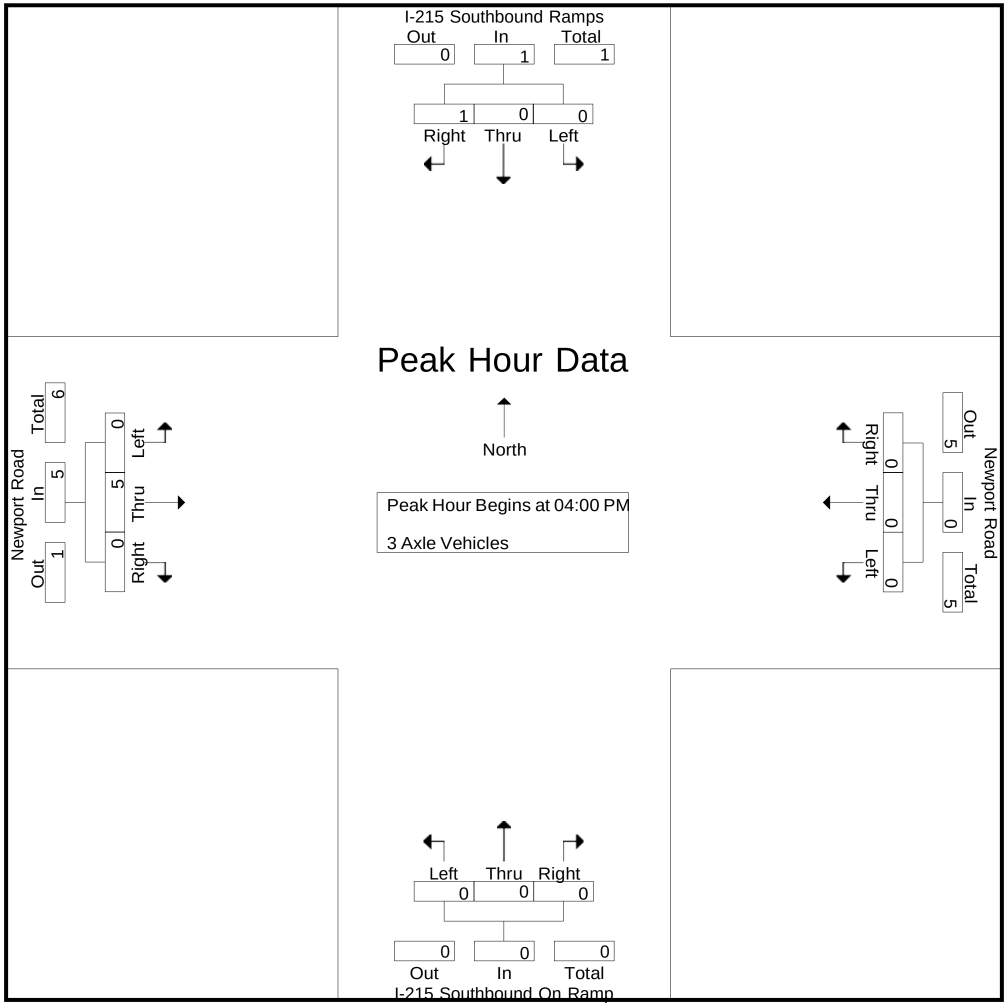

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
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	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	1	0	1	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	0	**4**	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	5	0	5	
% App. Total	0	0	100		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.313	.000	.313	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
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File Name : 12_MEN_215S_NP PM
Site Code : 05121444
Start Date : 8/26/2021
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Groups Printed- 4+ Axle Trucks

	I-215 Southbound Ramps Southbound					Newport Road Westbound					I-215 Southbound On Ramp Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
04:15 PM	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	4	4
04:30 PM	2	0	1	0	3	0	1	1	0	2	0	0	0	0	0	0	2	1	0	3	0	8	8
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	5	0	3	0	8	0	3	1	0	4	0	0	0	0	0	0	2	2	0	4	0	16	16
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
05:15 PM	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3	3
05:30 PM	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	4	4
05:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
Total	1	0	2	0	3	0	1	4	0	5	0	0	0	0	0	0	4	0	0	4	0	12	12
Grand Total	6	0	5	0	11	0	4	5	0	9	0	0	0	0	0	0	6	2	0	8	0	28	28
Apprch %	54.5	0	45.5			0	44.4	55.6			0	0	0			0	75	25					
Total %	21.4	0	17.9		39.3	0	14.3	17.9		32.1	0	0	0		0	0	21.4	7.1		28.6	0	100	

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**2**	0	**1**	**3**	0	0	0	0	0	0	0	0	0	0	0	0	3
04:15 PM	1	0	1	2	0	**1**	0	1	0	0	0	0	0	0	**1**	1	4
04:30 PM	2	0	1	3	0	1	**1**	**2**	0	0	0	0	0	**2**	1	**3**	**8**
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	5	0	3	8	0	3	1	4	0	0	0	0	0	2	2	4	16
% App. Total	62.5	0	37.5		0	75	25		0	0	0		0	50	50		
PHF	.625	.000	.750	.667	.000	.750	.250	.500	.000	.000	.000	.000	.000	.250	.500	.333	.500

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
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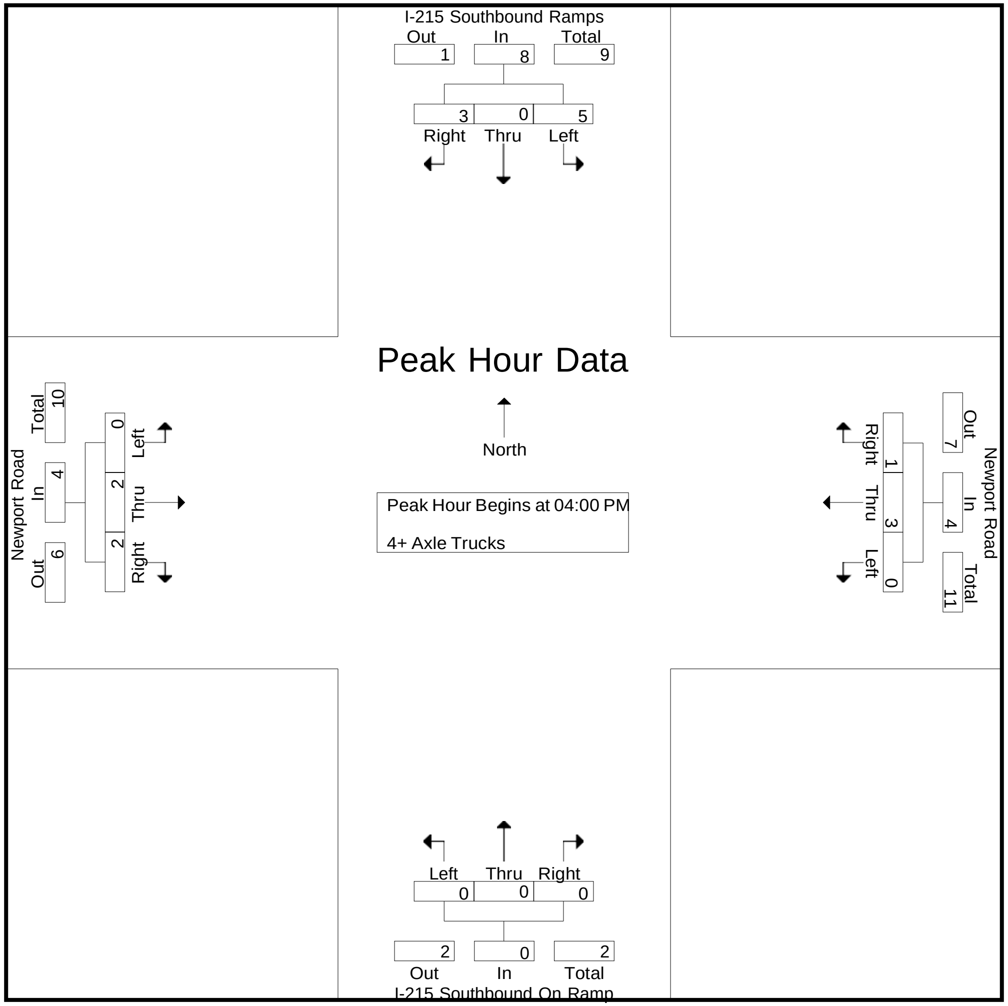
Start Date : 8/26/2021
Page No : 2



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City of Menifee
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E/W: Newport Road
Weather: Clear

File Name : 12_MEN_215S_NP PM
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Start Date : 8/26/2021

	I-215 Southbound Ramps Southbound				Newport Road Westbound				I-215 Southbound On Ramp Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	**2**	0	**1**	**3**	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	1	0	1	2	0	**1**	0	1	0	0	0	0	0	0	**1**	1	
+30 mins.	2	0	1	3	0	1	**1**	**2**	0	0	0	0	0	**2**	1	**3**	
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	
Total Volume	5	0	3	8	0	3	1	4	0	0	0	0	0	2	2	4	
% App. Total	62.5	0	37.5		0	75	25		0	0	0		0	50	50		
PHF	.625	.000	.750	.667	.000	.750	.250	.500	.000	.000	.000	.000	.000	.250	.500	.333	

Location: Menifee
N/S: I-215 SB Ramps
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg I-215 SB Ramps	East Leg Newport Road	South Leg I-215 SB Ramps	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	2	0	0	0	2
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	0	0	0	2

	North Leg I-215 SB Ramps	East Leg Newport Road	South Leg I-215 SB Ramps	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Menifee
N/S: I-215 SB Ramps
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound I-215 SB Ramps			Westbound Newport Road			Northbound I-215 SB Ramps			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	6	0	0	0	0	0	1	0	7

	Southbound I-215 SB Ramps			Westbound Newport Road			Northbound I-215 SB Ramps			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 111

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	519	138	0	657	79	0	133	69	212	0	255	113	0	368	69	1237	1306
07:15 AM	0	0	0	0	0	0	561	132	0	693	75	0	143	53	218	0	405	130	0	535	53	1446	1499
07:30 AM	0	0	0	0	0	0	503	98	0	601	99	0	165	28	264	0	387	112	0	499	28	1364	1392
07:45 AM	0	0	0	0	0	0	537	111	0	648	90	0	154	36	244	0	409	127	0	536	36	1428	1464
Total	0	0	0	0	0	0	2120	479	0	2599	343	0	595	186	938	0	1456	482	0	1938	186	5475	5661
08:00 AM	0	0	0	0	0	0	505	91	0	596	80	0	130	54	210	0	343	84	0	427	54	1233	1287
08:15 AM	0	0	0	0	0	0	514	117	0	631	87	0	110	51	197	0	321	75	0	396	51	1224	1275
08:30 AM	0	0	0	0	0	0	533	97	0	630	71	0	139	55	210	0	335	81	0	416	55	1256	1311
08:45 AM	0	0	0	0	0	0	468	81	0	549	76	0	164	47	240	0	309	68	0	377	47	1166	1213
Total	0	0	0	0	0	0	2020	386	0	2406	314	0	543	207	857	0	1308	308	0	1616	207	4879	5086
Grand Total	0	0	0	0	0	0	4140	865	0	5005	657	0	1138	393	1795	0	2764	790	0	3554	393	10354	10747
Apprch %	0	0	0			0	82.7	17.3			36.6	0	63.4			0	77.8	22.2					
Total %	0	0	0		0	0	40	8.4		48.3	6.3	0	11		17.3	0	26.7	7.6		34.3	3.7	96.3	
Passenger Vehicles	0	0	0		0	0	4055	835		4890	633	0	1099		2109	0	2655	757		3412	0	0	10411
% Passenger Vehicles	0	0	0	0	0	0	97.9	96.5	0	97.7	96.3	0	96.6	95.9	96.4	0	96.1	95.8	0	96	0	0	96.9
Large 2 Axle Vehicles	0	0	0		0	0	59	14		73	18	0	26		55	0	84	18		102	0	0	230
% Large 2 Axle Vehicles	0	0	0	0	0	0	1.4	1.6	0	1.5	2.7	0	2.3	2.8	2.5	0	3	2.3	0	2.9	0	0	2.1
3 Axle Vehicles	0	0	0		0	0	5	6		11	2	0	2		5	0	16	4		20	0	0	36
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	0.7	0	0.2	0.3	0	0.2	0.3	0.2	0	0.6	0.5	0	0.6	0	0	0.3
4+ Axle Trucks	0	0	0		0	0	21	10		31	4	0	11		19	0	9	11		20	0	0	70
% 4+ Axle Trucks	0	0	0	0	0	0	0.5	1.2	0	0.6	0.6	0	1	1	0.9	0	0.3	1.4	0	0.6	0	0	0.7

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	519	**138**	657	79	0	133	212	0	255	113	368	1237
07:15 AM	0	0	0	0	0	**561**	132	**693**	75	0	143	218	0	405	**130**	535	**1446**
07:30 AM	0	0	0	0	0	503	98	601	**99**	0	**165**	**264**	0	387	112	499	1364
07:45 AM	0	0	0	0	0	537	111	648	90	0	154	244	0	**409**	127	**536**	1428
Total Volume	0	0	0	0	0	2120	479	2599	343	0	595	938	0	1456	482	1938	5475
% App. Total	0	0	0		0	81.6	18.4		36.6	0	63.4		0	75.1	24.9		
PHF	.000	.000	.000	.000	.000	.945	.868	.938	.866	.000	.902	.888	.000	.890	.927	.904	.947

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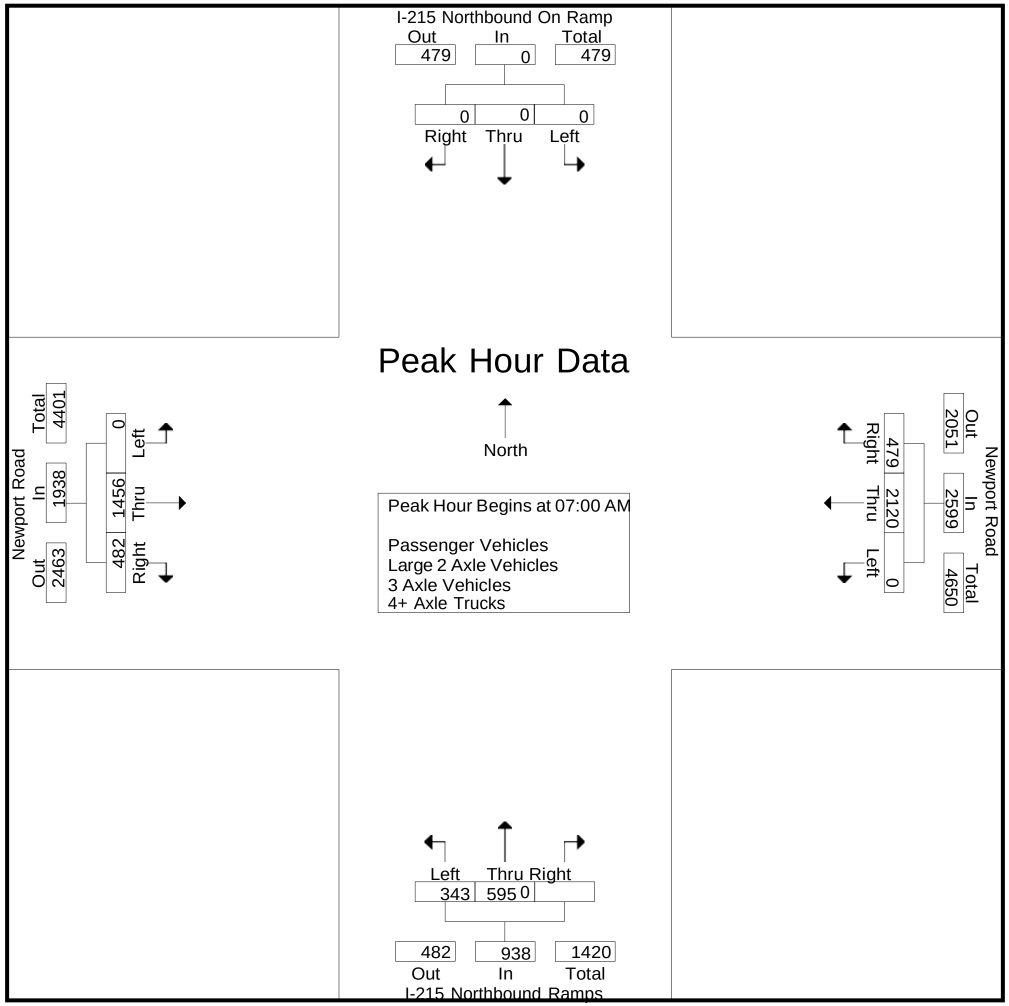
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 112



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City of Menifee
N/S: I-215 Northbound Ramps
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File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 113

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:15 AM				
+0 mins.	0	0	0	0	0	519	**138**	657	79	0	133	212	0	405	**130**	535	
+15 mins.	0	0	0	0	0	**561**	132	**693**	75	0	143	218	0	387	112	499	
+30 mins.	0	0	0	0	0	503	98	601	**99**	0	**165**	**264**	0	**409**	127	**536**	
+45 mins.	0	0	0	0	0	537	111	648	90	0	154	244	0	343	84	427	
Total Volume	0	0	0	0	0	2120	479	2599	343	0	595	938	0	1544	453	1997	
% App. Total	0	0	0		0	81.6	18.4		36.6	0	63.4		0	77.3	22.7		
PHF	.000	.000	.000	.000	.000	.945	.868	.938	.866	.000	.902	.888	.000	.944	.871	.931	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 114

Groups Printed- Passenger Vehicles

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	511	135	0	646	79	0	129	65	208	0	242	111	0	353	65	1207	1272
07:15 AM	0	0	0	0	0	0	552	128	0	680	72	0	134	49	206	0	385	128	0	513	49	1399	1448
07:30 AM	0	0	0	0	0	0	493	93	0	586	96	0	159	28	255	0	374	109	0	483	28	1324	1352
07:45 AM	0	0	0	0	0	0	526	108	0	634	87	0	152	36	239	0	401	123	0	524	36	1397	1433
Total	0	0	0	0	0	0	2082	464	0	2546	334	0	574	178	908	0	1402	471	0	1873	178	5327	5505
08:00 AM	0	0	0	0	0	0	494	87	0	581	76	0	126	52	202	0	328	79	0	407	52	1190	1242
08:15 AM	0	0	0	0	0	0	503	114	0	617	84	0	109	50	193	0	311	72	0	383	50	1193	1243
08:30 AM	0	0	0	0	0	0	523	92	0	615	66	0	131	51	197	0	317	76	0	393	51	1205	1256
08:45 AM	0	0	0	0	0	0	453	78	0	531	73	0	159	46	232	0	297	59	0	356	46	1119	1165
Total	0	0	0	0	0	0	1973	371	0	2344	299	0	525	199	824	0	1253	286	0	1539	199	4707	4906
Grand Total	0	0	0	0	0	0	4055	835	0	4890	633	0	1099	377	1732	0	2655	757	0	3412	377	10034	10411
Apprch %	0	0	0			0	82.9	17.1			36.5	0	63.5			0	77.8	22.2					
Total %	0	0	0		0	0	40.4	8.3		48.7	6.3	0	11		17.3	0	26.5	7.5		34	3.6	96.4	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	511	**135**	646	79	0	129	208	0	242	111	353	1207
07:15 AM	0	0	0	0	0	**552**	128	**680**	72	0	134	206	0	385	**128**	513	**1399**
07:30 AM	0	0	0	0	0	493	93	586	**96**	0	**159**	**255**	0	374	109	483	1324
07:45 AM	0	0	0	0	0	526	108	634	87	0	152	239	0	**401**	123	**524**	1397
Total Volume	0	0	0	0	0	2082	464	2546	334	0	574	908	0	1402	471	1873	5327
% App. Total	0	0	0		0	81.8	18.2		36.8	0	63.2		0	74.9	25.1		
PHF	.000	.000	.000	.000	.000	.943	.859	.936	.870	.000	.903	.890	.000	.874	.920	.894	.952

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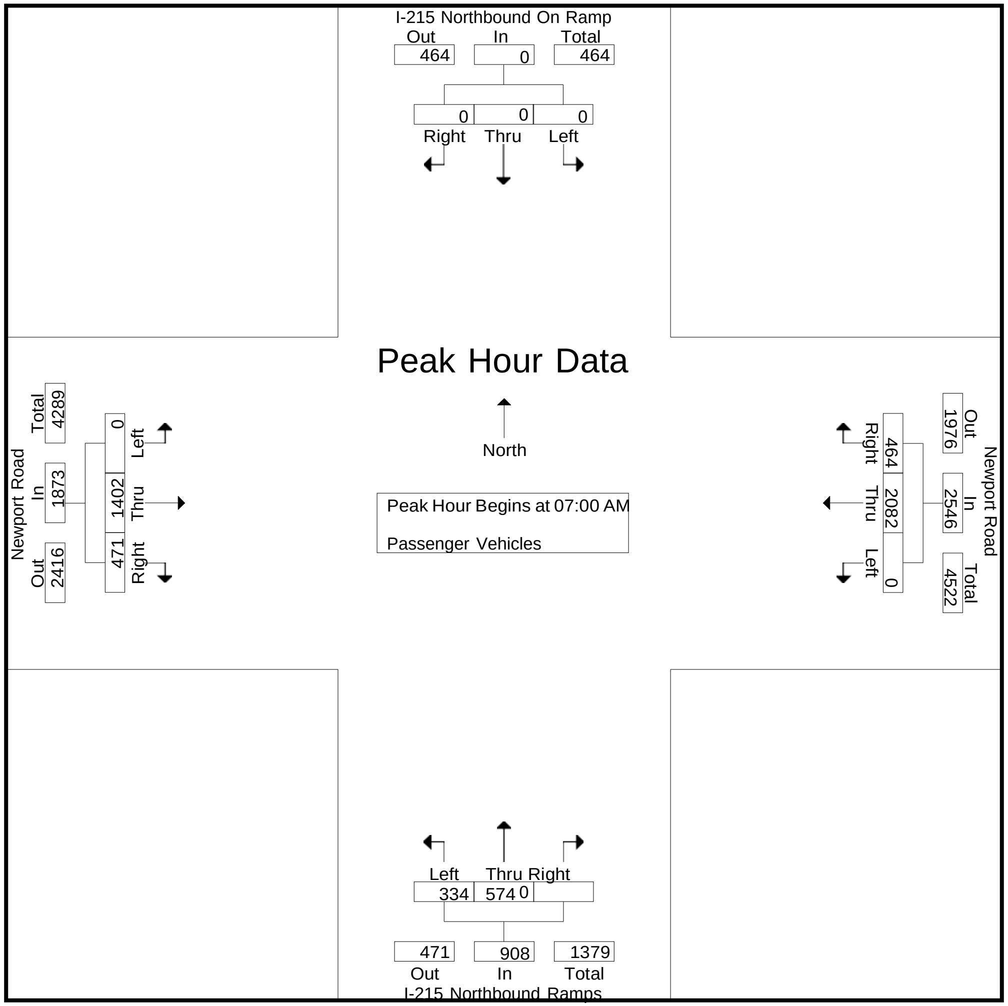
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 115



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
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	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	511	**135**	646	79	0	129	208	0	242	111	353	
+15 mins.	0	0	0	0	0	**552**	128	**680**	72	0	134	206	0	385	**128**	513	
+30 mins.	0	0	0	0	0	493	93	586	**96**	0	**159**	**255**	0	374	109	483	
+45 mins.	0	0	0	0	0	526	108	634	87	0	152	239	0	**401**	123	**524**	
Total Volume	0	0	0	0	0	2082	464	2546	334	0	574	908	0	1402	471	1873	
% App. Total	0	0	0		0	81.8	18.2		36.8	0	63.2		0	74.9	25.1		
PHF	.000	.000	.000	.000	.000	.943	.859	.936	.870	.000	.903	.890	.000	.874	.920	.894	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 117

Groups Printed- Large 2 Axle Vehicles

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	7	2	0	9	0	0	4	4	4	0	8	0	0	8	4	21	25
07:15 AM	0	0	0	0	0	0	5	2	0	7	3	0	6	3	9	0	15	0	0	15	3	31	34
07:30 AM	0	0	0	0	0	0	7	2	0	9	2	0	3	0	5	0	11	1	0	12	0	26	26
07:45 AM	0	0	0	0	0	0	9	1	0	10	1	0	1	0	2	0	7	2	0	9	0	21	21
Total	0	0	0	0	0	0	28	7	0	35	6	0	14	7	20	0	41	3	0	44	7	99	106
08:00 AM	0	0	0	0	0	0	8	1	0	9	4	0	4	2	8	0	12	5	0	17	2	34	36
08:15 AM	0	0	0	0	0	0	4	2	0	6	2	0	1	1	3	0	6	0	0	6	1	15	16
08:30 AM	0	0	0	0	0	0	7	3	0	10	4	0	4	1	8	0	16	4	0	20	1	38	39
08:45 AM	0	0	0	0	0	0	12	1	0	13	2	0	3	0	5	0	9	6	0	15	0	33	33
Total	0	0	0	0	0	0	31	7	0	38	12	0	12	4	24	0	43	15	0	58	4	120	124
Grand Total	0	0	0	0	0	0	59	14	0	73	18	0	26	11	44	0	84	18	0	102	11	219	230
Apprch %	0	0	0			0	80.8	19.2			40.9	0	59.1			0	82.4	17.6					
Total %	0	0	0		0	0	26.9	6.4		33.3	8.2	0	11.9		20.1	0	38.4	8.2		46.6	4.8	95.2	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	7	**2**	9	0	0	4	4	0	8	0	8	21
07:15 AM	0	0	0	0	0	5	2	7	**3**	0	**6**	**9**	0	**15**	0	**15**	**31**
07:30 AM	0	0	0	0	0	7	2	9	2	0	3	5	0	11	1	12	26
07:45 AM	0	0	0	0	0	**9**	1	**10**	1	0	1	2	0	7	**2**	9	21
Total Volume	0	0	0	0	0	28	7	35	6	0	14	20	0	41	3	44	99
% App. Total	0	0	0		0	80	20		30	0	70		0	93.2	6.8		
PHF	.000	.000	.000	.000	.000	.778	.875	.875	.500	.000	.583	.556	.000	.683	.375	.733	.798

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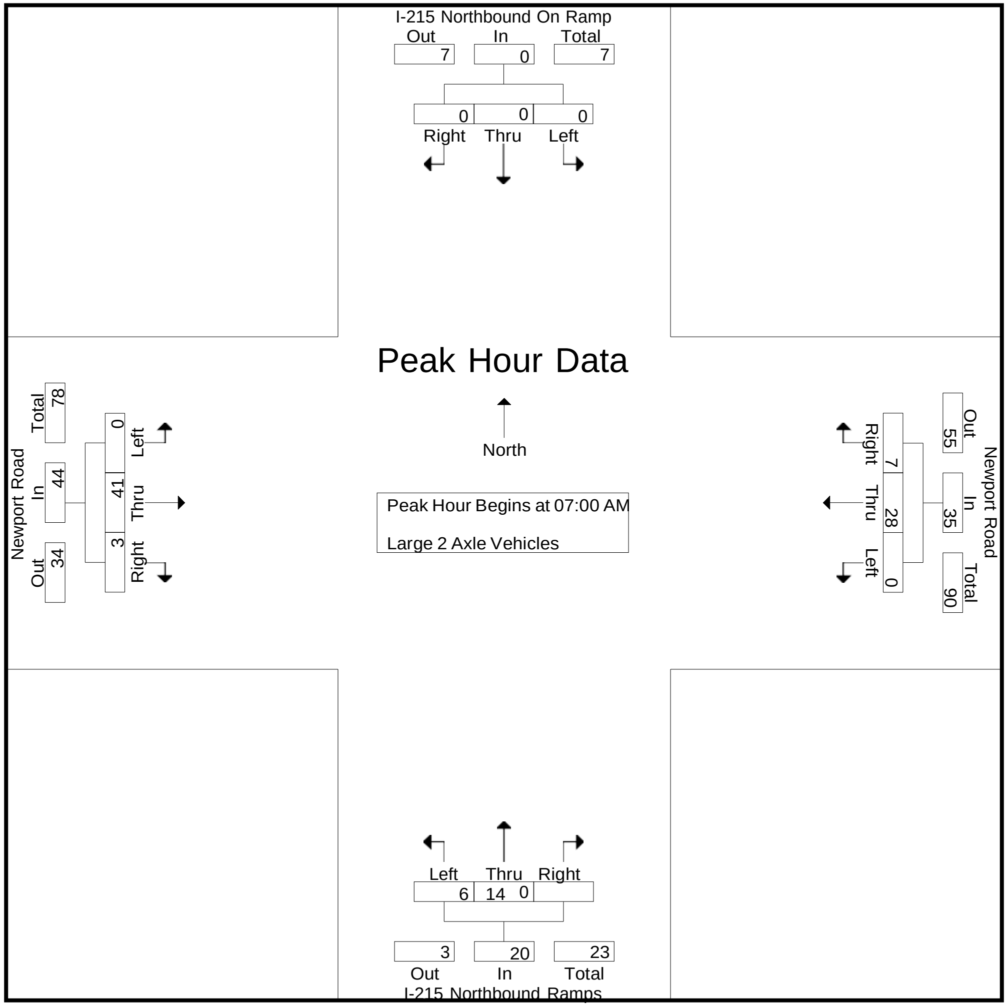
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 118



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 119

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	7	**2**	9	0	0	4	4	0	8	0	8	
+15 mins.	0	0	0	0	0	5	2	7	**3**	0	**6**	**9**	0	**15**	0	**15**	
+30 mins.	0	0	0	0	0	7	2	9	2	0	3	5	0	11	1	12	
+45 mins.	0	0	0	0	0	**9**	1	**10**	1	0	1	2	0	7	**2**	9	
Total Volume	0	0	0	0	0	28	7	35	6	0	14	20	0	41	3	44	
% App. Total	0	0	0		0	80	20		30	0	70		0	93.2	6.8		
PHF	.000	.000	.000	.000	.000	.778	.875	.875	.500	.000	.583	.556	.000	.683	.375	.733	

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(951)268-6268

City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021

Groups Printed- 3 Axle Vehicles

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	4	4
07:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	2	2	0	4	0	6	6
07:45 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	1	0	2	0	4	4
Total	0	0	0	0	0	0	1	2	0	3	0	0	1	0	1	0	9	3	0	12	0	16	16
08:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
08:15 AM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	3	1	0	4	0	7	7
08:30 AM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	1	0	0	1	0	4	4
08:45 AM	0	0	0	0	0	0	0	1	0	1	1	0	1	1	2	0	1	0	0	1	1	4	5
Total	0	0	0	0	0	0	4	4	0	8	2	0	1	1	3	0	7	1	0	8	1	19	20
Grand Total	0	0	0	0	0	0	5	6	0	11	2	0	2	1	4	0	16	4	0	20	1	35	36
Apprch %	0	0	0			0	45.5	54.5			50	0	50			0	80	20					
Total %	0	0	0		0	0	14.3	17.1		31.4	5.7	0	5.7		11.4	0	45.7	11.4		57.1	2.8	97.2	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	0	**4**	4
07:30 AM	0	0	0	0	0	0	**1**	1	0	0	**1**	**1**	0	2	**2**	4	**6**
07:45 AM	0	0	0	0	0	**1**	1	**2**	0	0	0	0	0	1	1	2	4
Total Volume	0	0	0	0	0	1	2	3	0	0	1	1	0	9	3	12	16
% App. Total	0	0	0		0	33.3	66.7		0	0	100		0	75	25		
PHF	.000	.000	.000	.000	.000	.250	.500	.375	.000	.000	.250	.250	.000	.563	.375	.750	.667

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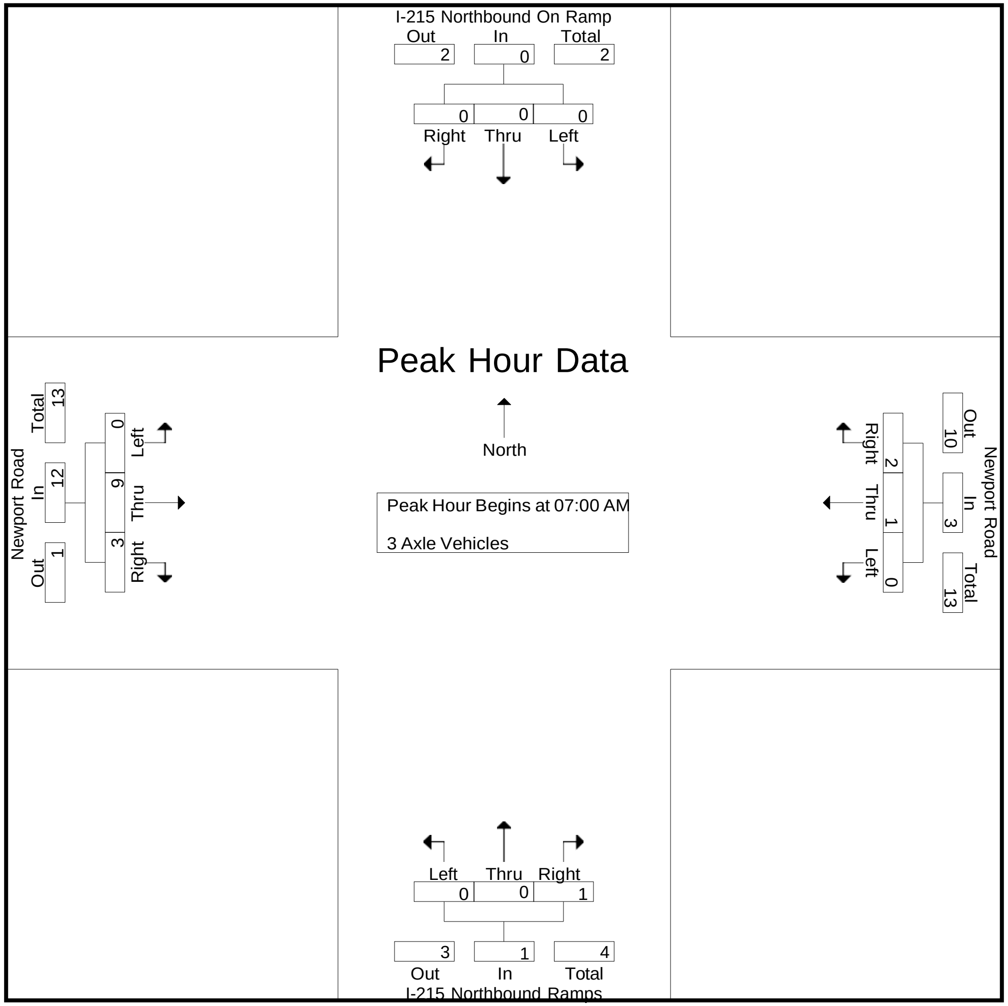
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 121



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
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	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	0	**4**	
+30 mins.	0	0	0	0	0	0	**1**	1	0	0	**1**	**1**	0	2	**2**	4	
+45 mins.	0	0	0	0	0	**1**	1	**2**	0	0	0	0	0	1	1	2	
Total Volume	0	0	0	0	0	1	2	3	0	0	1	1	0	9	3	12	
% App. Total	0	0	0		0	33.3	66.7		0	0	100		0	75	25		
PHF	.000	.000	.000	.000	.000	.250	.500	.375	.000	.000	.250	.250	.000	.563	.375	.750	

City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 123

Groups Printed- 4+ Axle Trucks

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	3	2	0	5	0	7	7
07:15 AM	0	0	0	0	0	0	4	2	0	6	0	0	3	1	3	0	1	2	0	3	1	12	13
07:30 AM	0	0	0	0	0	0	3	2	0	5	1	0	2	0	3	0	0	0	0	0	0	8	8
07:45 AM	0	0	0	0	0	0	1	1	0	2	2	0	1	0	3	0	0	1	0	1	0	6	6
Total	0	0	0	0	0	0	9	6	0	15	3	0	6	1	9	0	4	5	0	9	1	33	34
08:00 AM	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	0	1	0	0	1	0	5	5
08:15 AM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	1	2	0	3	0	9	9
08:30 AM	0	0	0	0	0	0	2	1	0	3	0	0	4	3	4	0	1	1	0	2	3	9	12
08:45 AM	0	0	0	0	0	0	3	1	0	4	0	0	1	0	1	0	2	3	0	5	0	10	10
Total	0	0	0	0	0	0	12	4	0	16	1	0	5	3	6	0	5	6	0	11	3	33	36
Grand Total	0	0	0	0	0	0	21	10	0	31	4	0	11	4	15	0	9	11	0	20	4	66	70
Apprch %	0	0	0			0	67.7	32.3			26.7	0	73.3			0	45	55					
Total %	0	0	0		0	0	31.8	15.2		47	6.1	0	16.7		22.7	0	13.6	16.7		30.3	5.7	94.3	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	1	1	2	0	0	0	0	0	**3**	**2**	**5**	7
07:15 AM	0	0	0	0	0	**4**	**2**	**6**	0	0	**3**	**3**	0	1	2	3	**12**
07:30 AM	0	0	0	0	0	3	2	5	1	0	2	3	0	0	0	0	8
07:45 AM	0	0	0	0	0	1	1	2	**2**	0	1	3	0	0	1	1	6
Total Volume	0	0	0	0	0	9	6	15	3	0	6	9	0	4	5	9	33
% App. Total	0	0	0		0	60	40		33.3	0	66.7		0	44.4	55.6		
PHF	.000	.000	.000	.000	.000	.563	.750	.625	.375	.000	.500	.750	.000	.333	.625	.450	.688

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
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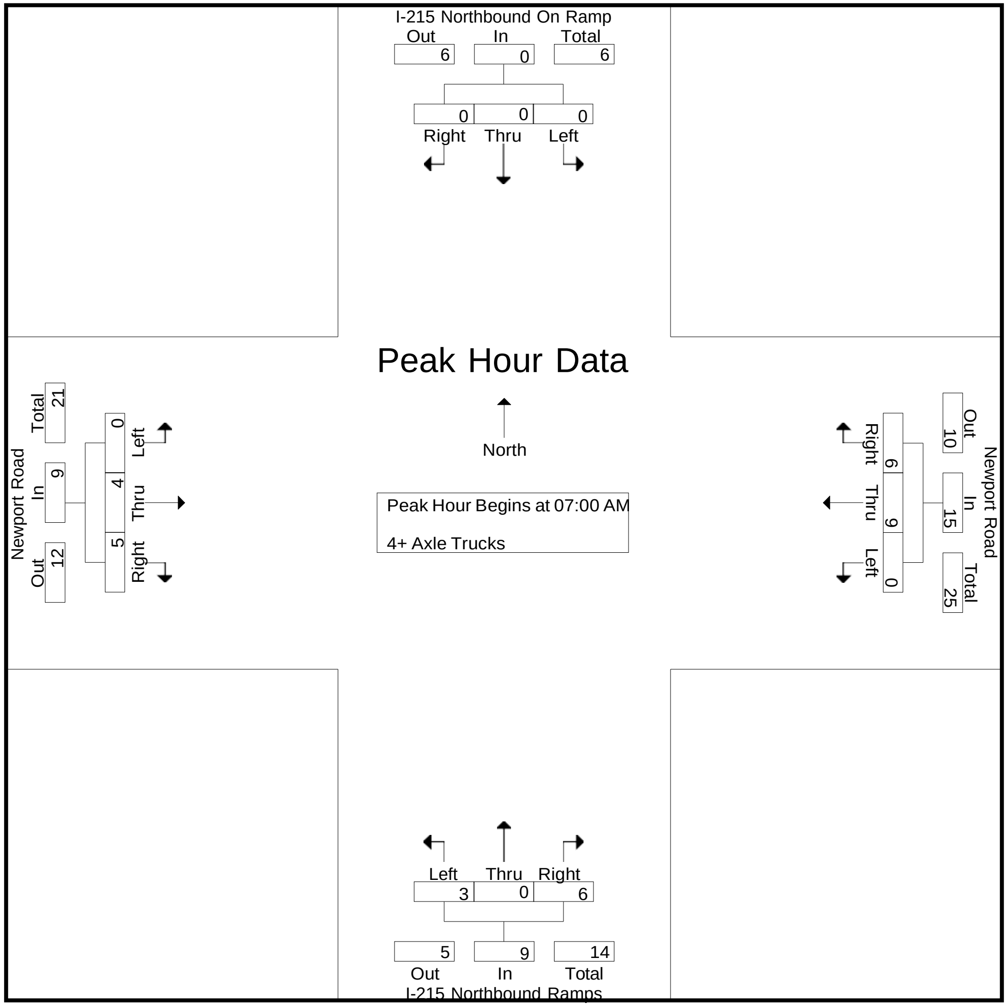

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City of Menifee
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E/W: Newport Road
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File Name : 13_MEN_215N_NP AM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	1	1	2	0	0	0	0	0	**3**	**2**	**5**	
+15 mins.	0	0	0	0	0	**4**	**2**	**6**	0	0	**3**	**3**	0	1	2	3	
+30 mins.	0	0	0	0	0	3	2	5	1	0	2	3	0	0	0	0	
+45 mins.	0	0	0	0	0	1	1	2	**2**	0	1	3	0	0	1	1	
Total Volume	0	0	0	0	0	9	6	15	3	0	6	9	0	4	5	9	
% App. Total	0	0	0		0	60	40		33.3	0	66.7		0	44.4	55.6		
PHF	.000	.000	.000	.000	.000	.563	.750	.625	.375	.000	.500	.750	.000	.333	.625	.450	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	527	105	0	632	102	0	206	3	308	0	549	110	0	659	3	1599	1602
04:15 PM	0	0	0	0	0	0	485	100	0	585	112	0	213	19	325	0	490	116	0	606	19	1516	1535
04:30 PM	0	0	0	0	0	0	501	92	0	593	115	0	191	23	306	0	506	83	0	589	23	1488	1511
04:45 PM	0	0	0	0	0	0	506	106	0	612	111	0	211	7	322	0	509	119	0	628	7	1562	1569
Total	0	0	0	0	0	0	2019	403	0	2422	440	0	821	52	1261	0	2054	428	0	2482	52	6165	6217
05:00 PM	0	0	0	0	0	0	369	89	0	458	110	0	210	11	320	0	544	127	0	671	11	1449	1460
05:15 PM	0	0	0	0	0	0	435	79	0	514	113	0	206	9	319	0	533	117	0	650	9	1483	1492
05:30 PM	0	0	0	0	0	0	434	88	0	522	121	0	224	24	345	0	507	97	0	604	24	1471	1495
05:45 PM	0	0	0	0	0	0	480	106	0	586	128	0	206	23	334	0	505	121	0	626	23	1546	1569
Total	0	0	0	0	0	0	1718	362	0	2080	472	0	846	67	1318	0	2089	462	0	2551	67	5949	6016
Grand Total	0	0	0	0	0	0	3737	765	0	4502	912	0	1667	119	2579	0	4143	890	0	5033	119	12114	12233
Apprch %	0	0	0			0	83	17			35.4	0	64.6			0	82.3	17.7					
Total %	0	0	0		0	0	30.8	6.3		37.2	7.5	0	13.8		21.3	0	34.2	7.3		41.5	1	99	
Passenger Vehicles	0	0	0		0	0	3703	727		4430	907	0	1634		2656	0	4099	865		4964	0	0	12050
% Passenger Vehicles	0	0	0	0	0	0	99.1	95	0	98.4	99.5	0	98	96.6	98.4	0	98.9	97.2	0	98.6	0	0	98.5
Large 2 Axle Vehicles	0	0	0		0	0	23	19		42	4	0	28		36	0	32	15		47	0	0	125
% Large 2 Axle Vehicles	0	0	0	0	0	0	0.6	2.5	0	0.9	0.4	0	1.7	3.4	1.3	0	0.8	1.7	0	0.9	0	0	1
3 Axle Vehicles	0	0	0		0	0	3	8		11	0	0	2		2	0	4	7		11	0	0	24
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	1	0	0.2	0	0	0.1	0	0.1	0	0.1	0.8	0	0.2	0	0	0.2
4+ Axle Trucks	0	0	0		0	0	8	11		19	1	0	3		4	0	8	3		11	0	0	34
% 4+ Axle Trucks	0	0	0	0	0	0	0.2	1.4	0	0.4	0.1	0	0.2	0	0.1	0	0.2	0.3	0	0.2	0	0	0.3

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	**527**	105	**632**	102	0	206	308	0	**549**	110	**659**	**1599**
04:15 PM	0	0	0	0	0	485	100	585	112	0	**213**	**325**	0	490	116	606	1516
04:30 PM	0	0	0	0	0	501	92	593	**115**	0	191	306	0	506	83	589	1488
04:45 PM	0	0	0	0	0	506	**106**	612	111	0	211	322	0	509	**119**	628	1562
Total Volume	0	0	0	0	0	2019	403	2422	440	0	821	1261	0	2054	428	2482	6165
% App. Total	0	0	0		0	83.4	16.6		34.9	0	65.1		0	82.8	17.2		
PHF	.000	.000	.000	.000	.000	.958	.950	.958	.957	.000	.964	.970	.000	.935	.899	.942	.964

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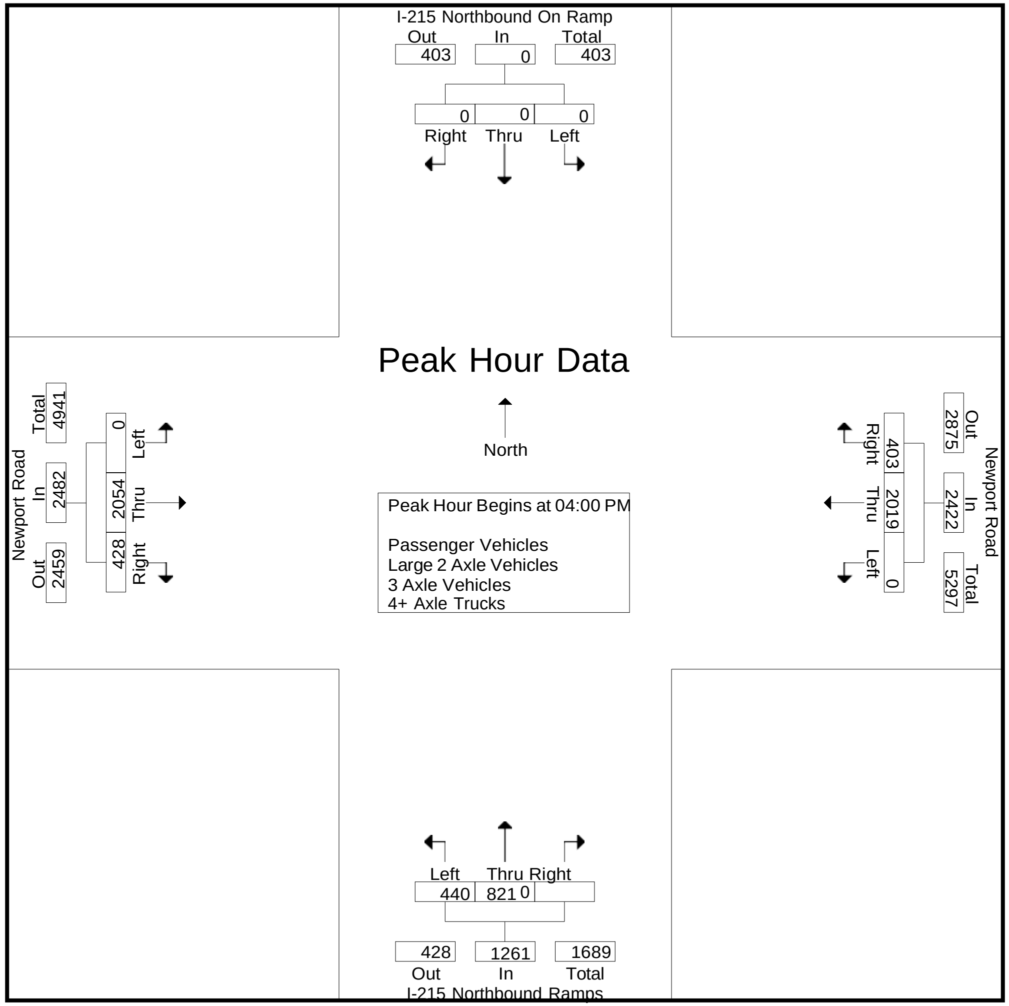
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
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File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
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	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				05:00 PM				04:45 PM				
+0 mins.	0	0	0	0	0	**527**	105	**632**	110	0	210	320	0	509	119	628	
+15 mins.	0	0	0	0	0	485	100	585	113	0	206	319	0	**544**	**127**	**671**	
+30 mins.	0	0	0	0	0	501	92	593	121	0	**224**	**345**	0	533	117	650	
+45 mins.	0	0	0	0	0	506	**106**	612	**128**	0	206	334	0	507	97	604	
Total Volume	0	0	0	0	0	2019	403	2422	472	0	846	1318	0	2093	460	2553	
% App. Total	0	0	0		0	83.4	16.6		35.8	0	64.2		0	82	18		
PHF	.000	.000	.000	.000	.000	.958	.950	.958	.922	.000	.944	.955	.000	.962	.906	.951	

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City of Menifee
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Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Passenger Vehicles

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	523	100	0	623	101	0	196	2	297	0	537	108	0	645	2	1565	1567
04:15 PM	0	0	0	0	0	0	484	95	0	579	110	0	211	19	321	0	483	110	0	593	19	1493	1512
04:30 PM	0	0	0	0	0	0	498	89	0	587	114	0	188	23	302	0	500	82	0	582	23	1471	1494
04:45 PM	0	0	0	0	0	0	501	102	0	603	111	0	206	6	317	0	506	117	0	623	6	1543	1549
Total	0	0	0	0	0	0	2006	386	0	2392	436	0	801	50	1237	0	2026	417	0	2443	50	6072	6122
05:00 PM	0	0	0	0	0	0	366	80	0	446	110	0	206	11	316	0	538	122	0	660	11	1422	1433
05:15 PM	0	0	0	0	0	0	429	77	0	506	113	0	203	9	316	0	528	113	0	641	9	1463	1472
05:30 PM	0	0	0	0	0	0	425	85	0	510	120	0	219	23	339	0	506	96	0	602	23	1451	1474
05:45 PM	0	0	0	0	0	0	477	99	0	576	128	0	205	22	333	0	501	117	0	618	22	1527	1549
Total	0	0	0	0	0	0	1697	341	0	2038	471	0	833	65	1304	0	2073	448	0	2521	65	5863	5928
Grand Total	0	0	0	0	0	0	3703	727	0	4430	907	0	1634	115	2541	0	4099	865	0	4964	115	11935	12050
Apprch %	0	0	0			0	83.6	16.4			35.7	0	64.3			0	82.6	17.4					
Total %	0	0	0		0	0	31	6.1		37.1	7.6	0	13.7		21.3	0	34.3	7.2		41.6	1	99	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	**523**	100	**623**	101	0	196	297	0	**537**	108	**645**	**1565**
04:15 PM	0	0	0	0	0	484	95	579	110	0	**211**	**321**	0	483	110	593	1493
04:30 PM	0	0	0	0	0	498	89	587	**114**	0	188	302	0	500	82	582	1471
04:45 PM	0	0	0	0	0	501	**102**	603	111	0	206	317	0	506	**117**	623	1543
Total Volume	0	0	0	0	0	2006	386	2392	436	0	801	1237	0	2026	417	2443	6072
% App. Total	0	0	0		0	83.9	16.1		35.2	0	64.8		0	82.9	17.1		
PHF	.000	.000	.000	.000	.000	.959	.946	.960	.956	.000	.949	.963	.000	.943	.891	.947	.970

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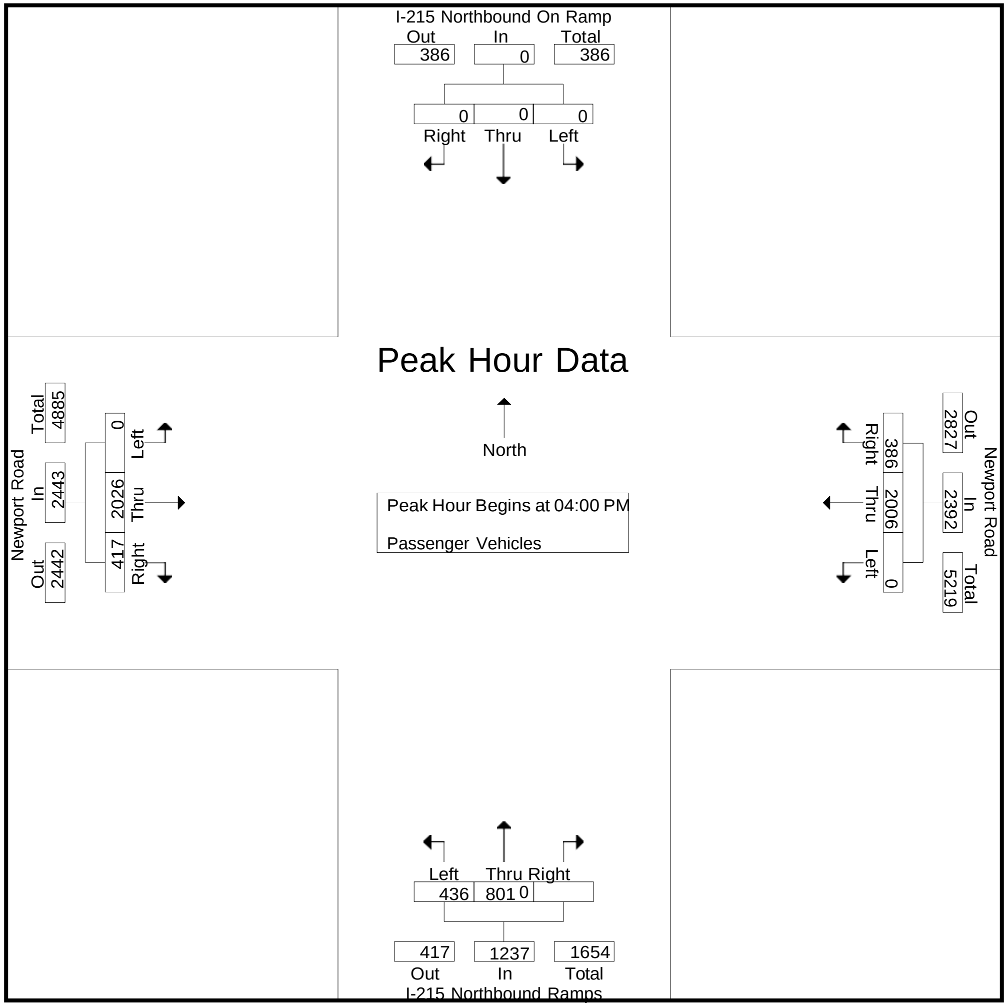
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	**523**	100	**623**	101	0	196	297	0	**537**	108	**645**	
+15 mins.	0	0	0	0	0	484	95	579	110	0	**211**	**321**	0	483	110	593	
+30 mins.	0	0	0	0	0	498	89	587	**114**	0	188	302	0	500	82	582	
+45 mins.	0	0	0	0	0	501	**102**	603	111	0	206	317	0	506	**117**	623	
Total Volume	0	0	0	0	0	2006	386	2392	436	0	801	1237	0	2026	417	2443	
% App. Total	0	0	0		0	83.9	16.1		35.2	0	64.8		0	82.9	17.1		
PHF	.000	.000	.000	.000	.000	.959	.946	.960	.956	.000	.949	.963	.000	.943	.891	.947	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	4	3	0	7	1	0	9	1	10	0	8	2	0	10	1	27	28
04:15 PM	0	0	0	0	0	0	0	1	0	1	2	0	1	0	3	0	6	2	0	8	0	12	12
04:30 PM	0	0	0	0	0	0	2	1	0	3	0	0	2	0	2	0	4	1	0	5	0	10	10
04:45 PM	0	0	0	0	0	0	3	2	0	5	0	0	4	1	4	0	3	2	0	5	1	14	15
Total	0	0	0	0	0	0	9	7	0	16	3	0	16	2	19	0	21	7	0	28	2	63	65
05:00 PM	0	0	0	0	0	0	3	5	0	8	0	0	3	0	3	0	4	1	0	5	0	16	16
05:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	3	0	3	0	3	3	0	6	0	12	12
05:30 PM	0	0	0	0	0	0	6	3	0	9	1	0	5	1	6	0	1	1	0	2	1	17	18
05:45 PM	0	0	0	0	0	0	2	4	0	6	0	0	1	1	1	0	3	3	0	6	1	13	14
Total	0	0	0	0	0	0	14	12	0	26	1	0	12	2	13	0	11	8	0	19	2	58	60
Grand Total	0	0	0	0	0	0	23	19	0	42	4	0	28	4	32	0	32	15	0	47	4	121	125
Apprch %	0	0	0			0	54.8	45.2			12.5	0	87.5			0	68.1	31.9					
Total %	0	0	0		0	0	19	15.7		34.7	3.3	0	23.1		26.4	0	26.4	12.4		38.8	3.2	96.8	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	**4**	**3**	**7**	1	0	**9**	**10**	0	**8**	**2**	**10**	**27**
04:15 PM	0	0	0	0	0	0	1	1	**2**	0	1	3	0	6	2	8	12
04:30 PM	0	0	0	0	0	2	1	3	0	0	2	2	0	4	1	5	10
04:45 PM	0	0	0	0	0	3	2	5	0	0	4	4	0	3	2	5	14
Total Volume	0	0	0	0	0	9	7	16	3	0	16	19	0	21	7	28	63
% App. Total	0	0	0		0	56.2	43.8		15.8	0	84.2		0	75	25		
PHF	.000	.000	.000	.000	.000	.563	.583	.571	.375	.000	.444	.475	.000	.656	.875	.700	.583

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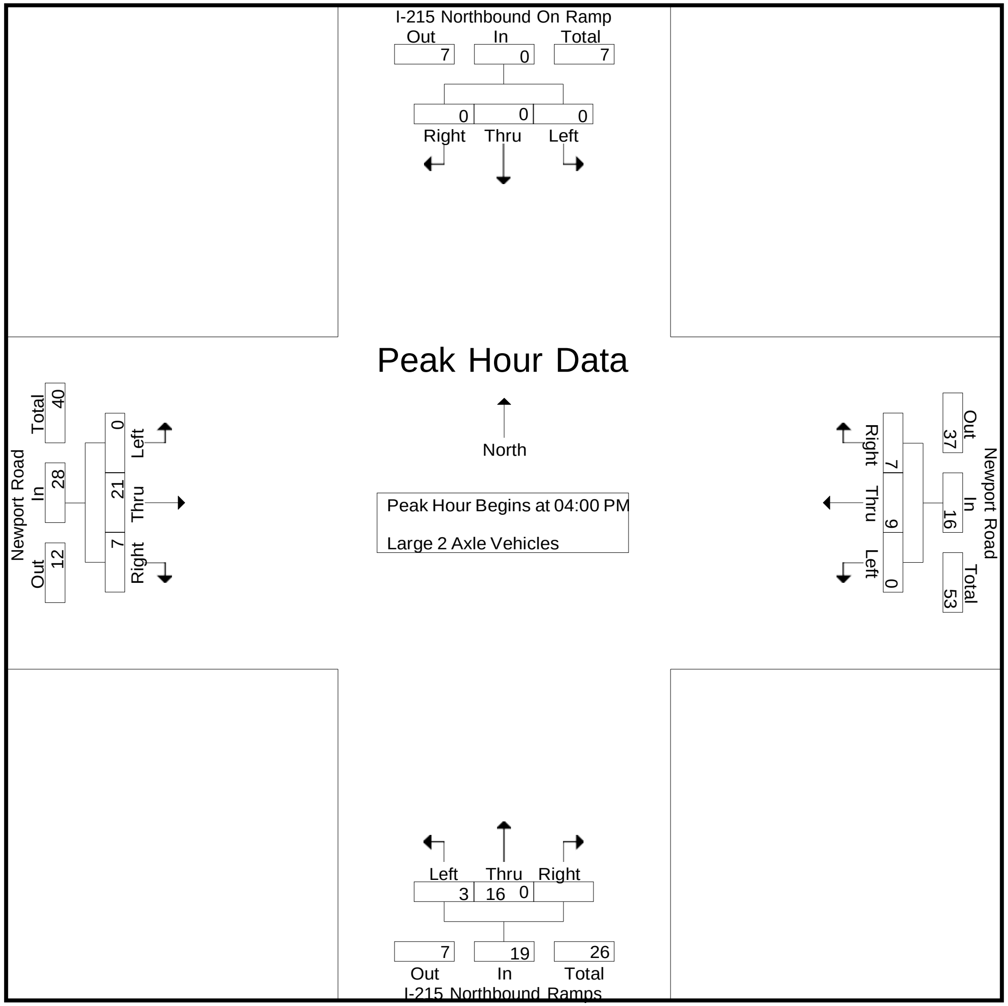
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	**4**	**3**	**7**	1	0	**9**	**10**	0	**8**	**2**	**10**	
+15 mins.	0	0	0	0	0	0	1	1	**2**	0	1	3	0	6	2	8	
+30 mins.	0	0	0	0	0	2	1	3	0	0	2	2	0	4	1	5	
+45 mins.	0	0	0	0	0	3	2	5	0	0	4	4	0	3	2	5	
Total Volume	0	0	0	0	0	9	7	16	3	0	16	19	0	21	7	28	
% App. Total	0	0	0		0	56.2	43.8		15.8	0	84.2		0	75	25		
PHF	.000	.000	.000	.000	.000	.563	.583	.571	.375	.000	.444	.475	.000	.656	.875	.700	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	3	0	3	0	5	5
04:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	2	2
04:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	0	0	0	0	0	0	3	3
Total	0	0	0	0	0	0	1	4	0	5	0	0	2	0	2	0	1	3	0	4	0	11	11
05:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2	3	0	5	0	7	7
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	3	3
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	2	4	0	6	0	0	0	0	0	0	3	4	0	7	0	13	13
Grand Total	0	0	0	0	0	0	3	8	0	11	0	0	2	0	2	0	4	7	0	11	0	24	24
Apprch %	0	0	0			0	27.3	72.7			0	0	100			0	36.4	63.6					
Total %	0	0	0		0	0	12.5	33.3		45.8	0	0	8.3		8.3	0	16.7	29.2		45.8	0	100	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1	1
04:15 PM	0	0	0	0	0	0	**2**	**2**	0	0	0	0	0	0	**3**	**3**	**5**
04:30 PM	0	0	0	0	0	0	1	1	0	0	**1**	**1**	0	0	0	0	2
04:45 PM	0	0	0	0	0	**1**	1	2	0	0	1	1	0	0	0	0	3
Total Volume	0	0	0	0	0	1	4	5	0	0	2	2	0	1	3	4	11
% App. Total	0	0	0		0	20	80		0	0	100		0	25	75		
PHF	.000	.000	.000	.000	.000	.250	.500	.625	.000	.000	.500	.500	.000	.250	.250	.333	.550

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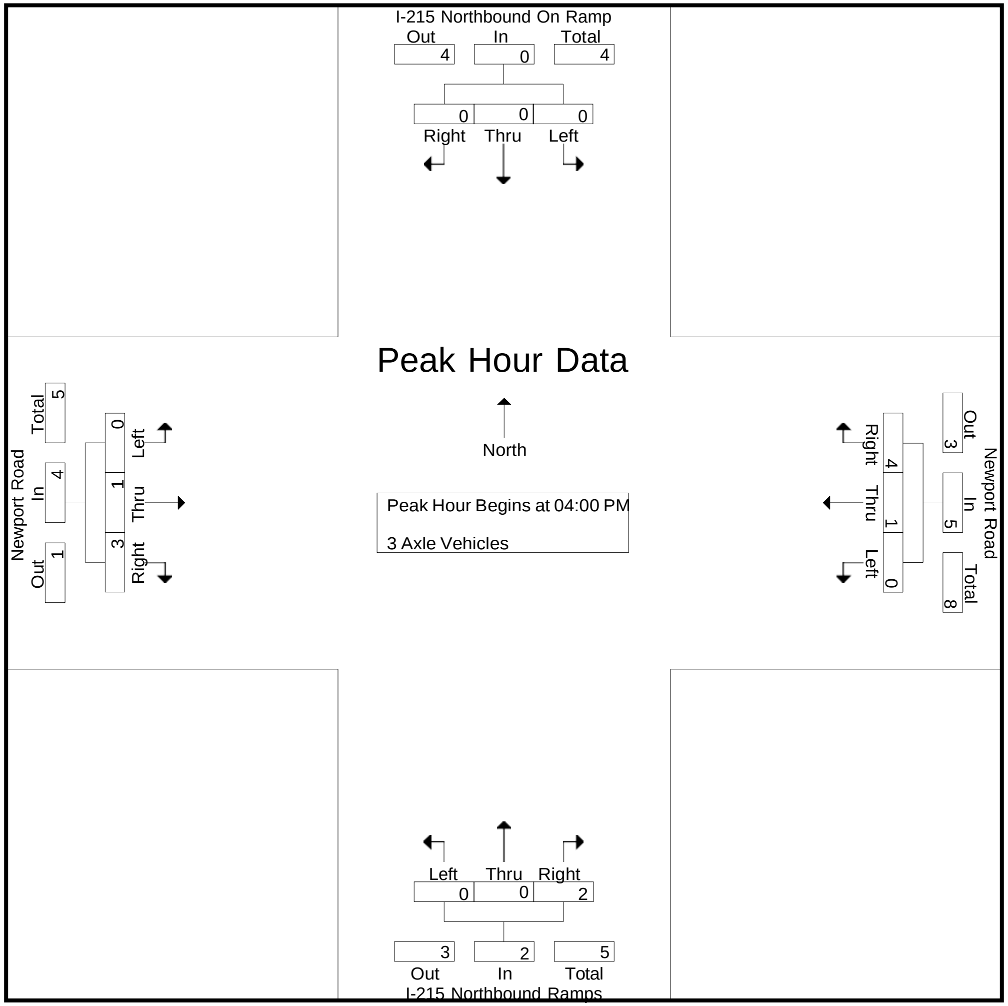
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1	
+15 mins.	0	0	0	0	0	0	**2**	**2**	0	0	0	0	0	0	**3**	**3**	
+30 mins.	0	0	0	0	0	0	1	1	0	0	**1**	**1**	0	0	0	0	
+45 mins.	0	0	0	0	0	**1**	1	2	0	0	1	1	0	0	0	0	
Total Volume	0	0	0	0	0	1	4	5	0	0	2	2	0	1	3	4	
% App. Total	0	0	0		0	20	80		0	0	100		0	25	75		
PHF	.000	.000	.000	.000	.000	.250	.500	.625	.000	.000	.500	.500	.000	.250	.250	.333	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-215 Northbound On Ramp Southbound					Newport Road Westbound					I-215 Northbound Ramps Northbound					Newport Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	1	0	1	0	3	0	0	3	0	6	6
04:15 PM	0	0	0	0	0	0	1	2	0	3	0	0	1	0	1	0	1	1	0	2	0	6	6
04:30 PM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	2	0	0	2	0	5	5
04:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	3	6	0	9	1	0	2	0	3	0	6	1	0	7	0	19	19
05:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	1	0	1	0	0	1	0	1	0	4	4
05:15 PM	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	0	1	0	0	1	0	5	5
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
05:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	1	0	2	0	4	4
Total	0	0	0	0	0	0	5	5	0	10	0	0	1	0	1	0	2	2	0	4	0	15	15
Grand Total	0	0	0	0	0	0	8	11	0	19	1	0	3	0	4	0	8	3	0	11	0	34	34
Apprch %	0	0	0			0	42.1	57.9			25	0	75			0	72.7	27.3					
Total %	0	0	0		0	0	23.5	32.4		55.9	2.9	0	8.8		11.8	0	23.5	8.8		32.4	0	100	

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	**2**	2	0	0	**1**	**1**	0	**3**	0	**3**	**6**
04:15 PM	0	0	0	0	0	**1**	2	**3**	0	0	1	1	0	1	**1**	2	6
04:30 PM	0	0	0	0	0	1	1	2	**1**	0	0	1	0	2	0	2	5
04:45 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	3	6	9	1	0	2	3	0	6	1	7	19
% App. Total	0	0	0		0	33.3	66.7		33.3	0	66.7		0	85.7	14.3		
PHF	.000	.000	.000	.000	.000	.750	.750	.750	.250	.000	.500	.750	.000	.500	.250	.583	.792

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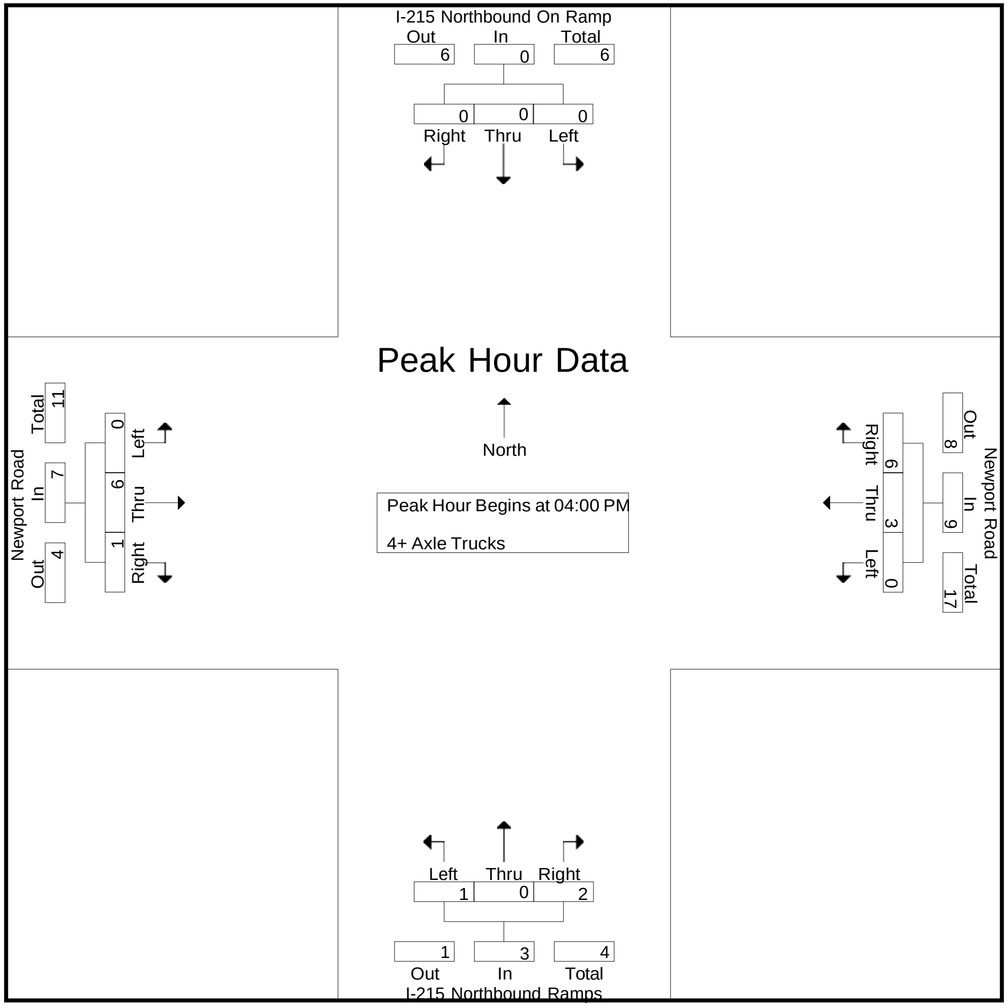
City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: Newport Road
Weather: Clear

File Name : 13_MEN_215N_NP PM
Site Code : 05121444
Start Date : 8/26/2021
Page No : 3

	I-215 Northbound On Ramp Southbound				Newport Road Westbound				I-215 Northbound Ramps Northbound				Newport Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	0	**2**	2	0	0	**1**	**1**	0	**3**	0	**3**	
+15 mins.	0	0	0	0	0	**1**	2	**3**	0	0	1	1	0	1	**1**	2	
+30 mins.	0	0	0	0	0	1	1	2	**1**	0	0	1	0	2	0	2	
+45 mins.	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	3	6	9	1	0	2	3	0	6	1	7	
% App. Total	0	0	0		0	33.3	66.7		33.3	0	66.7		0	85.7	14.3		
PHF	.000	.000	.000	.000	.000	.750	.750	.750	.250	.000	.500	.750	.000	.500	.250	.583	

Location: Menifee
N/S: I-215 NB Ramps
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

PEDESTRIANS

	North Leg I-215 NB Ramps	East Leg Newport Road	South Leg I-215 NB Ramps	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg I-215 NB Ramps	East Leg Newport Road	South Leg I-215 NB Ramps	West Leg Newport Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Menifee
N/S: I-215 NB Ramps
E/W: Newport Road

Date: 8/26/2021
Day: Thursday

BICYCLES

	Southbound I-215 NB Ramps			Westbound Newport Road			Northbound I-215 NB Ramps			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	4	0	0	0	0	0	1	0	5

	Southbound I-215 NB Ramps			Westbound Newport Road			Northbound I-215 NB Ramps			Eastbound Newport Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	1	0	2

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City of Menifee
Goetz Road
B/ Audie Murphy Road North - Audie Murphy Road South
24 Hour Directional Classification Count

MEN001
Site Code: 051-21444

Northbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
08/26/21	0	50	0	0	1	0	0	0	0	0	0	0	0	51
01:00	1	26	2	0	0	0	0	0	0	0	0	0	0	29
02:00	0	14	0	0	3	0	0	0	0	0	0	0	0	17
03:00	0	12	0	0	5	0	0	0	0	0	0	0	0	17
04:00	0	31	0	0	2	0	0	0	0	0	0	0	0	33
05:00	0	37	5	1	10	0	0	0	0	0	0	0	0	53
06:00	1	104	24	**5**	35	0	0	**2**	1	0	0	0	0	172
07:00	0	**228**	**33**	4	**48**	0	**1**	1	**4**	0	0	0	0	**319**
08:00	2	163	18	1	40	0	0	0	1	0	0	0	0	225
09:00	1	145	20	0	34	1	0	1	4	0	0	0	0	206
10:00	**6**	147	28	0	43	0	0	0	4	0	0	0	0	228
11:00	1	194	26	1	43	**2**	0	0	1	0	0	0	0	268
12 PM	1	215	31	0	57	2	0	0	**3**	0	0	0	0	309
13:00	1	230	24	0	49	0	0	**1**	2	0	0	0	0	307
14:00	0	232	33	3	59	**3**	0	0	0	0	0	0	0	330
15:00	1	322	**34**	**7**	**81**	0	0	1	3	0	0	0	0	**449**
16:00	3	325	27	0	80	1	0	1	1	0	0	0	0	438
17:00	2	**333**	30	0	79	0	0	0	1	0	0	0	0	445
18:00	**4**	321	17	0	54	0	0	0	0	0	0	0	0	396
19:00	2	316	13	0	49	0	0	0	1	0	0	0	0	381
20:00	2	282	7	0	21	0	0	0	0	0	0	0	0	312
21:00	1	197	5	0	19	0	0	0	0	0	0	0	0	222
22:00	0	108	2	0	10	0	0	0	0	0	0	0	0	120
23:00	0	77	0	0	8	0	0	0	0	0	0	0	0	85
Total	29	4109	379	22	830	9	1	7	26	0	0	0	0	5412
Percent	0.5%	75.9%	7.0%	0.4%	15.3%	0.2%	0.0%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	07:00	07:00	06:00	07:00	11:00	07:00	06:00	07:00					07:00
Vol.	6	228	33	5	48	2	1	2	4					319
PM Peak	18:00	17:00	15:00	15:00	15:00	14:00		13:00	12:00					15:00
Vol.	4	333	34	7	81	3		1	3					449
Grand Total	29	4109	379	22	830	9	1	7	26	0	0	0	0	5412
Percent	0.5%	75.9%	7.0%	0.4%	15.3%	0.2%	0.0%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	

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City of Menifee
Goetz Road
B/ Audie Murphy Road North - Audie Murphy Road South
24 Hour Directional Classification Count

MEN001
Site Code: 051-21444

Southbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
08/26/21	0	16	0	0	1	0	0	0	0	0	0	0	0	17
01:00	0	12	0	0	0	0	0	0	0	0	0	0	0	12
02:00	0	23	1	0	4	0	0	0	1	0	0	0	0	29
03:00	0	43	1	0	5	0	0	0	0	0	0	0	0	49
04:00	1	98	3	0	28	1	0	0	1	0	0	0	0	132
05:00	1	178	16	0	49	1	0	0	0	0	0	0	0	245
06:00	3	282	**38**	**4**	72	1	0	0	0	0	0	0	0	400
07:00	**4**	**396**	27	3	**103**	1	0	1	1	0	0	0	0	**536**
08:00	3	284	31	1	65	**2**	0	2	**3**	0	0	0	0	391
09:00	2	219	20	0	52	1	**1**	1	1	0	0	0	0	297
10:00	3	205	16	1	62	2	0	1	1	0	0	0	0	291
11:00	3	257	33	0	69	0	1	**3**	1	0	0	0	0	367
12 PM	0	217	21	0	54	1	0	1	**4**	0	0	0	0	298
13:00	0	243	**28**	1	52	2	0	0	1	0	0	0	0	327
14:00	0	**319**	25	**8**	**71**	1	**1**	0	2	0	0	0	0	**427**
15:00	**2**	302	21	2	63	**3**	0	0	2	**1**	0	0	0	396
16:00	0	299	24	1	51	0	1	**2**	1	0	0	0	0	379
17:00	0	269	16	1	53	0	0	0	0	0	0	0	0	339
18:00	0	260	11	0	59	0	0	0	3	0	0	0	0	333
19:00	1	192	12	0	33	1	1	0	0	0	0	0	0	240
20:00	0	160	7	0	24	0	0	0	0	0	0	0	0	191
21:00	0	91	1	0	17	0	0	0	0	0	0	0	0	109
22:00	0	62	2	0	3	0	0	0	0	0	0	0	0	67
23:00	0	37	1	0	2	0	0	0	0	0	0	0	0	40
Total	23	4464	355	22	992	17	5	11	22	1	0	0	0	5912
Percent	0.4%	75.5%	6.0%	0.4%	16.8%	0.3%	0.1%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	06:00	06:00	07:00	08:00	09:00	11:00	08:00					07:00
Vol.	4	396	38	4	103	2	1	3	3					536
PM Peak	15:00	14:00	13:00	14:00	14:00	15:00	14:00	16:00	12:00	15:00				14:00
Vol.	2	319	28	8	71	3	1	2	4	1				427
Grand Total	23	4464	355	22	992	17	5	11	22	1	0	0	0	5912
Percent	0.4%	75.5%	6.0%	0.4%	16.8%	0.3%	0.1%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	

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City of Menifee
Goetz Road
B/ Audie Murphy Road North - Audie Murphy Road South
24 Hour Directional Classification Count
Northbound, Southbound

MEN001
Site Code: 051-21444

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
08/26/21	0	66	0	0	2	0	0	0	0	0	0	0	0	68
01:00	1	38	2	0	0	0	0	0	0	0	0	0	0	41
02:00	0	37	1	0	7	0	0	0	1	0	0	0	0	46
03:00	0	55	1	0	10	0	0	0	0	0	0	0	0	66
04:00	1	129	3	0	30	1	0	0	1	0	0	0	0	165
05:00	1	215	21	1	59	1	0	0	0	0	0	0	0	298
06:00	4	386	**62**	**9**	107	1	0	2	1	0	0	0	0	572
07:00	4	**624**	60	7	**151**	1	**1**	2	**5**	0	0	0	0	**855**
08:00	5	447	49	2	105	**2**	0	2	4	0	0	0	0	616
09:00	3	364	40	0	86	2	1	2	5	0	0	0	0	503
10:00	**9**	352	44	1	105	2	0	1	5	0	0	0	0	519
11:00	4	451	59	1	112	2	1	**3**	2	0	0	0	0	635
12 PM	1	432	52	0	111	3	0	1	**7**	0	0	0	0	607
13:00	1	473	52	1	101	2	0	1	3	0	0	0	0	634
14:00	0	551	**58**	**11**	130	**4**	**1**	0	2	0	0	0	0	757
15:00	3	**624**	55	9	**144**	3	0	1	5	**1**	0	0	0	**845**
16:00	3	624	51	1	131	1	1	**3**	2	0	0	0	0	817
17:00	2	602	46	1	132	0	0	0	1	0	0	0	0	784
18:00	**4**	581	28	0	113	0	0	0	3	0	0	0	0	729
19:00	3	508	25	0	82	1	1	0	1	0	0	0	0	621
20:00	2	442	14	0	45	0	0	0	0	0	0	0	0	503
21:00	1	288	6	0	36	0	0	0	0	0	0	0	0	331
22:00	0	170	4	0	13	0	0	0	0	0	0	0	0	187
23:00	0	114	1	0	10	0	0	0	0	0	0	0	0	125
Total	52	8573	734	44	1822	26	6	18	48	1	0	0	0	11324
Percent	0.5%	75.7%	6.5%	0.4%	16.1%	0.2%	0.1%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	07:00	06:00	06:00	07:00	08:00	07:00	11:00	07:00					07:00
Vol.	9	624	62	9	151	2	1	3	5					855
PM Peak	18:00	15:00	14:00	14:00	15:00	14:00	14:00	16:00	12:00	15:00				15:00
Vol.	4	624	58	11	144	4	1	3	7	1				845
Grand Total	52	8573	734	44	1822	26	6	18	48	1	0	0	0	11324
Percent	0.5%	75.7%	6.5%	0.4%	16.1%	0.2%	0.1%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	

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City of Menifee
Newport Road
B/ Haun Road - Interstate 215 Southbound Ramps
24 Hour Directional Classification Count

MEN002
Site Code: 051-21444

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
08/26/21	3	174	0	0	9	0	0	0	0	0	0	0	0	186
01:00	2	130	0	0	7	0	0	1	1	0	0	0	0	141
02:00	1	99	1	0	7	0	0	1	1	0	0	0	0	110
03:00	0	184	6	0	9	0	0	0	0	0	0	0	0	199
04:00	4	443	18	1	46	0	0	3	2	0	0	0	0	517
05:00	7	730	56	1	120	1	0	2	6	0	**1**	0	0	924
06:00	7	1197	83	4	210	4	1	1	8	**1**	0	0	0	1516
07:00	8	**1892**	**146**	7	254	3	0	**5**	6	0	0	0	0	**2321**
08:00	3	1509	114	6	**264**	2	0	5	**10**	0	0	0	0	1913
09:00	**9**	1435	106	1	218	**5**	3	1	7	0	1	0	0	1786
10:00	3	1608	115	2	203	4	**5**	1	4	0	0	0	0	1945
11:00	8	1862	100	**10**	208	5	2	3	5	0	0	0	0	2203
12 PM	5	1906	98	3	199	3	0	3	6	0	0	0	0	2223
13:00	3	2008	89	6	204	**9**	0	1	**15**	0	0	0	0	2335
14:00	2	2028	**123**	**7**	226	5	**1**	2	12	0	0	0	0	2406
15:00	5	**2193**	104	6	235	5	0	1	6	0	0	0	0	**2555**
16:00	**9**	2078	84	5	**263**	2	1	2	5	0	0	0	0	2449
17:00	8	2149	101	1	248	1	1	2	3	0	0	0	0	2514
18:00	6	1935	80	2	226	2	0	**4**	1	0	0	0	0	2256
19:00	6	1756	79	4	192	0	0	0	3	0	0	0	0	2040
20:00	5	1534	40	0	87	1	0	1	2	0	0	0	0	1670
21:00	1	1103	24	0	44	0	0	1	1	0	0	0	0	1174
22:00	3	595	14	0	22	0	0	0	1	0	0	0	0	635
23:00	1	420	8	0	14	2	0	1	0	0	0	0	0	446
Total	109	30968	1589	66	3515	54	14	41	105	1	2	0	0	36464
Percent	0.3%	84.9%	4.4%	0.2%	9.6%	0.1%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	07:00	07:00	11:00	08:00	09:00	10:00	07:00	08:00	06:00	05:00			07:00
Vol.	9	1892	146	10	264	5	5	5	10	1	1			2321
PM Peak	16:00	15:00	14:00	14:00	16:00	13:00	14:00	18:00	13:00					15:00
Vol.	9	2193	123	7	263	9	1	4	15					2555
Grand Total	109	30968	1589	66	3515	54	14	41	105	1	2	0	0	36464
Percent	0.3%	84.9%	4.4%	0.2%	9.6%	0.1%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	

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City of Menifee
Newport Road
B/ Haun Road - Interstate 215 Southbound Ramps
24 Hour Directional Classification Count

MEN002
Site Code: 051-21444

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
08/26/21	2	211	8	0	9	1	0	0	3	0	0	0	0	234
01:00	0	130	8	0	3	0	0	0	1	0	0	0	0	142
02:00	0	126	6	0	2	1	0	0	1	0	0	0	0	136
03:00	3	204	9	0	8	0	0	2	3	0	**1**	0	0	230
04:00	0	415	41	1	40	0	0	2	6	0	0	0	0	505
05:00	2	645	90	3	76	3	0	1	4	0	1	0	0	825
06:00	4	910	**172**	**10**	185	4	0	7	**13**	0	0	0	0	1305
07:00	3	1828	105	6	**298**	2	0	**8**	10	0	0	0	0	2260
08:00	1	1730	99	8	235	5	0	8	12	0	0	0	0	2098
09:00	**10**	1626	118	3	252	4	0	2	4	**1**	0	0	0	2020
10:00	6	1669	100	5	221	**8**	**1**	2	8	0	0	0	0	2020
11:00	10	**1969**	98	6	270	2	1	4	6	0	0	0	0	**2366**
12 PM	6	1919	93	6	283	4	0	**5**	9	**1**	0	0	0	2326
13:00	2	1898	82	7	254	2	0	3	**10**	0	0	0	0	2258
14:00	4	1939	99	7	294	4	0	5	6	0	0	0	0	2358
15:00	7	2115	113	**11**	**303**	3	**1**	4	9	0	0	0	0	2566
16:00	**10**	**2158**	**119**	4	289	0	0	3	4	0	**1**	0	0	**2588**
17:00	4	2043	100	1	260	1	0	2	2	0	0	0	0	2413
18:00	8	1947	93	2	237	**5**	0	1	3	0	0	0	0	2296
19:00	7	1752	55	1	179	1	0	0	3	0	0	0	0	1998
20:00	9	1255	39	0	152	0	0	0	4	0	0	0	0	1459
21:00	8	879	62	0	24	0	0	0	4	0	0	0	0	977
22:00	3	498	18	0	9	0	0	1	1	0	0	0	0	530
23:00	2	337	17	0	15	0	0	0	1	0	0	0	0	372
Total	111	30203	1744	81	3898	50	3	60	127	2	3	0	0	36282
Percent	0.3%	83.2%	4.8%	0.2%	10.7%	0.1%	0.0%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	06:00	06:00	07:00	10:00	10:00	07:00	06:00	09:00	03:00			11:00
Vol.	10	1969	172	10	298	8	1	8	13	1	1			2366
PM Peak	16:00	16:00	16:00	15:00	15:00	18:00	15:00	12:00	13:00	12:00	16:00			16:00
Vol.	10	2158	119	11	303	5	1	5	10	1	1			2588
Grand Total	111	30203	1744	81	3898	50	3	60	127	2	3	0	0	36282
Percent	0.3%	83.2%	4.8%	0.2%	10.7%	0.1%	0.0%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	

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City of Menifee
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B/ Haun Road - Interstate 215 Southbound Ramps
24 Hour Directional Classification Count

MEN002
Site Code: 051-21444

Eastbound, Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
08/26/21	5	385	8	0	18	1	0	0	3	0	0	0	0	420
01:00	2	260	8	0	10	0	0	1	2	0	0	0	0	283
02:00	1	225	7	0	9	1	0	1	2	0	0	0	0	246
03:00	3	388	15	0	17	0	0	2	3	0	1	0	0	429
04:00	4	858	59	2	86	0	0	5	8	0	0	0	0	1022
05:00	9	1375	146	4	196	4	0	3	10	0	**2**	0	0	1749
06:00	11	2107	**255**	14	395	8	1	8	21	**1**	0	0	0	2821
07:00	11	3720	251	13	**552**	5	0	**13**	16	0	0	0	0	**4581**
08:00	4	3239	213	14	499	7	0	13	**22**	0	0	0	0	4011
09:00	**19**	3061	224	4	470	9	3	3	11	1	1	0	0	3806
10:00	9	3277	215	7	424	**12**	**6**	3	12	0	0	0	0	3965
11:00	18	**3831**	198	**16**	478	7	3	7	11	0	0	0	0	4569
12 PM	11	3825	191	9	482	7	0	**8**	15	**1**	0	0	0	4549
13:00	5	3906	171	13	458	**11**	0	4	**25**	0	0	0	0	4593
14:00	6	3967	**222**	14	520	9	**1**	7	18	0	0	0	0	4764
15:00	12	**4308**	217	**17**	538	8	1	5	15	0	0	0	0	**5121**
16:00	**19**	4236	203	9	**552**	2	1	5	9	0	**1**	0	0	5037
17:00	12	4192	201	2	508	2	1	4	5	0	0	0	0	4927
18:00	14	3882	173	4	463	7	0	5	4	0	0	0	0	4552
19:00	13	3508	134	5	371	1	0	0	6	0	0	0	0	4038
20:00	14	2789	79	0	239	1	0	1	6	0	0	0	0	3129
21:00	9	1982	86	0	68	0	0	1	5	0	0	0	0	2151
22:00	6	1093	32	0	31	0	0	1	2	0	0	0	0	1165
23:00	3	757	25	0	29	2	0	1	1	0	0	0	0	818
Total	220	61171	3333	147	7413	104	17	101	232	3	5	0	0	72746
Percent	0.3%	84.1%	4.6%	0.2%	10.2%	0.1%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	06:00	11:00	07:00	10:00	10:00	07:00	08:00	06:00	05:00			07:00
Vol.	19	3831	255	16	552	12	6	13	22	1	2			4581
PM Peak	16:00	15:00	14:00	15:00	16:00	13:00	14:00	12:00	13:00	12:00	16:00			15:00
Vol.	19	4308	222	17	552	11	1	8	25	1	1			5121
Grand Total	220	61171	3333	147	7413	104	17	101	232	3	5	0	0	72746
Percent	0.3%	84.1%	4.6%	0.2%	10.2%	0.1%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	

APPENDIX 3.2:

EXISTING (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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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	0	0	0	19	0	18	0	213	7	9	184	0
Future Vol, veh/h	0	0	0	19	0	18	0	213	7	9	184	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	25	0	24	0	280	9	12	242	0

Major/Minor				Minor1			Major1			Major2		
Conflicting Flow All				551	551	285	-	0	0	289	0	0
Stage 1				285	285	-	-	-	-	-	-	-
Stage 2				266	266	-	-	-	-	-	-	-
Critical Hdwy				6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1				5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy				3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver				495	442	754	0	-	-	1273	-	0
Stage 1				763	676	-	0	-	-	-	-	0
Stage 2				779	689	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver				490	0	754	-	-	-	1273	-	-
Mov Cap-2 Maneuver				490	0	-	-	-	-	-	-	-
Stage 1				763	0	-	-	-	-	-	-	-
Stage 2				770	0	-	-	-	-	-	-	-

Approach				WB			NB			SB		
HCM Control Delay, s				11.6			0			0.4		
HCM LOS				B								

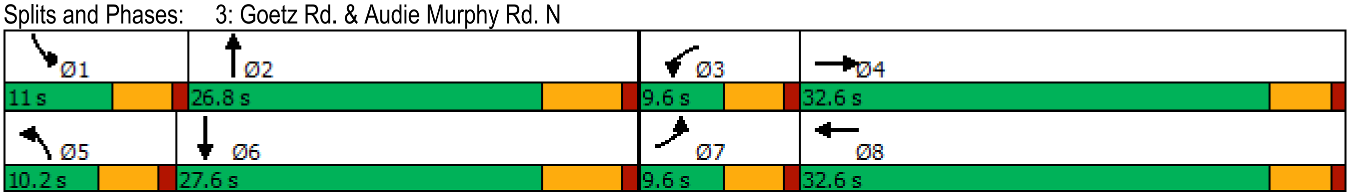
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	591	1273	-
HCM Lane V/C Ratio	-	-	0.082	0.009	-
HCM Control Delay (s)	-	-	11.6	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	7	44	5	28	254	75	498
Future Volume (vph)	5	7	44	5	28	254	75	498
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.6	9.6	32.6	9.6	26.8	9.6	26.8
Total Split (s)	9.6	32.6	9.6	32.6	10.2	26.8	11.0	27.6
Total Split (%)	12.0%	40.8%	12.0%	40.8%	12.8%	33.5%	13.8%	34.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.3	16.3	8.1	16.3	7.5	21.9	8.2	26.7
Actuated g/C Ratio	0.20	0.44	0.22	0.44	0.20	0.59	0.22	0.72
v/c Ratio	0.01	0.02	0.12	0.07	0.08	0.16	0.21	0.22
Control Delay	26.8	11.1	23.6	6.9	25.2	11.5	24.6	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	11.1	23.6	6.9	25.2	11.5	24.6	10.8
LOS	C	B	C	A	C	B	C	B
Approach Delay		14.5		15.0		12.7		12.6
Approach LOS		B		B		B		B

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 37
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 40.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N



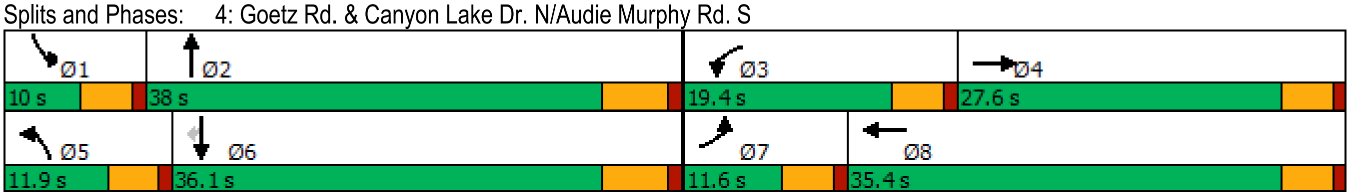
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	7	9	44	5	42	28	254	48	75	498	9
Future Volume (veh/h)	5	7	9	44	5	42	28	254	48	75	498	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	8	1	48	5	46	30	276	44	82	541	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	12	105	13	94	17	161	64	817	129	138	1097	20
Arrive On Green	0.01	0.06	0.06	0.05	0.11	0.11	0.04	0.27	0.27	0.08	0.31	0.31
Sat Flow, veh/h	1781	1630	204	1781	158	1451	1781	3075	484	1781	3569	66
Grp Volume(v), veh/h	5	0	9	48	0	51	30	158	162	82	269	282
Grp Sat Flow(s),veh/h/ln	1781	0	1833	1781	0	1609	1781	1777	1782	1781	1777	1858
Q Serve(g_s), s	0.1	0.0	0.2	1.0	0.0	1.1	0.6	2.6	2.7	1.6	4.5	4.5
Cycle Q Clear(g_c), s	0.1	0.0	0.2	1.0	0.0	1.1	0.6	2.6	2.7	1.6	4.5	4.5
Prop In Lane	1.00		0.11	1.00		0.90	1.00		0.27	1.00		0.04
Lane Grp Cap(c), veh/h	12	0	119	94	0	178	64	472	474	138	546	571
V/C Ratio(X)	0.41	0.00	0.08	0.51	0.00	0.29	0.47	0.33	0.34	0.59	0.49	0.49
Avail Cap(c_a), veh/h	245	0	1412	245	0	1239	274	1027	1030	314	1066	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	16.0	16.8	0.0	14.8	17.2	10.8	10.8	16.2	10.3	10.3
Incr Delay (d2), s/veh	8.2	0.0	0.3	1.6	0.0	0.9	2.0	0.4	0.4	1.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.4	0.0	0.4	0.2	0.7	0.7	0.6	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	0.0	16.2	18.3	0.0	15.7	19.2	11.2	11.2	17.7	11.0	10.9
LnGrp LOS	C	A	B	B	A	B	B	B	B	B	B	B
Approach Vol, veh/h		14			99			350			633	
Approach Delay, s/veh		19.8			17.0			11.9			11.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	15.5	6.5	7.0	5.9	17.0	4.8	8.6				
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6				
Max Green Setting (Gmax), s	6.4	21.0	5.0	28.0	5.6	21.8	5.0	28.0				
Max Q Clear Time (g_c+I1), s	3.6	4.7	3.0	2.2	2.6	6.5	2.1	3.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.0	0.0	2.6	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			12.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	44	29	245	36	112	262	18	505	24
Future Volume (vph)	44	29	245	36	112	262	18	505	24
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	11.6	27.6	19.4	35.4	11.9	38.0	10.0	36.1	36.1
Total Split (%)	12.2%	29.1%	20.4%	37.3%	12.5%	40.0%	10.5%	38.0%	38.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.2	13.7	15.1	18.2	7.4	27.2	5.3	18.6	18.6
Actuated g/C Ratio	0.08	0.18	0.20	0.24	0.10	0.36	0.07	0.25	0.25
v/c Ratio	0.35	0.73	0.80	0.13	0.74	0.35	0.17	0.67	0.05
Control Delay	42.9	21.3	49.8	17.0	62.7	16.3	40.9	29.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	21.3	49.8	17.0	62.7	16.3	40.9	29.4	0.2
LOS	D	C	D	B	E	B	D	C	A
Approach Delay		24.1		44.2		26.9		28.5	
Approach LOS		C		D		C		C	

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 74.8
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	29	261	245	36	15	112	262	114	18	505	24
Future Volume (veh/h)	44	29	261	245	36	15	112	262	114	18	505	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	34	204	285	42	5	130	305	89	21	587	14
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	43	257	332	536	64	165	824	236	43	833	367
Arrive On Green	0.05	0.19	0.19	0.19	0.33	0.33	0.09	0.30	0.30	0.02	0.23	0.23
Sat Flow, veh/h	1781	229	1373	1781	1637	195	1781	2722	780	1781	3554	1565
Grp Volume(v), veh/h	51	0	238	285	0	47	130	197	197	21	587	14
Grp Sat Flow(s),veh/h/ln	1781	0	1602	1781	0	1832	1781	1777	1725	1781	1777	1565
Q Serve(g_s), s	1.8	0.0	9.3	10.1	0.0	1.2	4.7	5.7	5.9	0.8	9.9	0.5
Cycle Q Clear(g_c), s	1.8	0.0	9.3	10.1	0.0	1.2	4.7	5.7	5.9	0.8	9.9	0.5
Prop In Lane	1.00		0.86	1.00		0.11	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	82	0	300	332	0	600	165	538	522	43	833	367
V/C Ratio(X)	0.62	0.00	0.79	0.86	0.00	0.08	0.79	0.37	0.38	0.49	0.70	0.04
Avail Cap(c_a), veh/h	190	0	563	403	0	862	199	874	848	147	1644	724
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	25.4	25.8	0.0	15.2	29.1	17.9	18.0	31.5	23.0	19.4
Incr Delay (d2), s/veh	2.8	0.0	4.7	12.6	0.0	0.1	13.1	0.4	0.4	3.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	3.8	5.3	0.0	0.5	2.4	2.1	2.1	0.3	3.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	30.1	38.4	0.0	15.2	42.2	18.3	18.4	34.7	24.1	19.4
LnGrp LOS	C	A	C	D	A	B	D	B	B	C	C	B
Approach Vol, veh/h		289			332			524			622	
Approach Delay, s/veh		30.7			35.2			24.3			24.4	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	25.6	16.8	16.9	10.7	21.1	7.6	26.1				
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6				
Max Green Setting (Gmax), s	5.4	32.2	14.8	23.0	7.3	30.3	7.0	30.8				
Max Q Clear Time (g_c+I1), s	2.8	7.9	12.1	11.3	6.7	11.9	3.8	3.2				
Green Ext Time (p_c), s	0.0	2.1	0.1	1.1	0.0	3.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			27.4									
HCM 6th LOS			C									

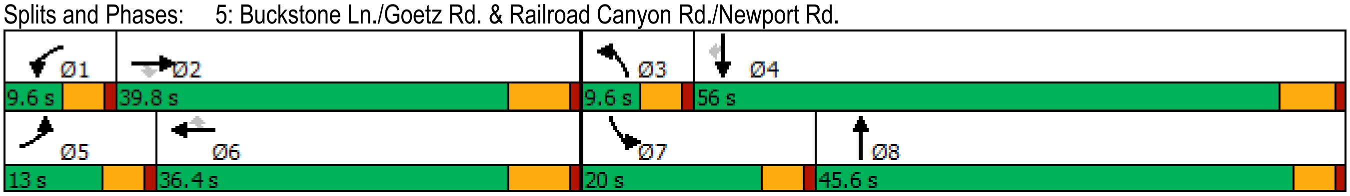
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	288	594	1	13	651	231	10	2	525	1	511
Future Volume (vph)	288	594	1	13	651	231	10	2	525	1	511
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	13.0	39.8	39.8	9.6	36.4	36.4	9.6	45.6	20.0	56.0	56.0
Total Split (%)	11.3%	34.6%	34.6%	8.3%	31.7%	31.7%	8.3%	39.7%	17.4%	48.7%	48.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	9.2	30.3	30.3	5.5	17.1	17.1	5.5	14.7	16.9	22.7	22.7
Actuated g/C Ratio	0.13	0.44	0.44	0.08	0.25	0.25	0.08	0.21	0.25	0.33	0.33
v/c Ratio	0.67	0.28	0.00	0.10	0.55	0.43	0.08	0.07	0.67	0.41	0.41
Control Delay	41.1	16.4	0.0	42.1	25.7	6.7	42.0	11.5	32.5	5.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	16.4	0.0	42.1	25.7	6.7	42.0	11.5	32.5	5.1	5.0
LOS	D	B	A	D	C	A	D	B	C	A	A
Approach Delay		24.4			21.0			20.6		19.0	
Approach LOS		C			C			C		B	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 68.5	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 21.3	Intersection LOS: C
Intersection Capacity Utilization 56.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	288	594	1	13	651	231	10	2	22	525	1	511
Future Volume (veh/h)	288	594	1	13	651	231	10	2	22	525	1	511
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	310	639	1	14	700	150	11	2	10	565	0	292
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	1785	542	31	1240	385	25	11	56	710	0	719
Arrive On Green	0.12	0.35	0.35	0.02	0.24	0.24	0.01	0.04	0.04	0.20	0.00	0.23
Sat Flow, veh/h	3456	5106	1552	1781	5106	1585	1781	270	1352	3563	0	3170
Grp Volume(v), veh/h	310	639	1	14	700	150	11	0	12	565	0	292
Grp Sat Flow(s),veh/h/ln	1728	1702	1552	1781	1702	1585	1781	0	1622	1781	0	1585
Q Serve(g_s), s	4.7	5.0	0.0	0.4	6.5	4.3	0.3	0.0	0.4	8.2	0.0	4.2
Cycle Q Clear(g_c), s	4.7	5.0	0.0	0.4	6.5	4.3	0.3	0.0	0.4	8.2	0.0	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		1.00
Lane Grp Cap(c), veh/h	429	1785	542	31	1240	385	25	0	67	710	0	719
V/C Ratio(X)	0.72	0.36	0.00	0.45	0.56	0.39	0.44	0.00	0.18	0.80	0.00	0.41
Avail Cap(c_a), veh/h	537	3173	964	165	2852	885	165	0	1230	1015	0	2943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	13.1	11.4	26.3	18.0	17.1	26.4	0.0	25.0	20.6	0.0	17.8
Incr Delay (d2), s/veh	2.4	0.1	0.0	3.7	0.4	0.6	4.4	0.0	1.2	1.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.4	0.0	0.2	2.0	1.5	0.2	0.0	0.2	3.0	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	13.2	11.4	30.0	18.4	17.8	30.9	0.0	26.3	22.4	0.0	18.2
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		950			864			23			857	
Approach Delay, s/veh		17.1			18.4			28.5			21.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	25.1	5.4	18.1	11.3	19.3	15.4	8.0
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	33.6	5.0	50.2	8.4	30.2	15.4	* 41
Max Q Clear Time (g_c+I1), s	2.4	7.0	2.3	6.2	6.7	8.5	10.2	2.4
Green Ext Time (p_c), s	0.0	3.9	0.0	1.2	0.1	4.6	0.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

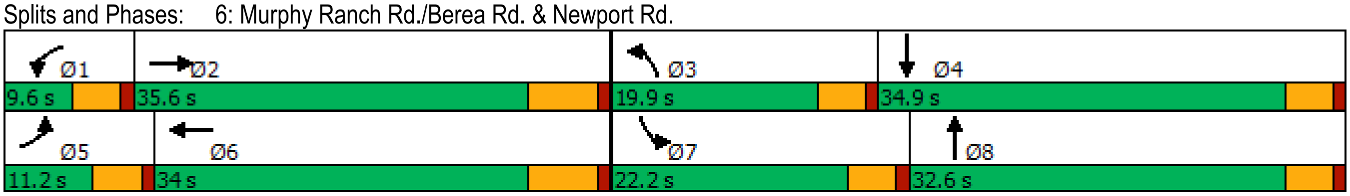
Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	64	1145	3	793	130	76	282	174
Future Volume (vph)	64	1145	3	793	130	76	282	174
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	11.2	35.6	9.6	34.0	19.9	32.6	22.2	34.9
Total Split (%)	11.2%	35.6%	9.6%	34.0%	19.9%	32.6%	22.2%	34.9%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.4	31.4	5.2	24.5	10.5	14.4	19.3	18.9
Actuated g/C Ratio	0.08	0.40	0.07	0.31	0.13	0.18	0.25	0.24
v/c Ratio	0.47	0.71	0.03	0.65	0.58	0.26	0.69	0.63
Control Delay	51.4	23.8	42.7	26.5	45.3	30.2	41.9	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	23.8	42.7	26.5	45.3	30.2	41.9	32.1
LOS	D	C	D	C	D	C	D	C
Approach Delay		25.1		26.6		39.4		37.2
Approach LOS		C		C		D		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 78.4	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 28.6	Intersection LOS: C
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.

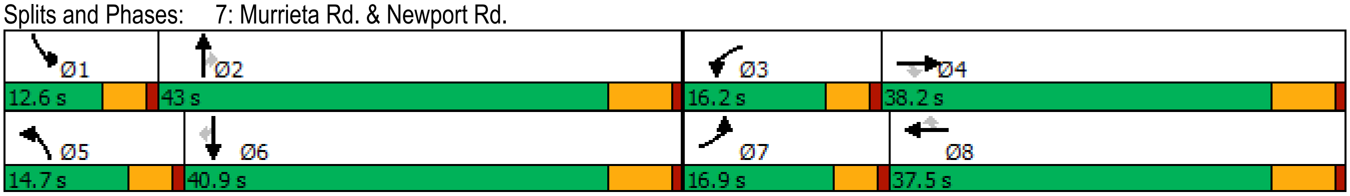


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1145	201	3	793	163	130	76	7	282	174	89
Future Volume (veh/h)	64	1145	201	3	793	163	130	76	7	282	174	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	1218	146	3	844	117	138	81	1	300	185	63
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	98	1664	199	7	1407	194	177	231	3	350	296	101
Arrive On Green	0.05	0.36	0.36	0.00	0.31	0.31	0.10	0.13	0.13	0.20	0.22	0.22
Sat Flow, veh/h	1781	4607	552	1781	4533	625	1781	1843	23	1781	1328	452
Grp Volume(v), veh/h	68	900	464	3	633	328	138	0	82	300	0	248
Grp Sat Flow(s),veh/h/ln	1781	1702	1755	1781	1702	1754	1781	0	1866	1781	0	1781
Q Serve(g_s), s	2.4	14.7	14.7	0.1	10.1	10.2	4.8	0.0	2.6	10.4	0.0	8.0
Cycle Q Clear(g_c), s	2.4	14.7	14.7	0.1	10.1	10.2	4.8	0.0	2.6	10.4	0.0	8.0
Prop In Lane	1.00		0.31	1.00		0.36	1.00		0.01	1.00		0.25
Lane Grp Cap(c), veh/h	98	1229	634	7	1057	545	177	0	234	350	0	397
V/C Ratio(X)	0.70	0.73	0.73	0.42	0.60	0.60	0.78	0.00	0.35	0.86	0.00	0.62
Avail Cap(c_a), veh/h	184	1563	806	139	1478	762	426	0	816	490	0	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	17.8	17.8	31.8	18.7	18.7	28.1	0.0	25.6	24.8	0.0	22.4
Incr Delay (d2), s/veh	3.3	1.3	2.5	13.5	0.5	1.1	2.8	0.0	0.9	7.8	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.7	5.1	0.1	3.3	3.5	2.1	0.0	1.2	5.0	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	19.1	20.3	45.3	19.2	19.8	31.0	0.0	26.5	32.7	0.0	24.1
LnGrp LOS	C	B	C	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1432			964			220			548	
Approach Delay, s/veh		20.1			19.5			29.3			28.8	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.9	29.3	11.0	18.9	8.1	26.1	17.2	12.6				
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6				
Max Green Setting (Gmax), s	5.0	29.4	15.3	30.3	6.6	27.8	17.6	28.0				
Max Q Clear Time (g_c+I1), s	2.1	16.7	6.8	10.0	4.4	12.2	12.4	4.6				
Green Ext Time (p_c), s	0.0	6.4	0.1	1.5	0.0	4.9	0.2	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			22.1									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	1057	154	169	841	114	144	260	167	109	78	47
Future Volume (vph)	136	1057	154	169	841	114	144	260	167	109	78	47
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	16.9	38.2	38.2	16.2	37.5	37.5	14.7	43.0	43.0	12.6	40.9	40.9
Total Split (%)	15.4%	34.7%	34.7%	14.7%	34.1%	34.1%	13.4%	39.1%	39.1%	11.5%	37.2%	37.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.7	25.4	25.4	11.9	26.6	26.6	13.7	15.7	15.7	8.2	14.1	14.1
Actuated g/C Ratio	0.13	0.30	0.30	0.14	0.32	0.32	0.16	0.19	0.19	0.10	0.17	0.17
v/c Ratio	0.63	0.72	0.28	0.71	0.55	0.20	0.52	0.41	0.40	0.66	0.14	0.13
Control Delay	50.6	29.5	5.7	54.0	26.0	5.9	45.6	31.3	7.3	59.4	30.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	29.5	5.7	54.0	26.0	5.9	45.6	31.3	7.3	59.4	30.1	0.8
LOS	D	C	A	D	C	A	D	C	A	E	C	A
Approach Delay		28.9			28.2			27.9			38.0	
Approach LOS		C			C			C			D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 83.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	1057	154	169	841	114	144	260	167	109	78	47
Future Volume (veh/h)	136	1057	154	169	841	114	144	260	167	109	78	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	1113	79	178	885	58	152	274	74	115	82	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	1623	496	219	1733	538	190	581	259	147	494	216
Arrive On Green	0.10	0.32	0.32	0.12	0.34	0.34	0.11	0.16	0.16	0.08	0.14	0.14
Sat Flow, veh/h	1781	5106	1562	1781	5106	1585	1781	3554	1585	1781	3554	1551
Grp Volume(v), veh/h	143	1113	79	178	885	58	152	274	74	115	82	21
Grp Sat Flow(s),veh/h/ln	1781	1702	1562	1781	1702	1585	1781	1777	1585	1781	1777	1551
Q Serve(g_s), s	5.4	13.1	2.5	6.7	9.5	1.7	5.7	4.8	2.8	4.4	1.4	0.8
Cycle Q Clear(g_c), s	5.4	13.1	2.5	6.7	9.5	1.7	5.7	4.8	2.8	4.4	1.4	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	181	1623	496	219	1733	538	190	581	259	147	494	216
V/C Ratio(X)	0.79	0.69	0.16	0.81	0.51	0.11	0.80	0.47	0.29	0.78	0.17	0.10
Avail Cap(c_a), veh/h	318	2371	725	300	2319	720	261	1897	846	207	1789	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	20.5	16.9	29.4	18.2	15.6	30.1	26.1	25.3	31.0	26.2	25.9
Incr Delay (d2), s/veh	2.9	0.5	0.1	8.2	0.2	0.1	8.0	0.6	0.6	7.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.4	0.8	3.1	3.2	0.5	2.6	1.9	1.0	2.0	0.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	21.0	17.0	37.6	18.4	15.7	38.1	26.7	25.9	38.6	26.3	26.1
LnGrp LOS	C	C	B	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1335			1121			500			218	
Approach Delay, s/veh		22.1			21.3			30.1			32.8	
Approach LOS		C			C			C			C	

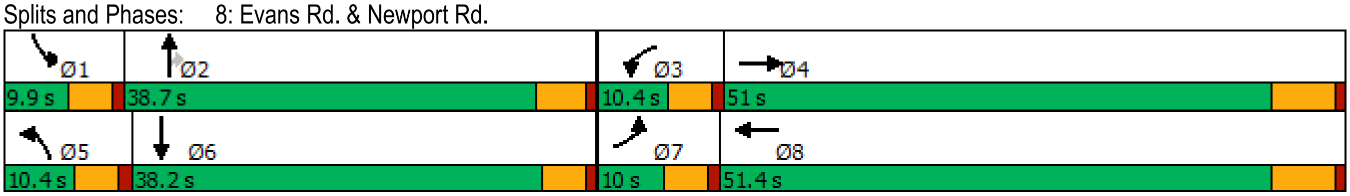
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	17.5	13.1	28.1	12.0	15.8	11.6	29.6
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.0	36.8	11.6	32.0	10.1	34.7	12.3	31.3
Max Q Clear Time (g_c+I1), s	6.4	6.8	8.7	15.1	7.7	3.4	7.4	11.5
Green Ext Time (p_c), s	0.0	1.8	0.1	6.6	0.0	0.5	0.1	5.6

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	15	1340	71	984	65	66	98	60	111
Future Volume (vph)	15	1340	71	984	65	66	98	60	111
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.0	51.0	10.4	51.4	10.4	38.7	38.7	9.9	38.2
Total Split (%)	9.1%	46.4%	9.5%	46.7%	9.5%	35.2%	35.2%	9.0%	34.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	45.2	5.8	54.0	5.8	15.4	15.4	5.3	15.4
Actuated g/C Ratio	0.06	0.49	0.06	0.58	0.06	0.17	0.17	0.06	0.17
v/c Ratio	0.17	0.91	0.73	0.39	0.67	0.24	0.31	0.67	0.50
Control Delay	48.9	32.1	79.8	12.7	73.1	34.0	6.9	76.1	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	32.1	79.8	12.7	73.1	34.0	6.9	76.1	37.3
LOS	D	C	E	B	E	C	A	E	D
Approach Delay		32.2		17.1		33.6			49.3
Approach LOS		C		B		C			D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 92.4	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 27.8	Intersection LOS: C
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1340	37	71	984	28	65	66	98	60	111	24
Future Volume (veh/h)	15	1340	37	71	984	28	65	66	98	60	111	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	1523	33	81	1118	25	74	75	63	68	126	20
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	1770	38	104	2755	62	95	258	218	87	210	33
Arrive On Green	0.02	0.50	0.50	0.06	0.54	0.54	0.05	0.14	0.14	0.05	0.13	0.13
Sat Flow, veh/h	1781	3554	77	1781	5136	115	1781	1870	1578	1781	1573	250
Grp Volume(v), veh/h	17	760	796	81	741	402	74	75	63	68	0	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1855	1781	1702	1847	1781	1870	1578	1781	0	1823
Q Serve(g_s), s	0.8	29.9	30.1	3.6	10.3	10.3	3.3	2.9	2.9	3.0	0.0	6.0
Cycle Q Clear(g_c), s	0.8	29.9	30.1	3.6	10.3	10.3	3.3	2.9	2.9	3.0	0.0	6.0
Prop In Lane	1.00		0.04	1.00		0.06	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	35	885	923	104	1826	991	95	258	218	87	0	243
V/C Ratio(X)	0.49	0.86	0.86	0.78	0.41	0.41	0.78	0.29	0.29	0.78	0.00	0.60
Avail Cap(c_a), veh/h	121	998	1042	130	1930	1047	130	788	665	118	0	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.7	17.6	17.6	37.0	10.9	11.0	37.3	30.9	30.9	37.5	0.0	32.5
Incr Delay (d2), s/veh	3.8	7.0	6.9	16.3	0.1	0.3	12.5	0.6	0.7	14.0	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	11.5	12.0	1.9	3.1	3.4	1.7	1.3	1.0	1.6	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	24.6	24.5	53.4	11.1	11.2	49.8	31.5	31.6	51.5	0.0	34.9
LnGrp LOS	D	C	C	D	B	B	D	C	C	D	A	C
Approach Vol, veh/h		1573			1224			212			214	
Approach Delay, s/veh		24.7			13.9			37.9			40.2	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	16.1	9.3	45.9	8.9	15.7	6.2	49.0
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2
Max Green Setting (Gmax), s	5.3	33.6	5.8	44.8	5.8	* 34	5.4	45.2
Max Q Clear Time (g_c+I1), s	5.0	4.9	5.6	32.1	5.3	8.0	2.8	12.3
Green Ext Time (p_c), s	0.0	0.6	0.0	7.6	0.0	0.8	0.0	7.9

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

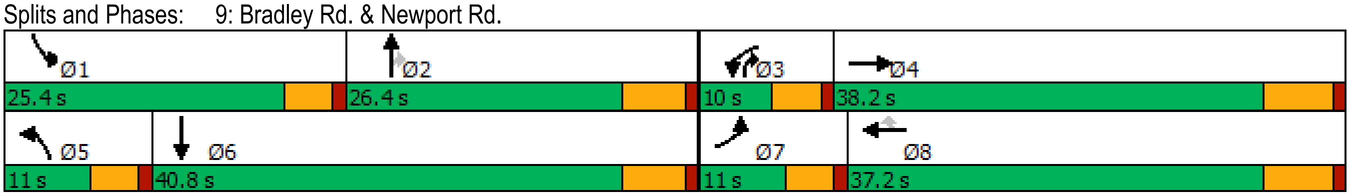
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	188	1178	215	940	177	176	216	290	202	244
Future Volume (vph)	188	1178	215	940	177	176	216	290	202	244
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	26.4	10.0	25.4	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	26.4%	10.0%	25.4%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.5	28.7	5.5	27.6	27.6	6.5	15.6	27.0	14.6	23.7
Actuated g/C Ratio	0.08	0.33	0.06	0.32	0.32	0.08	0.18	0.31	0.17	0.28
v/c Ratio	1.48	0.78	1.03	0.61	0.30	1.38	0.67	0.52	0.71	0.45
Control Delay	283.4	30.2	113.2	27.2	5.4	245.7	45.0	17.6	48.5	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	283.4	30.2	113.2	27.2	5.4	245.7	45.0	17.6	48.5	17.9
LOS	F	C	F	C	A	F	D	B	D	B
Approach Delay		63.6		38.2			85.1			27.7
Approach LOS		E		D			F			C

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 86.1
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.48
Intersection Signal Delay: 53.3 | Intersection LOS: D
Intersection Capacity Utilization 71.8% | ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	1178	63	215	940	177	176	216	290	202	244	188
Future Volume (veh/h)	188	1178	63	215	940	177	176	216	290	202	244	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	198	1240	43	226	989	138	185	227	203	213	257	158
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	1690	59	253	1633	492	155	301	372	257	466	276
Arrive On Green	0.09	0.33	0.33	0.07	0.32	0.32	0.09	0.16	0.16	0.14	0.22	0.22
Sat Flow, veh/h	1781	5067	176	3456	5106	1538	1781	1870	1585	1781	2133	1263
Grp Volume(v), veh/h	198	833	450	226	989	138	185	227	203	213	212	203
Grp Sat Flow(s),veh/h/ln	1781	1702	1838	1728	1702	1538	1781	1870	1585	1781	1777	1619
Q Serve(g_s), s	6.4	15.9	15.9	4.8	12.0	4.9	6.4	8.5	8.3	8.6	7.8	8.2
Cycle Q Clear(g_c), s	6.4	15.9	15.9	4.8	12.0	4.9	6.4	8.5	8.3	8.6	7.8	8.2
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	155	1135	613	253	1633	492	155	301	372	257	388	354
V/C Ratio(X)	1.28	0.73	0.73	0.89	0.61	0.28	1.19	0.75	0.55	0.83	0.55	0.57
Avail Cap(c_a), veh/h	155	1480	799	253	2150	648	155	523	560	503	845	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	21.7	21.7	33.8	21.1	18.7	33.6	29.5	24.7	30.6	25.5	25.7
Incr Delay (d2), s/veh	165.8	1.4	2.5	29.2	0.4	0.3	134.2	3.8	1.3	2.6	1.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	5.6	6.3	2.9	4.2	1.6	8.3	3.8	2.9	3.6	3.1	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	199.4	23.0	24.2	63.1	21.5	19.0	167.8	33.3	26.0	33.3	26.8	27.2
LnGrp LOS	F	C	C	E	C	B	F	C	C	C	C	C
Approach Vol, veh/h		1481			1353			615			628	
Approach Delay, s/veh		46.9			28.2			71.4			29.1	
Approach LOS		D			C			E			C	

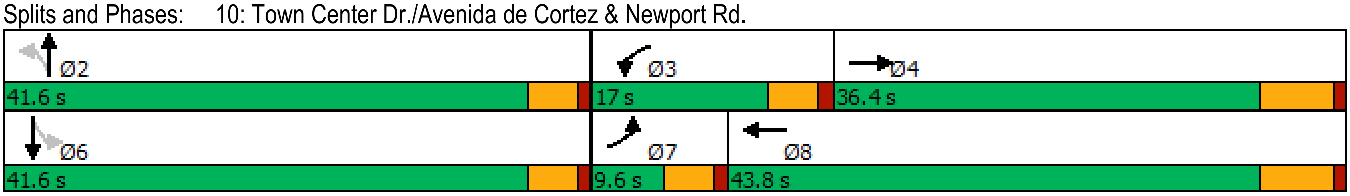
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	17.7	10.0	30.7	11.0	21.9	11.0	29.7
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	20.8	20.6	5.4	32.0	6.4	35.0	6.4	31.0
Max Q Clear Time (g_c+I1), s	10.6	10.5	6.8	17.9	8.4	10.2	8.4	14.0
Green Ext Time (p_c), s	0.2	1.3	0.0	6.5	0.0	2.3	0.0	6.2

Intersection Summary	
HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	7	1594	211	1243	97	22	71	18
Future Volume (vph)	7	1594	211	1243	97	22	71	18
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.4	17.0	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.3%	17.9%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	30.7	12.3	46.2	15.1	15.1	15.1	15.1
Actuated g/C Ratio	0.07	0.42	0.17	0.63	0.20	0.20	0.20	0.20
v/c Ratio	0.05	0.78	0.72	0.39	0.37	0.45	0.52	0.09
Control Delay	38.3	23.5	46.5	9.7	27.8	7.4	38.2	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	23.5	46.5	9.7	27.8	7.4	38.2	14.5
LOS	D	C	D	A	C	A	D	B
Approach Delay		23.6		14.9		13.3		30.6
Approach LOS		C		B		B		C

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 73.8	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 86.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.

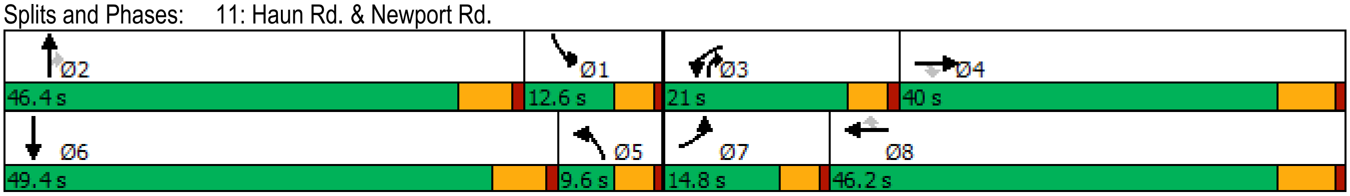


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1594	107	211	1243	30	97	22	214	71	18	16
Future Volume (veh/h)	7	1594	107	211	1243	30	97	22	214	71	18	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1696	57	224	1322	18	103	23	141	76	19	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	2293	77	272	3138	43	341	38	236	211	258	54
Arrive On Green	0.01	0.43	0.43	0.15	0.57	0.57	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	5393	181	1781	5520	75	1384	223	1368	1218	1497	315
Grp Volume(v), veh/h	7	1176	577	224	896	444	103	0	164	76	0	23
Grp Sat Flow(s),veh/h/ln	1781	1870	1833	1781	1870	1855	1384	0	1592	1218	0	1812
Q Serve(g_s), s	0.2	16.2	16.2	7.5	8.4	8.4	4.1	0.0	5.9	3.8	0.0	0.7
Cycle Q Clear(g_c), s	0.2	16.2	16.2	7.5	8.4	8.4	4.8	0.0	5.9	9.6	0.0	0.7
Prop In Lane	1.00		0.10	1.00		0.04	1.00		0.86	1.00		0.17
Lane Grp Cap(c), veh/h	16	1590	779	272	2126	1054	341	0	274	211	0	312
V/C Ratio(X)	0.43	0.74	0.74	0.82	0.42	0.42	0.30	0.00	0.60	0.36	0.00	0.07
Avail Cap(c_a), veh/h	145	1836	899	359	2285	1133	934	0	957	733	0	1090
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	14.8	14.8	25.3	7.5	7.5	23.4	0.0	23.5	28.0	0.0	21.4
Incr Delay (d2), s/veh	6.5	1.4	2.8	8.7	0.1	0.3	0.5	0.0	2.1	1.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.5	5.7	3.4	2.1	2.2	1.3	0.0	2.3	1.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	16.2	17.6	34.0	7.7	7.8	23.9	0.0	25.6	29.0	0.0	21.5
LnGrp LOS	D	B	B	C	A	A	C	A	C	C	A	C
Approach Vol, veh/h		1760			1564			267			99	
Approach Delay, s/veh		16.8			11.5			24.9			27.2	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.2	14.0	32.4		15.2	5.2	41.2				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		37.0	12.4	30.2		37.0	5.0	37.6				
Max Q Clear Time (g_c+I1), s		7.9	9.5	18.2		11.6	2.2	10.4				
Green Ext Time (p_c), s		1.4	0.1	7.9		0.3	0.0	9.3				
Intersection Summary												
HCM 6th Ctrl Delay			15.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	158	1599	106	514	1285	364	136	55	495	111	37
Future Volume (vph)	158	1599	106	514	1285	364	136	55	495	111	37
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	14.8	40.0	40.0	21.0	46.2	46.2	9.6	46.4	21.0	12.6	49.4
Total Split (%)	12.3%	33.3%	33.3%	17.5%	38.5%	38.5%	8.0%	38.7%	17.5%	10.5%	41.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.3	34.3	34.3	16.6	42.6	42.6	6.5	10.6	26.0	14.6	15.2
Actuated g/C Ratio	0.09	0.36	0.36	0.18	0.45	0.45	0.07	0.11	0.28	0.15	0.16
v/c Ratio	0.52	0.85	0.15	0.85	0.55	0.43	0.58	0.29	0.50	0.21	0.18
Control Delay	48.7	34.0	2.6	52.3	21.8	4.1	54.0	45.2	17.2	36.4	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	34.0	2.6	52.3	21.8	4.1	54.0	45.2	17.2	36.4	14.8
LOS	D	C	A	D	C	A	D	D	B	D	B
Approach Delay		33.5			26.1			26.8			26.4
Approach LOS		C			C			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	1599	106	514	1285	364	136	55	495	111	37	59
Future Volume (veh/h)	158	1599	106	514	1285	364	136	55	495	111	37	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	1738	41	559	1397	217	148	60	496	121	40	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2114	597	639	2723	758	319	253	998	200	225	124
Arrive On Green	0.07	0.38	0.38	0.18	0.49	0.49	0.09	0.14	0.14	0.06	0.10	0.10
Sat Flow, veh/h	3563	5611	1585	3563	5611	1563	3563	1870	3170	3563	2209	1213
Grp Volume(v), veh/h	172	1738	41	559	1397	217	148	60	496	121	31	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1563	1781	1870	1585	1781	1777	1645
Q Serve(g_s), s	4.0	23.5	0.9	12.8	14.3	4.5	3.3	2.4	7.0	2.8	1.4	1.5
Cycle Q Clear(g_c), s	4.0	23.5	0.9	12.8	14.3	4.5	3.3	2.4	7.0	2.8	1.4	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	253	2114	597	639	2723	758	319	253	998	200	181	168
V/C Ratio(X)	0.68	0.82	0.07	0.87	0.51	0.29	0.46	0.24	0.50	0.61	0.17	0.19
Avail Cap(c_a), veh/h	433	2259	638	696	2723	758	319	904	2102	339	923	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	23.6	7.1	33.5	14.8	5.3	36.3	32.4	10.7	38.7	34.5	34.5
Incr Delay (d2), s/veh	1.2	2.4	0.0	10.6	0.2	0.2	0.4	0.5	0.4	1.1	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	9.5	0.5	6.0	5.1	2.0	1.4	1.1	2.7	1.2	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	26.1	7.1	44.1	15.0	5.5	36.7	32.9	11.1	39.8	34.9	35.1
LnGrp LOS	D	C	A	D	B	A	D	C	B	D	C	D
Approach Vol, veh/h		1951			2173			704			185	
Approach Delay, s/veh		26.8			21.5			18.3			38.2	
Approach LOS		C			C			B			D	

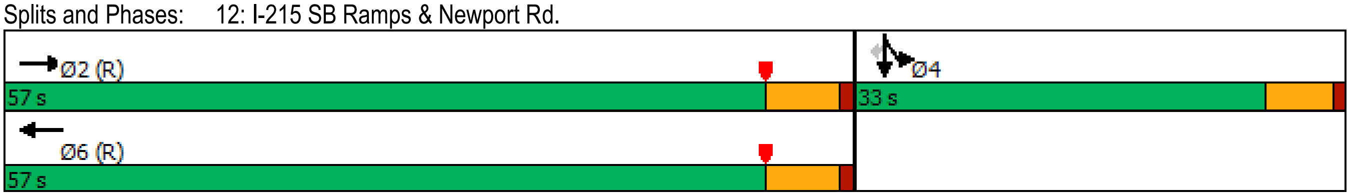
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	17.2	19.7	37.8	12.1	14.4	10.6	46.9
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	8.0	40.6	16.4	33.8	5.0	43.6	10.2	40.0
Max Q Clear Time (g_c+I1), s	4.8	9.0	14.8	25.5	5.3	3.5	6.0	16.3
Green Ext Time (p_c), s	0.0	2.3	0.2	6.2	0.0	0.3	0.1	10.9

Intersection Summary			
HCM 6th Ctrl Delay			23.8
HCM 6th LOS			C

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1614	631	1638	819	375	0	572
Future Volume (vph)	1614	631	1638	819	375	0	572
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	57.0		57.0		33.0	33.0	33.0
Total Split (%)	63.3%		63.3%		36.7%	36.7%	36.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	56.3	90.0	56.3	90.0	22.2	22.2	22.2
Actuated g/C Ratio	0.63	1.00	0.63	1.00	0.25	0.25	0.25
v/c Ratio	0.37	0.36	0.48	0.54	0.79	0.69	0.69
Control Delay	9.0	0.5	5.9	5.3	44.3	34.4	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	0.5	5.9	5.3	44.3	34.4	34.4
LOS	A	A	A	A	D	C	C
Approach Delay	6.6		5.7			37.8	
Approach LOS	A		A			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, S art of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1614	631	0	1638	819	0	0	0	375	0	572
Future Volume (veh/h)	0	1614	631	0	1638	819	0	0	0	375	0	572
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	1681	0	0	1706	0				540	0	290
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	4816		0	3699					746	0	335
Arrive On Green	0.00	0.65	0.00	0.00	1.00	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	7363	1572	0	5656	1610				3421	0	1535
Grp Volume(v), veh/h	0	1681	0	0	1706	0				540	0	290
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	9.2	0.0	0.0	0.0	0.0				13.2	0.0	16.4
Cycle Q Clear(g_c), s	0.0	9.2	0.0	0.0	0.0	0.0				13.2	0.0	16.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4816		0	3699					746	0	335
V/C Ratio(X)	0.00	0.35		0.00	0.46					0.72	0.00	0.87
Avail Cap(c_a), veh/h	0	4816		0	3699					1045	0	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.59	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.0	0.0	0.0	0.0	0.0				32.7	0.0	33.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.4	0.0				0.7	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	0.0	0.0	0.1	0.0				5.2	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.1	0.0	0.0	0.4	0.0				33.4	0.0	43.0
LnGrp LOS	A	A		A	A					C	A	D
Approach Vol, veh/h		1681	A		1706	A					830	
Approach Delay, s/veh		7.1			0.4						36.7	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		64.9		25.1		64.9						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		51.0		27.5		51.0						
Max Q Clear Time (g_c+I1), s		11.2		18.4		2.0						
Green Ext Time (p_c), s		15.8		1.2		17.2						

Intersection Summary		
HCM 6th Ctrl Delay		10.2
HCM 6th LOS		B

Notes

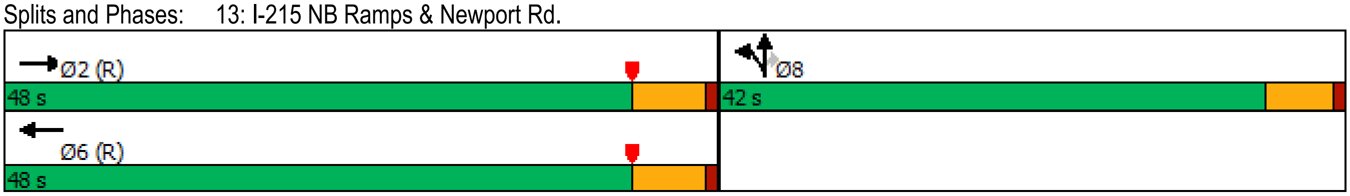
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1456	482	2120	479	343	0	595
Future Volume (vph)	1456	482	2120	479	343	0	595
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	48.0		48.0		42.0	42.0	42.0
Total Split (%)	53.3%		53.3%		46.7%	46.7%	46.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	53.8	90.0	53.8	90.0	24.7	24.7	24.7
Actuated g/C Ratio	0.60	1.00	0.60	1.00	0.27	0.27	0.27
v/c Ratio	0.47	0.32	0.50	0.33	0.63	0.78	0.62
Control Delay	7.5	1.0	12.0	0.6	33.0	38.6	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	1.0	12.0	0.6	33.0	38.6	29.4
LOS	A	A	B	A	C	D	C
Approach Delay	5.9		9.9			33.7	
Approach LOS	A		A			C	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, S art of Yellow, Master Intersection
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 12.5 Intersection LOS: B
Intersection Capacity Utilization 62.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1456	482	0	2120	479	343	0	595	0	0	0
Future Volume (veh/h)	0	1456	482	0	2120	479	343	0	595	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	1533	0	0	2232	0	506	0	275			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	3681		0	4987		738	0	323			
Arrive On Green	0.00	1.00	0.00	0.00	0.67	0.00	0.21	0.00	0.21			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	3591	0	1572			
Grp Volume(v), veh/h	0	1533	0	0	2232	0	506	0	275			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	12.8	0.0	11.7	0.0	15.2			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	12.8	0.0	11.7	0.0	15.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3681		0	4987		738	0	323			
V/C Ratio(X)	0.00	0.42		0.00	0.45		0.69	0.00	0.85			
Avail Cap(c_a), veh/h	0	3681		0	4987		1456	0	638			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	7.1	0.0	33.1	0.0	34.4			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.3	0.0	0.4	0.0	2.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	3.7	0.0	4.8	0.0	5.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.3	0.0	0.0	7.4	0.0	33.5	0.0	36.9			
LnGrp LOS	A	A		A	A		C	A	D			
Approach Vol, veh/h		1533	A		2232	A		781				
Approach Delay, s/veh		0.3			7.4			34.7				
Approach LOS		A			A			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		66.0				66.0		24.0				
Change Period (Y+Rc), s		6.0				6.0		5.5				
Max Green Setting (Gmax), s		42.0				42.0		36.5				
Max Q Clear Time (g_c+I1), s		2.0				14.8		17.2				
Green Ext Time (p_c), s		13.7				18.9		1.3				

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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	0	0	0	11	0	14	0	172	18	19	190	0
Future Vol, veh/h	0	0	0	11	0	14	0	172	18	19	190	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	0	16	0	198	21	22	218	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	471	471	209	-	0	0	219	0	0
Stage 1	209	209	-	-	-	-	-	-	-
Stage 2	262	262	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	551	491	831	0	-	-	1350	-	0
Stage 1	826	729	-	0	-	-	-	-	0
Stage 2	782	691	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	541	0	831	-	-	-	1350	-	-
Mov Cap-2 Maneuver	541	0	-	-	-	-	-	-	-
Stage 1	826	0	-	-	-	-	-	-	-
Stage 2	767	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.7
HCM LOS	B		

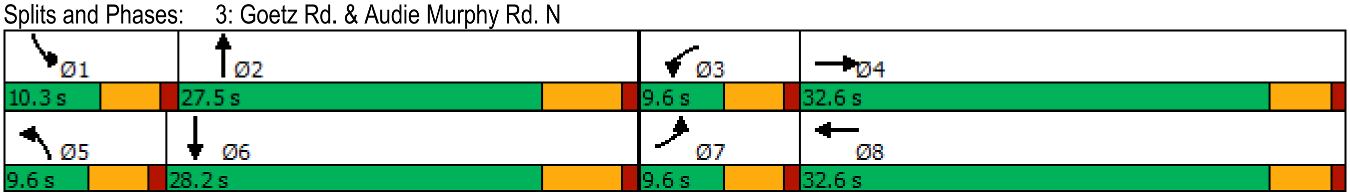
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	672	1350	-
HCM Lane V/C Ratio	-	-	0.043	0.016	-
HCM Control Delay (s)	-	-	10.6	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7
Lane Configurations								
Traffic Volume (vph)	0	12	1	3	437	28	340	
Future Volume (vph)	0	12	1	3	437	28	340	
Turn Type	NA	Prot	NA	Prot	NA	Prot	NA	
Protected Phases	4	3	8	5	2	1	6	7
Permitted Phases								
Detector Phase	4	3	8	5	2	1	6	
Switch Phase								
Minimum Initial (s)	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	32.6	9.6	32.6	9.6	26.8	9.6	26.8	9.6
Total Split (s)	32.6	9.6	32.6	9.6	27.5	10.3	28.2	9.6
Total Split (%)	40.8%	12.0%	40.8%	12.0%	34.4%	12.9%	35.3%	12%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8	
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	16.4	7.5	17.2	7.5	23.6	7.7	23.6	
Actuated g/C Ratio	0.51	0.23	0.53	0.23	0.73	0.24	0.73	
v/c Ratio	0.00	0.03	0.09	0.01	0.20	0.07	0.15	
Control Delay	0.0	23.1	3.5	24.0	9.5	21.7	9.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	0.0	23.1	3.5	24.0	9.5	21.7	9.3	
LOS	A	C	A	C	A	C	A	
Approach Delay			6.3		9.6		10.3	
Approach LOS			A		A		B	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 32.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.20
Intersection Signal Delay: 9.6 Intersection LOS: A
Intersection Capacity Utilization 37.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	12	1	70	3	437	23	28	340	1
Future Volume (veh/h)	0	0	2	12	1	70	3	437	23	28	340	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	13	1	15	3	486	26	31	378	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	7	0	31	4	63	7	1244	66	68	1445	4
Arrive On Green	0.00	0.00	0.00	0.02	0.04	0.04	0.00	0.36	0.36	0.04	0.40	0.40
Sat Flow, veh/h	1781	1870	0	1781	100	1500	1781	3427	183	1781	3636	10
Grp Volume(v), veh/h	0	0	0	13	0	16	3	251	261	31	185	194
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	0	1600	1781	1777	1833	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.3	0.0	2.8	2.8	0.5	1.9	1.9
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.2	0.0	0.3	0.0	2.8	2.8	0.5	1.9	1.9
Prop In Lane	1.00		0.00	1.00		0.94	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	7	7	0	31	0	67	7	645	665	68	706	743
V/C Ratio(X)	0.00	0.00	0.00	0.42	0.00	0.24	0.41	0.39	0.39	0.45	0.26	0.26
Avail Cap(c_a), veh/h	331	1943	0	331	0	1663	331	1431	1476	377	1477	1553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	13.1	0.0	12.5	13.4	6.4	6.4	12.7	5.5	5.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.4	0.0	1.8	13.0	0.4	0.4	1.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.4	0.4	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	16.5	0.0	14.3	26.4	6.8	6.7	14.4	5.7	5.6
LnGrp LOS	A	A	A	B	A	B	C	A	A	B	A	A
Approach Vol, veh/h		0			29			515			410	
Approach Delay, s/veh		0.0			15.3			6.9			6.3	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	15.6	5.1	0.7	4.7	16.5	0.0	5.7
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.7	21.7	5.0	28.0	5.0	22.4	5.0	28.0
Max Q Clear Time (g_c+I1), s	2.5	4.8	2.2	0.0	2.0	3.9	0.0	2.3
Green Ext Time (p_c), s	0.0	2.5	0.0	0.0	0.0	1.8	0.0	0.0

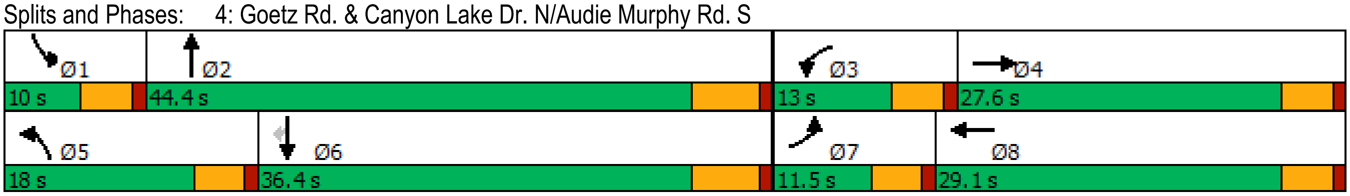
Intersection Summary			
HCM 6th Ctrl Delay			6.9
HCM 6th LOS			A

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	43	28	143	53	242	390	19	312	37
Future Volume (vph)	43	28	143	53	242	390	19	312	37
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	11.5	27.6	13.0	29.1	18.0	44.4	10.0	36.4	36.4
Total Split (%)	12.1%	29.1%	13.7%	30.6%	18.9%	46.7%	10.5%	38.3%	38.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.1	12.2	8.6	13.2	13.8	31.1	5.3	14.1	14.1
Actuated g/C Ratio	0.09	0.18	0.12	0.19	0.20	0.45	0.08	0.20	0.20
v/c Ratio	0.30	0.48	0.72	0.19	0.76	0.40	0.15	0.48	0.09
Control Delay	38.3	11.0	51.9	23.0	44.5	12.4	37.2	26.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	11.0	51.9	23.0	44.5	12.4	37.2	26.2	0.4
LOS	D	B	D	C	D	B	D	C	A
Approach Delay		16.3		43.2		22.1		24.1	
Approach LOS		B		D		C		C	

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 68.8
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 24.5 Intersection LOS: C
Intersection Capacity Utilization 58.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	28	154	143	53	9	242	390	173	19	312	37
Future Volume (veh/h)	43	28	154	143	53	9	242	390	173	19	312	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	31	80	159	59	4	269	433	128	21	347	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	70	182	202	378	26	324	930	272	45	668	298
Arrive On Green	0.05	0.15	0.15	0.11	0.22	0.22	0.18	0.34	0.34	0.03	0.19	0.19
Sat Flow, veh/h	1781	462	1192	1781	1732	117	1781	2696	789	1781	3554	1583
Grp Volume(v), veh/h	48	0	111	159	0	63	269	284	277	21	347	29
Grp Sat Flow(s),veh/h/ln	1781	0	1654	1781	0	1849	1781	1777	1708	1781	1777	1583
Q Serve(g_s), s	1.4	0.0	3.3	4.7	0.0	1.5	7.8	6.7	6.8	0.6	4.7	0.8
Cycle Q Clear(g_c), s	1.4	0.0	3.3	4.7	0.0	1.5	7.8	6.7	6.8	0.6	4.7	0.8
Prop In Lane	1.00		0.72	1.00		0.06	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	85	0	252	202	0	403	324	613	589	45	668	298
V/C Ratio(X)	0.57	0.00	0.44	0.79	0.00	0.16	0.83	0.46	0.47	0.47	0.52	0.10
Avail Cap(c_a), veh/h	228	0	707	278	0	842	444	1275	1226	179	2021	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	20.7	23.2	0.0	17.0	21.2	13.7	13.8	25.9	19.7	18.1
Incr Delay (d2), s/veh	2.2	0.0	1.2	6.6	0.0	0.2	6.9	0.5	0.6	2.8	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.3	2.2	0.0	0.6	3.4	2.2	2.2	0.3	1.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	0.0	21.9	29.8	0.0	17.2	28.1	14.3	14.4	28.7	20.3	18.2
LnGrp LOS	C	A	C	C	A	B	C	B	B	C	C	B
Approach Vol, veh/h		159			222			830			397	
Approach Delay, s/veh		23.5			26.3			18.8			20.6	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.4	10.7	12.8	14.4	15.9	7.2	16.3
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.4	38.6	8.4	23.0	13.4	30.6	6.9	24.5
Max Q Clear Time (g_c+I1), s	2.6	8.8	6.7	5.3	9.8	6.7	3.4	3.5
Green Ext Time (p_c), s	0.0	3.3	0.0	0.5	0.1	2.1	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

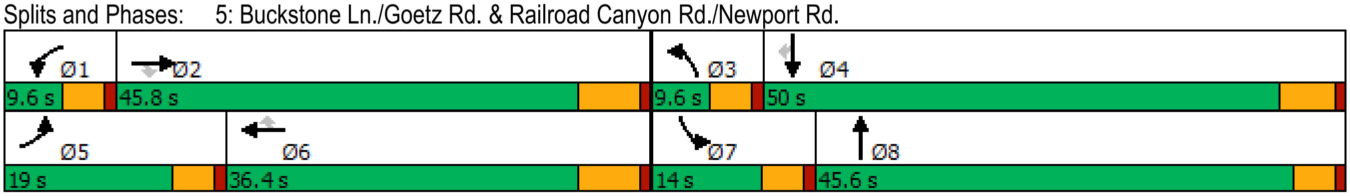
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	478	893	6	12	617	333	1	1	290	5	328
Future Volume (vph)	478	893	6	12	617	333	1	1	290	5	328
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	19.0	45.8	45.8	9.6	36.4	36.4	9.6	45.6	14.0	50.0	50.0
Total Split (%)	16.5%	39.8%	39.8%	8.3%	31.7%	31.7%	8.3%	39.7%	12.2%	43.5%	43.5%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	15.7	35.9	35.9	5.5	16.2	16.2	5.5	14.5	12.0	14.9	14.9
Actuated g/C Ratio	0.24	0.54	0.54	0.08	0.25	0.25	0.08	0.22	0.18	0.23	0.23
v/c Ratio	0.60	0.33	0.01	0.08	0.51	0.53	0.01	0.03	0.48	0.36	0.36
Control Delay	30.3	12.5	0.0	39.0	24.3	6.7	40.0	13.1	32.2	6.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	12.5	0.0	39.0	24.3	6.7	40.0	13.1	32.2	6.6	6.2
LOS	C	B	A	D	C	A	D	B	C	A	A
Approach Delay		18.6			18.4			15.5		18.4	
Approach LOS		B			B			B		B	

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 66.1
Natural Cycle: 115
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 18.5 Intersection LOS: B
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	478	893	6	12	617	333	1	1	9	290	5	328
Future Volume (veh/h)	478	893	6	12	617	333	1	1	9	290	5	328
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	493	921	5	12	636	205	1	1	4	299	0	172
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	634	2064	641	27	1205	374	3	18	72	430	0	555
Arrive On Green	0.18	0.40	0.40	0.02	0.24	0.24	0.00	0.06	0.06	0.12	0.00	0.18
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	323	1292	3563	0	3170
Grp Volume(v), veh/h	493	921	5	12	636	205	1	0	5	299	0	172
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	0	1616	1781	0	1585
Q Serve(g_s), s	7.1	6.9	0.1	0.4	5.7	6.0	0.0	0.0	0.2	4.2	0.0	2.5
Cycle Q Clear(g_c), s	7.1	6.9	0.1	0.4	5.7	6.0	0.0	0.0	0.2	4.2	0.0	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	634	2064	641	27	1205	374	3	0	90	430	0	555
V/C Ratio(X)	0.78	0.45	0.01	0.44	0.53	0.55	0.29	0.00	0.06	0.70	0.00	0.31
Avail Cap(c_a), veh/h	948	3854	1196	170	2939	912	170	0	1262	638	0	2670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	11.4	9.3	25.6	17.5	17.6	26.2	0.0	23.5	22.1	0.0	18.9
Incr Delay (d2), s/veh	1.1	0.2	0.0	4.1	0.4	1.3	16.9	0.0	0.3	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.8	0.0	0.2	1.8	2.1	0.0	0.0	0.1	1.6	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	11.5	9.3	29.7	17.8	18.8	43.0	0.0	23.7	22.9	0.0	19.2
LnGrp LOS	C	B	A	C	B	B	D	A	C	C	A	B
Approach Vol, veh/h		1419			853			6			471	
Approach Delay, s/veh		15.0			18.3			26.9			21.6	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.4	27.4	4.7	15.0	14.2	18.6	10.9	8.7				
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8				
Max Green Setting (Gmax), s	5.0	39.6	5.0	44.2	14.4	30.2	9.4	* 41				
Max Q Clear Time (g_c+I1), s	2.4	8.9	2.0	4.5	9.1	8.0	6.2	2.2				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.6	0.5	4.4	0.2	0.0				

Intersection Summary		
HCM 6th Ctrl Delay		17.2
HCM 6th LOS		B

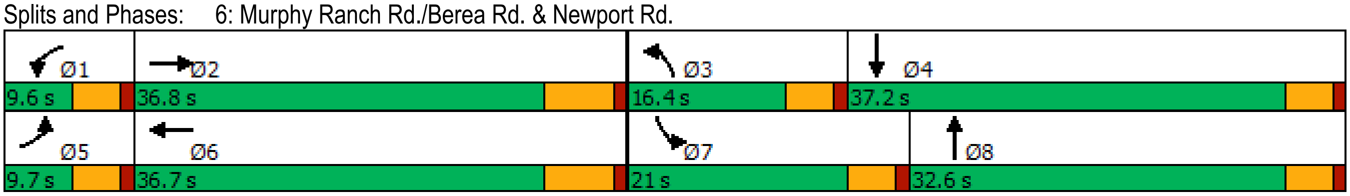
Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	41	1217	14	926	90	58	229	47
Future Volume (vph)	41	1217	14	926	90	58	229	47
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	9.7	36.8	9.6	36.7	16.4	32.6	21.0	37.2
Total Split (%)	9.7%	36.8%	9.6%	36.7%	16.4%	32.6%	21.0%	37.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.8	29.6	5.7	26.1	8.6	13.9	14.6	18.4
Actuated g/C Ratio	0.08	0.42	0.08	0.37	0.12	0.20	0.21	0.26
v/c Ratio	0.29	0.64	0.10	0.65	0.43	0.19	0.65	0.17
Control Delay	45.4	20.5	42.3	22.3	42.1	27.8	41.1	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	20.5	42.3	22.3	42.1	27.8	41.1	17.1
LOS	D	C	D	C	D	C	D	B
Approach Delay		21.3		22.6		36.1		35.0
Approach LOS		C		C		D		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 71	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 61.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1217	88	14	926	247	90	58	8	229	47	32
Future Volume (veh/h)	41	1217	88	14	926	247	90	58	8	229	47	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1255	63	14	955	176	93	60	6	236	48	22
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1827	92	31	1485	273	120	188	19	289	251	115
Arrive On Green	0.04	0.37	0.37	0.02	0.34	0.34	0.07	0.11	0.11	0.16	0.21	0.21
Sat Flow, veh/h	1781	4973	250	1781	4335	796	1781	1673	167	1781	1214	556
Grp Volume(v), veh/h	42	859	459	14	749	382	93	0	66	236	0	70
Grp Sat Flow(s),veh/h/ln	1781	1702	1818	1781	1702	1727	1781	0	1840	1781	0	1770
Q Serve(g_s), s	1.4	12.5	12.5	0.5	10.9	10.9	3.0	0.0	1.9	7.5	0.0	1.9
Cycle Q Clear(g_c), s	1.4	12.5	12.5	0.5	10.9	10.9	3.0	0.0	1.9	7.5	0.0	1.9
Prop In Lane	1.00		0.14	1.00		0.46	1.00		0.09	1.00		0.31
Lane Grp Cap(c), veh/h	75	1251	668	31	1166	592	120	0	207	289	0	366
V/C Ratio(X)	0.56	0.69	0.69	0.45	0.64	0.65	0.77	0.00	0.32	0.82	0.00	0.19
Avail Cap(c_a), veh/h	155	1775	948	152	1769	898	358	0	878	498	0	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	15.7	15.7	28.6	16.3	16.3	26.9	0.0	24.0	23.7	0.0	19.2
Incr Delay (d2), s/veh	2.4	0.7	1.3	3.8	0.6	1.2	4.0	0.0	0.9	2.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.7	4.1	0.2	3.3	3.5	1.4	0.0	0.9	3.2	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	16.4	17.0	32.3	16.9	17.5	30.9	0.0	24.9	25.9	0.0	19.5
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		1360			1145			159			306	
Approach Delay, s/veh		17.0			17.2			28.4			24.5	
Approach LOS		B			B			C			C	

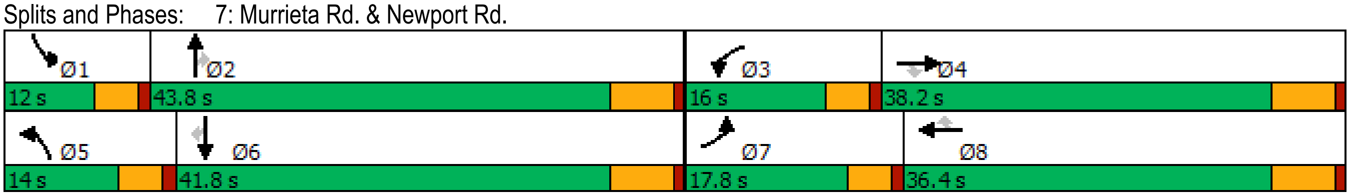
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	27.8	8.6	16.7	7.1	26.3	14.1	11.2
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6
Max Green Setting (Gmax), s	5.0	30.6	11.8	32.6	5.1	30.5	16.4	28.0
Max Q Clear Time (g_c+I1), s	2.5	14.5	5.0	3.9	3.4	12.9	9.5	3.9
Green Ext Time (p_c), s	0.0	7.0	0.1	0.3	0.0	6.3	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	1035	98	213	972	186	180	244	96	133	115	45
Future Volume (vph)	202	1035	98	213	972	186	180	244	96	133	115	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	17.8	38.2	38.2	16.0	36.4	36.4	14.0	43.8	43.8	12.0	41.8	41.8
Total Split (%)	16.2%	34.7%	34.7%	14.5%	33.1%	33.1%	12.7%	39.8%	39.8%	10.9%	38.0%	38.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.5	25.3	25.3	11.6	23.4	23.4	9.6	16.0	16.0	7.6	13.9	13.9
Actuated g/C Ratio	0.16	0.31	0.31	0.14	0.28	0.28	0.12	0.19	0.19	0.09	0.17	0.17
v/c Ratio	0.71	0.68	0.18	0.87	0.69	0.33	0.90	0.36	0.24	0.84	0.20	0.12
Control Delay	50.7	28.2	4.1	70.4	29.7	5.9	81.0	30.2	4.6	80.2	30.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	28.2	4.1	70.4	29.7	5.9	81.0	30.2	4.6	80.2	30.0	0.7
LOS	D	C	A	E	C	A	F	C	A	F	C	A
Approach Delay		29.9			32.8			43.1			48.3	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 82.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 34.5	Intersection LOS: C
Intersection Capacity Utilization 68.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	1035	98	213	972	186	180	244	96	133	115	45
Future Volume (veh/h)	202	1035	98	213	972	186	180	244	96	133	115	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	206	1056	49	217	992	96	184	249	33	136	117	11
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	1519	465	258	1548	474	224	564	248	171	459	205
Arrive On Green	0.14	0.30	0.30	0.15	0.30	0.30	0.13	0.16	0.16	0.10	0.13	0.13
Sat Flow, veh/h	1781	5106	1562	1781	5106	1565	1781	3554	1559	1781	3554	1585
Grp Volume(v), veh/h	206	1056	49	217	992	96	184	249	33	136	117	11
Grp Sat Flow(s),veh/h/ln	1781	1702	1562	1781	1702	1565	1781	1777	1559	1781	1777	1585
Q Serve(g_s), s	8.0	13.1	1.6	8.5	12.0	3.2	7.2	4.5	1.3	5.3	2.1	0.4
Cycle Q Clear(g_c), s	8.0	13.1	1.6	8.5	12.0	3.2	7.2	4.5	1.3	5.3	2.1	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	1519	465	258	1548	474	224	564	248	171	459	205
V/C Ratio(X)	0.83	0.70	0.11	0.84	0.64	0.20	0.82	0.44	0.13	0.80	0.25	0.05
Avail Cap(c_a), veh/h	330	2291	701	285	2162	663	235	1874	822	185	1774	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	22.2	18.2	29.7	21.5	18.4	30.4	27.1	25.8	31.6	28.0	27.2
Incr Delay (d2), s/veh	9.7	0.6	0.1	16.7	0.4	0.2	18.3	0.5	0.2	17.8	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	4.5	0.5	4.4	4.2	1.0	3.9	1.8	0.5	2.9	0.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	22.8	18.3	46.3	21.9	18.7	48.7	27.7	26.0	49.3	28.3	27.3
LnGrp LOS	D	C	B	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1311			1305			466			264	
Approach Delay, s/veh		25.2			25.8			35.9			39.1	
Approach LOS		C			C			D			D	

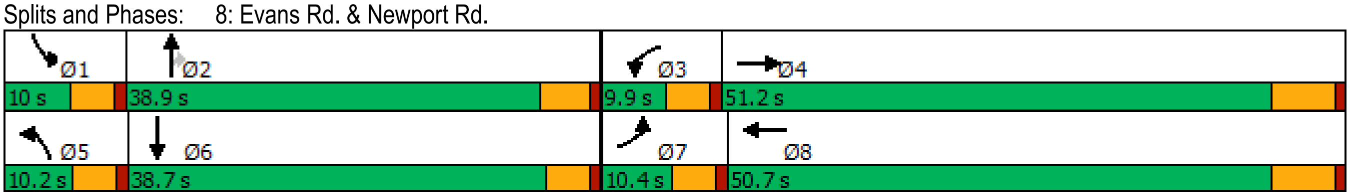
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	17.5	14.9	27.4	13.5	15.4	14.5	27.8
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	7.4	37.6	11.4	32.0	9.4	35.6	13.2	30.2
Max Q Clear Time (g_c+I1), s	7.3	6.5	10.5	15.1	9.2	4.1	10.0	14.0
Green Ext Time (p_c), s	0.0	1.5	0.0	6.1	0.0	0.6	0.1	5.9

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	22	1222	41	1388	25	20	33	44	20
Future Volume (vph)	22	1222	41	1388	25	20	33	44	20
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.4	51.2	9.9	50.7	10.2	38.9	38.9	10.0	38.7
Total Split (%)	9.5%	46.5%	9.0%	46.1%	9.3%	35.4%	35.4%	9.1%	35.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.7	44.1	7.7	45.6	7.7	17.6	17.6	7.8	19.4
Actuated g/C Ratio	0.12	0.68	0.12	0.70	0.12	0.27	0.27	0.12	0.30
v/c Ratio	0.11	0.55	0.21	0.42	0.12	0.04	0.07	0.22	0.08
Control Delay	44.1	16.8	44.7	12.9	44.3	29.9	0.2	44.7	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	16.8	44.7	12.9	44.3	29.9	0.2	44.7	18.9
LOS	D	B	D	B	D	C	A	D	B
Approach Delay		17.3		13.8		21.8			32.5
Approach LOS		B		B		C			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 64.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1222	22	41	1388	43	25	20	33	44	20	19
Future Volume (veh/h)	22	1222	22	41	1388	43	25	20	33	44	20	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	1286	18	43	1461	40	26	21	8	46	21	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1732	24	77	2550	70	53	121	103	81	100	43
Arrive On Green	0.03	0.48	0.48	0.04	0.50	0.50	0.03	0.06	0.06	0.05	0.08	0.08
Sat Flow, veh/h	1781	3587	50	1781	5106	140	1781	1870	1585	1781	1241	532
Grp Volume(v), veh/h	23	637	667	43	974	527	26	21	8	46	0	30
Grp Sat Flow(s),veh/h/ln	1781	1777	1860	1781	1702	1842	1781	1870	1585	1781	0	1773
Q Serve(g_s), s	0.7	16.3	16.3	1.3	11.3	11.3	0.8	0.6	0.3	1.4	0.0	0.9
Cycle Q Clear(g_c), s	0.7	16.3	16.3	1.3	11.3	11.3	0.8	0.6	0.3	1.4	0.0	0.9
Prop In Lane	1.00		0.03	1.00		0.08	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	48	858	898	77	1700	920	53	121	103	81	0	143
V/C Ratio(X)	0.48	0.74	0.74	0.56	0.57	0.57	0.49	0.17	0.08	0.57	0.00	0.21
Avail Cap(c_a), veh/h	183	1418	1484	167	2686	1453	177	1121	950	171	0	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.1	11.8	11.8	26.4	9.9	9.9	26.9	24.9	24.8	26.4	0.0	24.2
Incr Delay (d2), s/veh	2.8	1.3	1.2	2.3	0.3	0.6	2.6	0.7	0.3	2.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.6	4.8	0.5	2.8	3.1	0.4	0.3	0.1	0.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	13.0	13.0	28.7	10.2	10.5	29.6	25.6	25.1	28.7	0.0	25.0
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	A	C
Approach Vol, veh/h		1327			1544			55			76	
Approach Delay, s/veh		13.3			10.8			27.4			27.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	8.8	7.1	33.4	6.3	9.6	6.1	34.4
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2
Max Green Setting (Gmax), s	5.4	33.8	5.3	45.0	5.6	* 34	5.8	44.5
Max Q Clear Time (g_c+I1), s	3.4	2.6	3.3	18.3	2.8	2.9	2.7	13.3
Green Ext Time (p_c), s	0.0	0.1	0.0	8.9	0.0	0.1	0.0	11.4

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

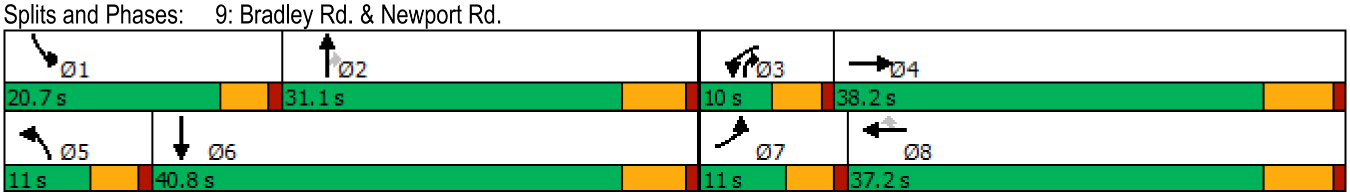
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	188	1178	215	940	177	176	216	290	202	244
Future Volume (vph)	188	1178	215	940	177	176	216	290	202	244
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	31.1	10.0	20.7	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	31.1%	10.0%	20.7%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.5	28.9	5.5	27.8	27.8	6.5	16.5	27.9	13.9	23.9
Actuated g/C Ratio	0.08	0.33	0.06	0.32	0.32	0.08	0.19	0.32	0.16	0.28
v/c Ratio	1.50	0.78	1.05	0.61	0.30	1.41	0.65	0.51	0.75	0.45
Control Delay	294.1	30.3	118.0	27.2	5.3	255.7	42.2	16.8	54.3	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	294.1	30.3	118.0	27.2	5.3	255.7	42.2	16.8	54.3	18.2
LOS	F	C	F	C	A	F	D	B	D	B
Approach Delay		65.0		39.0			86.4			29.7
Approach LOS		E		D			F			C

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 86.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.50
Intersection Signal Delay: 54.6 Intersection LOS: D
Intersection Capacity Utilization 71.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 9: Bradley Rd. & Newport Rd.

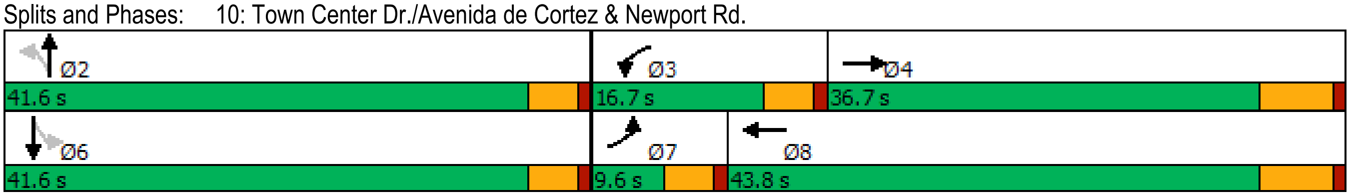


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	1178	63	215	940	177	176	216	290	202	244	188
Future Volume (veh/h)	188	1178	63	215	940	177	176	216	290	202	244	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	1253	53	229	1000	108	187	230	232	215	260	150
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	1667	70	244	1627	494	149	330	392	256	520	290
Arrive On Green	0.08	0.33	0.33	0.07	0.32	0.32	0.08	0.18	0.18	0.14	0.24	0.24
Sat Flow, veh/h	1781	5023	212	3456	5106	1550	1781	1870	1585	1781	2198	1227
Grp Volume(v), veh/h	200	849	457	229	1000	108	187	230	232	215	209	201
Grp Sat Flow(s),veh/h/ln	1781	1702	1832	1728	1702	1550	1781	1870	1585	1781	1777	1648
Q Serve(g_s), s	6.4	17.0	17.0	5.0	12.7	3.9	6.4	8.8	9.9	9.0	7.8	8.1
Cycle Q Clear(g_c), s	6.4	17.0	17.0	5.0	12.7	3.9	6.4	8.8	9.9	9.0	7.8	8.1
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	149	1129	608	244	1627	494	149	330	392	256	421	390
V/C Ratio(X)	1.34	0.75	0.75	0.94	0.61	0.22	1.25	0.70	0.59	0.84	0.50	0.52
Avail Cap(c_a), veh/h	149	1424	766	244	2070	628	149	619	636	375	813	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	22.7	22.8	35.4	22.1	19.1	35.0	29.6	25.4	31.9	25.2	25.4
Incr Delay (d2), s/veh	191.8	1.7	3.2	40.5	0.4	0.2	157.8	2.7	1.4	7.2	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	6.2	6.9	3.3	4.5	1.3	9.1	3.9	3.5	4.1	3.1	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	226.9	24.5	26.0	75.9	22.5	19.3	192.8	32.2	26.8	39.0	26.1	26.4
LnGrp LOS	F	C	C	E	C	B	F	C	C	D	C	C
Approach Vol, veh/h		1506			1337			649			625	
Approach Delay, s/veh		51.8			31.4			76.6			30.7	
Approach LOS		D			C			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.6	19.3	10.0	31.6	11.0	23.9	11.0	30.6				
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2				
Max Green Setting (Gmax), s	16.1	25.3	5.4	32.0	6.4	35.0	6.4	31.0				
Max Q Clear Time (g_c+I1), s	11.0	11.9	7.0	19.0	8.4	10.1	8.4	14.7				
Green Ext Time (p_c), s	0.1	1.6	0.0	6.3	0.0	2.2	0.0	6.0				
Intersection Summary												
HCM 6th Ctrl Delay			45.9									
HCM 6th LOS			D									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	1570	195	1652	51	19	63	15
Future Volume (vph)	8	1570	195	1652	51	19	63	15
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.7	16.7	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.6%	17.6%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	30.7	11.7	45.6	14.4	14.4	14.4	14.4
Actuated g/C Ratio	0.07	0.42	0.16	0.63	0.20	0.20	0.20	0.20
v/c Ratio	0.07	0.74	0.69	0.52	0.20	0.31	0.29	0.07
Control Delay	38.0	21.8	44.6	10.9	24.7	7.9	27.0	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	21.8	44.6	10.9	24.7	7.9	27.0	16.7
LOS	D	C	D	B	C	A	C	B
Approach Delay		21.9		14.3		12.4		24.2
Approach LOS		C		B		B		C

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 72.5	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.



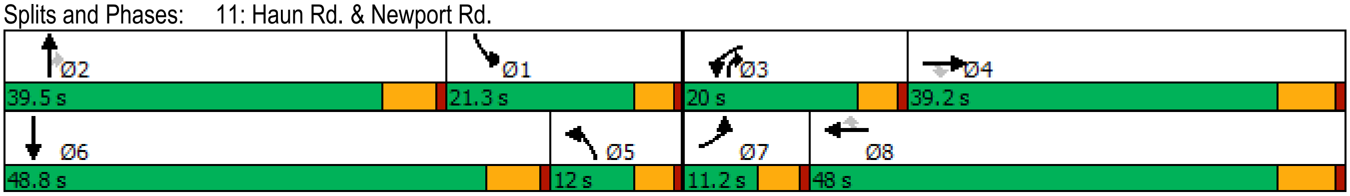
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1570	69	195	1652	67	51	19	119	63	15	8
Future Volume (veh/h)	8	1570	69	195	1652	67	51	19	119	63	15	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	1670	47	207	1757	57	54	20	80	67	16	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	21	2335	66	255	3033	98	341	54	215	266	241	60
Arrive On Green	0.01	0.43	0.43	0.14	0.56	0.56	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	5427	153	1781	5400	175	1392	322	1288	1290	1444	361
Grp Volume(v), veh/h	9	1151	566	207	1217	597	54	0	100	67	0	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1839	1781	1870	1834	1392	0	1610	1290	0	1805
Q Serve(g_s), s	0.3	15.0	15.0	6.7	12.5	12.5	2.0	0.0	3.3	2.9	0.0	0.6
Cycle Q Clear(g_c), s	0.3	15.0	15.0	6.7	12.5	12.5	2.6	0.0	3.3	6.2	0.0	0.6
Prop In Lane	1.00		0.08	1.00		0.10	1.00		0.80	1.00		0.20
Lane Grp Cap(c), veh/h	21	1609	791	255	2101	1030	341	0	269	266	0	301
V/C Ratio(X)	0.43	0.72	0.72	0.81	0.58	0.58	0.16	0.00	0.37	0.25	0.00	0.07
Avail Cap(c_a), veh/h	150	1925	946	364	2373	1164	977	0	1005	855	0	1127
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.1	13.9	13.9	24.6	8.4	8.4	21.9	0.0	21.9	24.7	0.0	20.8
Incr Delay (d2), s/veh	5.3	1.0	2.1	5.9	0.3	0.6	0.2	0.0	0.9	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.9	5.0	2.8	3.2	3.2	0.7	0.0	1.2	0.9	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	14.9	16.0	30.6	8.7	9.0	22.1	0.0	22.8	25.2	0.0	20.9
LnGrp LOS	C	B	B	C	A	A	C	A	C	C	A	C
Approach Vol, veh/h		1726			2021			154			87	
Approach Delay, s/veh		15.4			11.0			22.5			24.2	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.5	13.1	31.7		14.5	5.3	39.5				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		37.0	12.1	30.5		37.0	5.0	37.6				
Max Q Clear Time (g_c+I1), s		5.3	8.7	17.0		8.2	2.3	14.5				
Green Ext Time (p_c), s		0.8	0.1	8.5		0.3	0.0	12.7				
Intersection Summary												
HCM 6th Ctrl Delay			13.7									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	131	1195	249	830	1445	220	319	71	910	320	108
Future Volume (vph)	131	1195	249	830	1445	220	319	71	910	320	108
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	11.2	39.2	39.2	20.0	48.0	48.0	12.0	39.5	20.0	21.3	48.8
Total Split (%)	9.3%	32.7%	32.7%	16.7%	40.0%	40.0%	10.0%	32.9%	16.7%	17.8%	40.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.5	29.2	29.2	15.8	38.4	38.4	10.8	10.9	25.1	19.0	15.2
Actuated g/C Ratio	0.07	0.32	0.32	0.17	0.41	0.41	0.12	0.12	0.27	0.21	0.16
v/c Ratio	0.52	0.70	0.34	1.35	0.64	0.29	0.76	0.33	0.85	0.43	0.36
Control Delay	52.4	31.3	5.1	201.4	24.4	4.2	54.0	46.2	26.6	35.6	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	31.3	5.1	201.4	24.4	4.2	54.0	46.2	26.6	35.6	17.8
LOS	D	C	A	F	C	A	D	D	C	D	B
Approach Delay		28.9			81.5			34.4			28.2
Approach LOS		C			F			C			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 92.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.35
Intersection Signal Delay: 52.2 | Intersection LOS: D
Intersection Capacity Utilization 81.9% | ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1195	249	830	1445	220	319	71	910	320	108	116
Future Volume (veh/h)	131	1195	249	830	1445	220	319	71	910	320	108	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	1232	112	856	1490	124	329	73	875	330	111	51
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	1627	454	590	2236	632	750	376	1162	412	255	111
Arrive On Green	0.06	0.29	0.29	0.17	0.40	0.40	0.21	0.20	0.20	0.12	0.11	0.11
Sat Flow, veh/h	3563	5611	1565	3563	5611	1585	3563	1870	3170	3563	2409	1049
Grp Volume(v), veh/h	135	1232	112	856	1490	124	329	73	875	330	80	82
Grp Sat Flow(s),veh/h/ln	1781	1870	1565	1781	1870	1585	1781	1870	1585	1781	1777	1681
Q Serve(g_s), s	3.5	18.6	2.7	15.4	20.2	2.9	7.5	3.0	12.6	8.4	3.9	4.2
Cycle Q Clear(g_c), s	3.5	18.6	2.7	15.4	20.2	2.9	7.5	3.0	12.6	8.4	3.9	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	203	1627	454	590	2236	632	750	376	1162	412	188	178
V/C Ratio(X)	0.66	0.76	0.25	1.45	0.67	0.20	0.44	0.19	0.75	0.80	0.43	0.46
Avail Cap(c_a), veh/h	253	1992	555	590	2523	713	750	678	1674	640	822	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	30.0	7.4	38.8	22.9	6.9	31.9	30.9	9.9	40.1	38.9	39.1
Incr Delay (d2), s/veh	2.4	1.4	0.3	212.1	0.6	0.2	0.2	0.2	1.2	1.9	1.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.9	1.7	23.7	8.1	1.5	3.1	1.3	3.5	3.6	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	31.4	7.6	250.9	23.5	7.0	32.1	31.1	11.1	42.0	40.4	40.9
LnGrp LOS	D	C	A	F	C	A	C	C	B	D	D	D
Approach Vol, veh/h		1479			2470			1277			492	
Approach Delay, s/veh		30.9			101.5			17.6			41.5	
Approach LOS		C			F			B			D	

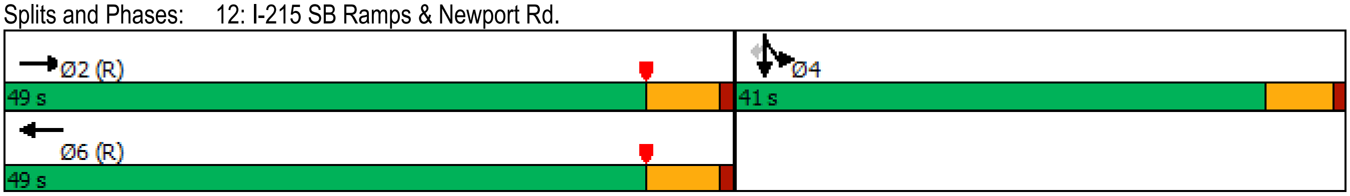
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	24.5	20.0	33.2	24.2	15.6	9.9	43.2
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	16.7	33.7	15.4	33.0	7.4	43.0	6.6	41.8
Max Q Clear Time (g_c+I1), s	10.4	14.6	17.4	20.6	9.5	6.2	5.5	22.2
Green Ext Time (p_c), s	0.3	4.0	0.0	6.4	0.0	0.8	0.0	10.2

Intersection Summary			
HCM 6th Ctrl Delay			59.3
HCM 6th LOS			E

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1965	467	1854	601	534	0	645
Future Volume (vph)	1965	467	1854	601	534	0	645
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	51.3	90.0	51.3	90.0	27.2	27.2	27.2
Actuated g/C Ratio	0.57	1.00	0.57	1.00	0.30	0.30	0.30
v/c Ratio	0.48	0.26	0.59	0.38	0.77	0.71	0.69
Control Delay	12.8	0.3	7.7	1.5	38.1	31.7	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	0.3	7.7	1.5	38.1	31.7	30.6
LOS	B	A	A	A	D	C	C
Approach Delay	10.4		6.2			33.5	
Approach LOS	B		A			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, S art of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 72.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1965	467	0	1854	601	0	0	0	534	0	645
Future Volume (veh/h)	0	1965	467	0	1854	601	0	0	0	534	0	645
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	2005	0	0	1892	0				737	0	387
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	4326		0	3323					974	0	437
Arrive On Green	0.00	0.59	0.00	0.00	1.00	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	7363	1572	0	5656	1610				3421	0	1535
Grp Volume(v), veh/h	0	2005	0	0	1892	0				737	0	387
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	13.9	0.0	0.0	0.0	0.0				17.7	0.0	21.7
Cycle Q Clear(g_c), s	0.0	13.9	0.0	0.0	0.0	0.0				17.7	0.0	21.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4326		0	3323					974	0	437
V/C Ratio(X)	0.00	0.46		0.00	0.57					0.76	0.00	0.89
Avail Cap(c_a), veh/h	0	4326		0	3323					1350	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.62	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.5	0.0	0.0	0.0	0.0				29.3	0.0	30.8
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.7	0.0				0.9	0.0	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.6	0.0	0.0	0.2	0.0				6.9	0.0	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.7	0.0	0.0	0.7	0.0				30.3	0.0	39.9
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		2005	A		1892	A					1124	
Approach Delay, s/veh		10.7			0.7						33.6	
Approach LOS		B			A						C	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		58.9		31.1		58.9						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		43.0		35.5		43.0						
Max Q Clear Time (g_c+I1), s		15.9		23.7		2.0						
Green Ext Time (p_c), s		16.7		1.9		19.1						

Intersection Summary			
HCM 6th Ctrl Delay			12.1
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	2054	428	2019	403	440	0	821
Future Volume (vph)	2054	428	2019	403	440	0	821
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	47.4	90.0	47.4	90.0	31.1	31.1	31.1
Actuated g/C Ratio	0.53	1.00	0.53	1.00	0.35	0.35	0.35
v/c Ratio	0.74	0.28	0.54	0.27	0.63	0.87	0.67
Control Delay	12.1	0.4	15.4	0.4	28.7	42.9	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	0.4	15.4	0.4	28.7	42.9	27.8
LOS	B	A	B	A	C	D	C
Approach Delay	10.1		12.9			33.3	
Approach LOS	B		B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, S art of Yellow, Master Intersection

Natural Cycle: 55

Control Type: Actuated-Coordinated

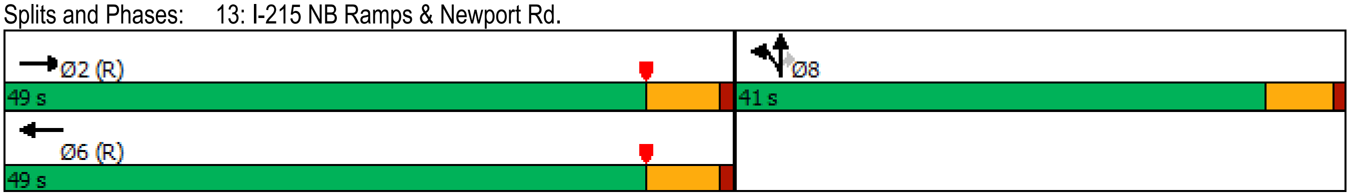
Maximum v/c Ratio: 0.87

Intersection Signal Delay: 16.0 Intersection LOS: B

Intersection Capacity Utilization 83.2% ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑↑	↗	↖	✥	↗			
Traffic Volume (veh/h)	0	2054	428	0	2019	403	440	0	821	0	0	0
Future Volume (veh/h)	0	2054	428	0	2019	403	440	0	821	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	2140	0	0	2103	0	305	0	964			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	2954		0	4003		605	0	1060			
Arrive On Green	0.00	1.00	0.00	0.00	0.54	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	1795	0	3145			
Grp Volume(v), veh/h	0	2140	0	0	2103	0	305	0	964			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	16.4	0.0	12.2	0.0	26.4			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	16.4	0.0	12.2	0.0	26.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2954		0	4003		605	0	1060			
V/C Ratio(X)	0.00	0.72		0.00	0.53		0.50	0.00	0.91			
Avail Cap(c_a), veh/h	0	2954		0	4003		708	0	1241			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	13.5	0.0	23.8	0.0	28.5			
Incr Delay (d2), s/veh	0.0	1.6	0.0	0.0	0.5	0.0	0.2	0.0	8.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.0	0.0	5.9	0.0	4.8	0.0	10.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.6	0.0	0.0	14.0	0.0	24.1	0.0	36.8			
LnGrp LOS	A	A		A	B		C	A	D			
Approach Vol, veh/h		2140	A		2103	A		1269				
Approach Delay, s/veh		1.6			14.0			33.8				
Approach LOS		A			B			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		54.2				54.2		35.8				
Change Period (Y+Rc), s		6.0				6.0		5.5				
Max Green Setting (Gmax), s		43.0				43.0		35.5				
Max Q Clear Time (g_c+I1), s		2.0				18.4		28.4				
Green Ext Time (p_c), s		23.2				16.5		2.0				

Intersection Summary		
HCM 6th Ctrl Delay		13.7
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 3.3:

EXISTING (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **Goetz Road**

Total of Both Approaches (VPH) = **413**

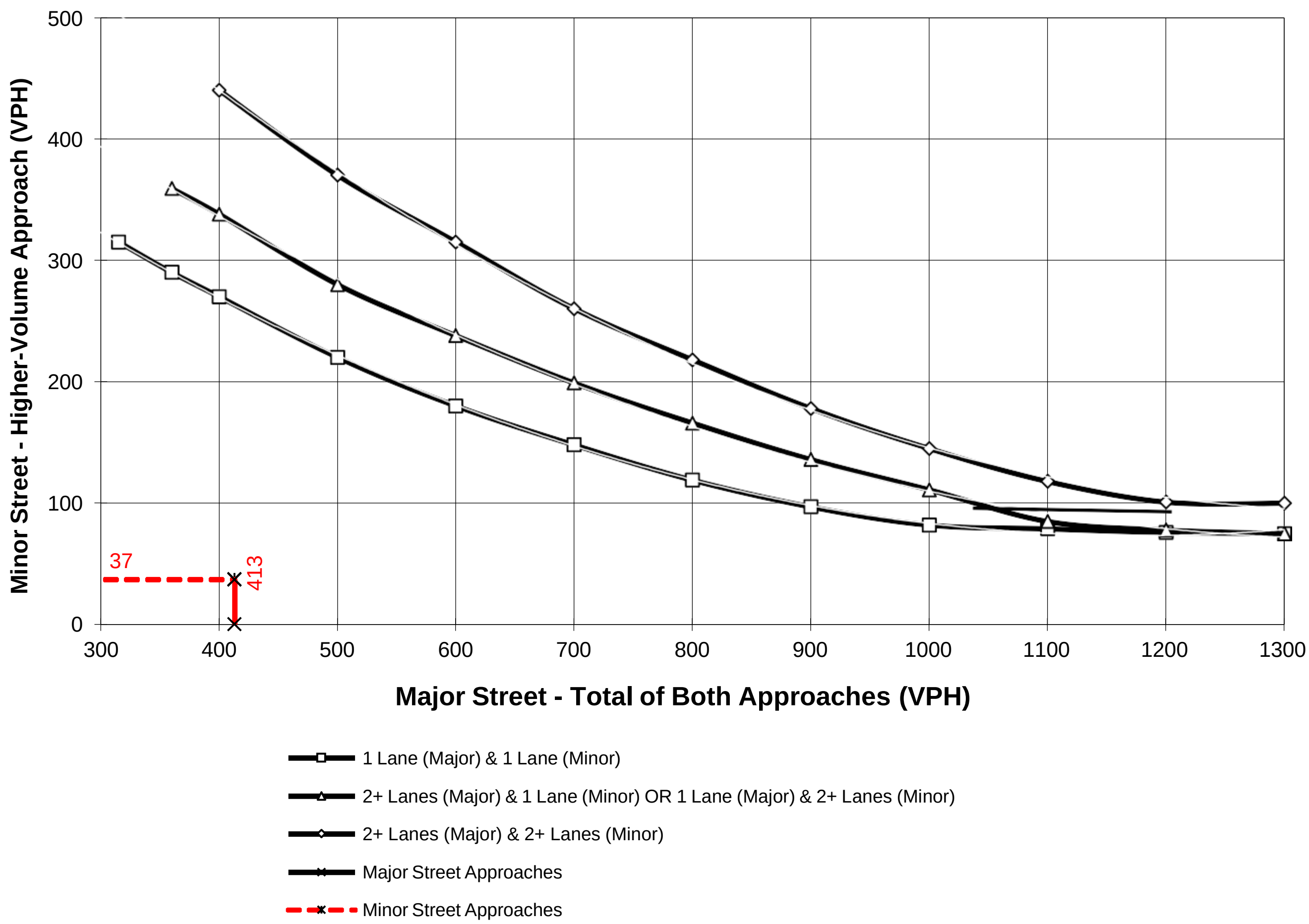
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Street B/Paseo La Plaza**

High Volume Approach (VPH) = **37**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 3.4:

EXISTING (2021) CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1681	657	1706	853	344	321	322
v/c Ratio	0.37	0.36	0.48	0.54	0.79	0.69	0.69
Control Delay	9.0	0.5	5.9	5.3	44.3	34.4	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	0.5	5.9	5.3	44.3	34.4	34.4
Queue Length 50th (ft)	109	0	92	121	180	144	145
Queue Length 95th (ft)	146	0	102	285	260	219	221
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	4571	1845	3530	1579	542	571	572
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.36	0.48	0.54	0.63	0.56	0.56

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1533	507	2232	504	325	330	332
v/c Ratio	0.47	0.32	0.50	0.33	0.63	0.78	0.62
Control Delay	7.5	1.0	12.0	0.6	33.0	38.6	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	1.0	12.0	0.6	33.0	38.6	29.4
Queue Length 50th (ft)	99	7	170	0	161	169	146
Queue Length 95th (ft)	116	31	257	0	208	235	196
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	3275	1583	4452	1550	762	609	769
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.32	0.50	0.33	0.43	0.54	0.43

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2005	477	1892	613	414	401	388
v/c Ratio	0.48	0.26	0.59	0.38	0.77	0.71	0.69
Control Delay	12.8	0.3	7.7	1.5	38.1	31.7	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	0.3	7.7	1.5	38.1	31.7	30.6
Queue Length 50th (ft)	157	0	112	16	213	184	175
Queue Length 95th (ft)	227	0	132	49	277	247	237
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	4165	1845	3217	1615	700	726	728
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.26	0.59	0.38	0.59	0.55	0.53

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	2140	446	2103	420	412	456	445
v/c Ratio	0.74	0.28	0.54	0.27	0.63	0.87	0.67
Control Delay	12.1	0.4	15.4	0.4	28.7	42.9	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	0.4	15.4	0.4	28.7	42.9	27.8
Queue Length 50th (ft)	153	0	199	0	184	232	186
Queue Length 95th (ft)	167	0	240	0	269	#397	278
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	2884	1583	3920	1551	741	592	749
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.28	0.54	0.27	0.56	0.77	0.59

Intersection Summary

95th percentile volume e ceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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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	12	0	36	19	0	18	13	217	7	9	185	4
Future Vol, veh/h	12	0	36	19	0	18	13	217	7	9	185	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	47	25	0	24	17	286	9	12	243	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	607	599	246	618	597	291	248	0	0	295	0	0
Stage 1	270	270	-	325	325	-	-	-	-	-	-	-
Stage 2	337	329	-	293	272	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	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	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	408	415	793	402	416	748	1318	-	-	1266	-	-
Stage 1	736	686	-	687	649	-	-	-	-	-	-	-
Stage 2	677	646	-	715	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	387	404	793	371	405	748	1318	-	-	1266	-	-
Mov Cap-2 Maneuver	387	404	-	371	405	-	-	-	-	-	-	-
Stage 1	725	678	-	677	639	-	-	-	-	-	-	-
Stage 2	646	636	-	665	677	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	13.1	0.4	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1318	-	-	628	492	1266	-	-
HCM Lane V/C Ratio	0.013	-	-	0.101	0.099	0.009	-	-
HCM Control Delay (s)	7.8	0	-	11.4	13.1	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0	-	-

Intersection						
Int Delay, s/veh	0.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	28	10	233	239	1
Future Vol, veh/h	4	28	10	233	239	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	30	11	253	260	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	536	261	261	0	-	0
Stage 1	261	-	-	-	-	-
Stage 2	275	-	-	-	-	-
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	505	778	1303	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	500	778	1303	-	-	-
Mov Cap-2 Maneuver	500	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	771	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0.3	0
HCM LOS	B		

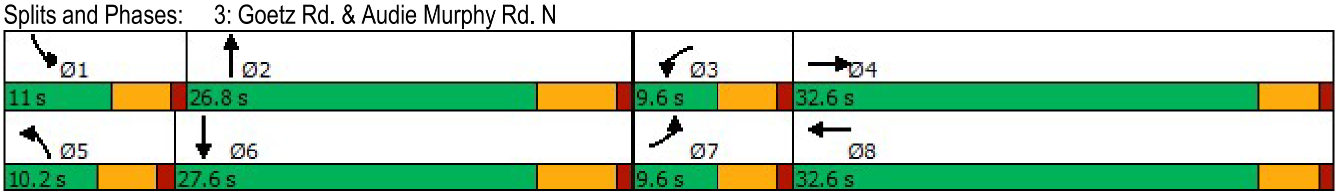
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1303	-	727	-	-
HCM Lane V/C Ratio	0.008	-	0.048	-	-
HCM Control Delay (s)	7.8	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	7	44	5	28	276	75	563
Future Volume (vph)	5	7	44	5	28	276	75	563
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.6	9.6	32.6	9.6	26.8	9.6	26.8
Total Split (s)	9.6	32.6	9.6	32.6	10.2	26.8	11.0	27.6
Total Split (%)	12.0%	40.8%	12.0%	40.8%	12.8%	33.5%	13.8%	34.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.6	17.0	7.6	18.3	7.8	22.9	8.5	28.0
Actuated g/C Ratio	0.19	0.43	0.19	0.47	0.20	0.58	0.22	0.71
v/c Ratio	0.01	0.02	0.14	0.07	0.09	0.17	0.21	0.25
Control Delay	28.8	12.3	27.1	6.5	27.1	12.7	26.4	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	12.3	27.1	6.5	27.1	12.7	26.4	12.2
LOS	C	B	C	A	C	B	C	B
Approach Delay		15.9		16.5		13.9		13.9
Approach LOS		B		B		B		B

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 39.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.25
Intersection Signal Delay: 14.1 — Intersection LOS: B
Intersection Capacity Utilization 41.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N



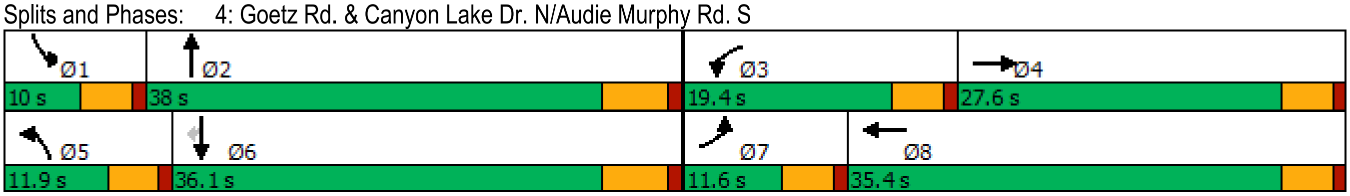
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	7	9	44	5	42	28	276	48	75	563	9
Future Volume (veh/h)	5	7	9	44	5	42	28	276	48	75	563	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	8	1	48	5	46	30	300	44	82	612	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	12	105	13	94	17	161	64	833	121	138	1105	18
Arrive On Green	0.01	0.06	0.06	0.05	0.11	0.11	0.04	0.27	0.27	0.08	0.31	0.31
Sat Flow, veh/h	1781	1630	204	1781	158	1451	1781	3113	452	1781	3578	58
Grp Volume(v), veh/h	5	0	9	48	0	51	30	170	174	82	304	318
Grp Sat Flow(s),veh/h/ln	1781	0	1833	1781	0	1609	1781	1777	1788	1781	1777	1860
Q Serve(g_s), s	0.1	0.0	0.2	1.0	0.0	1.1	0.6	2.8	2.9	1.6	5.2	5.2
Cycle Q Clear(g_c), s	0.1	0.0	0.2	1.0	0.0	1.1	0.6	2.8	2.9	1.6	5.2	5.2
Prop In Lane	1.00		0.11	1.00		0.90	1.00		0.25	1.00		0.03
Lane Grp Cap(c), veh/h	12	0	118	94	0	178	64	475	478	138	549	575
V/C Ratio(X)	0.41	0.00	0.08	0.51	0.00	0.29	0.47	0.36	0.36	0.59	0.55	0.55
Avail Cap(c_a), veh/h	244	0	1408	244	0	1236	274	1024	1030	313	1063	1112
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	16.0	16.8	0.0	14.9	17.2	10.8	10.8	16.3	10.5	10.5
Incr Delay (d2), s/veh	8.2	0.0	0.3	1.6	0.0	0.9	2.0	0.5	0.5	1.5	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.4	0.0	0.4	0.2	0.8	0.8	0.6	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	0.0	16.3	18.4	0.0	15.8	19.2	11.3	11.3	17.8	11.4	11.3
LnGrp LOS	C	A	B	B	A	B	B	B	B	B	B	B
Approach Vol, veh/h		14			99			374			704	
Approach Delay, s/veh		19.9			17.0			11.9			12.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	15.6	6.5	7.0	5.9	17.1	4.8	8.6				
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6				
Max Green Setting (Gmax), s	6.4	21.0	5.0	28.0	5.6	21.8	5.0	28.0				
Max Q Clear Time (g_c+I1), s	3.6	4.9	3.0	2.2	2.6	7.2	2.1	3.1				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.0	2.9	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	44	29	245	36	112	284	18	570	24
Future Volume (vph)	44	29	245	36	112	284	18	570	24
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	11.6	27.6	19.4	35.4	11.9	38.0	10.0	36.1	36.1
Total Split (%)	12.2%	29.1%	20.4%	37.3%	12.5%	40.0%	10.5%	38.0%	38.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.2	14.3	15.1	18.7	7.4	29.2	5.3	20.6	20.6
Actuated g/C Ratio	0.08	0.18	0.20	0.24	0.10	0.38	0.07	0.27	0.27
v/c Ratio	0.36	0.75	0.83	0.13	0.76	0.35	0.17	0.70	0.05
Control Delay	44.6	24.1	54.4	17.5	67.3	16.9	42.2	30.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	24.1	54.4	17.5	67.3	16.9	42.2	30.3	0.2
LOS	D	C	D	B	E	B	D	C	A
Approach Delay		26.8		48.1		28.0		29.4	
Approach LOS		C		D		C		C	

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 77.3
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 31.7 Intersection LOS: C
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	29	261	245	36	15	112	284	114	18	570	24
Future Volume (veh/h)	44	29	261	245	36	15	112	284	114	18	570	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	34	204	285	42	5	130	330	89	21	663	14
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	42	254	329	532	63	164	895	238	43	904	398
Arrive On Green	0.05	0.19	0.19	0.18	0.33	0.33	0.09	0.32	0.32	0.02	0.25	0.25
Sat Flow, veh/h	1781	229	1373	1781	1637	195	1781	2774	737	1781	3554	1565
Grp Volume(v), veh/h	51	0	238	285	0	47	130	210	209	21	663	14
Grp Sat Flow(s),veh/h/ln	1781	0	1602	1781	0	1832	1781	1777	1734	1781	1777	1565
Q Serve(g_s), s	1.9	0.0	9.8	10.7	0.0	1.2	4.9	6.3	6.4	0.8	11.8	0.5
Cycle Q Clear(g_c), s	1.9	0.0	9.8	10.7	0.0	1.2	4.9	6.3	6.4	0.8	11.8	0.5
Prop In Lane	1.00		0.86	1.00		0.11	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	80	0	297	329	0	595	164	573	559	43	904	398
V/C Ratio(X)	0.63	0.00	0.80	0.87	0.00	0.08	0.79	0.37	0.37	0.49	0.73	0.04
Avail Cap(c_a), veh/h	180	0	532	381	0	815	188	827	807	139	1556	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	27.0	27.4	0.0	16.2	30.8	18.0	18.1	33.4	23.6	19.4
Incr Delay (d2), s/veh	3.1	0.0	5.0	15.1	0.0	0.1	15.5	0.4	0.4	3.2	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	4.0	5.8	0.0	0.5	2.7	2.3	2.3	0.4	4.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	0.0	32.0	42.4	0.0	16.2	46.2	18.4	18.5	36.6	24.8	19.4
LnGrp LOS	D	A	C	D	A	B	D	B	B	D	C	B
Approach Vol, veh/h		289			332			549			698	
Approach Delay, s/veh		32.6			38.7			25.0			25.1	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	28.1	17.4	17.4	11.0	23.4	7.7	27.1
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.4	32.2	14.8	23.0	7.3	30.3	7.0	30.8
Max Q Clear Time (g_c+I1), s	2.8	8.4	12.7	11.8	6.9	13.8	3.9	3.2
Green Ext Time (p_c), s	0.0	2.2	0.1	1.1	0.0	3.8	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

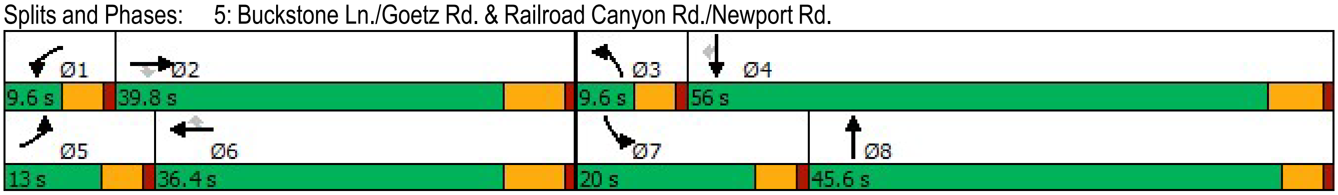
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	296	594	1	13	651	245	10	2	565	1	535
Future Volume (vph)	296	594	1	13	651	245	10	2	565	1	535
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	13.0	39.8	39.8	9.6	36.4	36.4	9.6	45.6	20.0	56.0	56.0
Total Split (%)	11.3%	34.6%	34.6%	8.3%	31.7%	31.7%	8.3%	39.7%	17.4%	48.7%	48.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	9.2	30.3	30.3	5.5	17.1	17.1	5.5	14.7	16.9	22.7	22.7
Actuated g/C Ratio	0.13	0.44	0.44	0.08	0.25	0.25	0.08	0.21	0.25	0.33	0.33
v/c Ratio	0.69	0.28	0.00	0.10	0.55	0.44	0.08	0.07	0.72	0.43	0.43
Control Delay	41.7	16.4	0.0	42.1	25.7	6.7	42.0	11.5	33.8	5.7	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	16.4	0.0	42.1	25.7	6.7	42.0	11.5	33.8	5.7	5.6
LOS	D	B	A	D	C	A	D	B	C	A	A
Approach Delay		24.7			20.8			20.6		20.1	
Approach LOS		C			C			C		C	

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 68.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 57.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	594	1	13	651	245	10	2	22	565	1	535
Future Volume (veh/h)	296	594	1	13	651	245	10	2	22	565	1	535
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	318	639	1	14	700	165	11	2	10	608	0	318
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	434	1783	542	31	1231	382	25	11	56	747	0	751
Arrive On Green	0.13	0.35	0.35	0.02	0.24	0.24	0.01	0.04	0.04	0.21	0.00	0.24
Sat Flow, veh/h	3456	5106	1552	1781	5106	1585	1781	270	1351	3563	0	3170
Grp Volume(v), veh/h	318	639	1	14	700	165	11	0	12	608	0	318
Grp Sat Flow(s),veh/h/ln	1728	1702	1552	1781	1702	1585	1781	0	1622	1781	0	1585
Q Serve(g_s), s	4.9	5.2	0.0	0.4	6.7	4.9	0.3	0.0	0.4	9.0	0.0	4.7
Cycle Q Clear(g_c), s	4.9	5.2	0.0	0.4	6.7	4.9	0.3	0.0	0.4	9.0	0.0	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		1.00
Lane Grp Cap(c), veh/h	434	1783	542	31	1231	382	25	0	67	747	0	751
V/C Ratio(X)	0.73	0.36	0.00	0.45	0.57	0.43	0.44	0.00	0.18	0.81	0.00	0.42
Avail Cap(c_a), veh/h	524	3094	940	161	2781	863	161	0	1199	989	0	2870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	13.4	11.8	27.0	18.5	17.8	27.1	0.0	25.7	20.9	0.0	17.9
Incr Delay (d2), s/veh	3.1	0.1	0.0	3.7	0.4	0.8	4.4	0.0	1.3	3.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.5	0.0	0.2	2.1	1.7	0.2	0.0	0.2	3.5	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	13.5	11.8	30.7	18.9	18.6	31.6	0.0	26.9	23.9	0.0	18.3
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		958			879			23			926	
Approach Delay, s/veh		17.8			19.1			29.1			22.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	25.6	5.4	18.9	11.6	19.6	16.2	8.1
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	33.6	5.0	50.2	8.4	30.2	15.4	* 41
Max Q Clear Time (g_c+I1), s	2.4	7.2	2.3	6.7	6.9	8.7	11.0	2.4
Green Ext Time (p_c), s	0.0	3.9	0.0	1.3	0.1	4.7	0.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

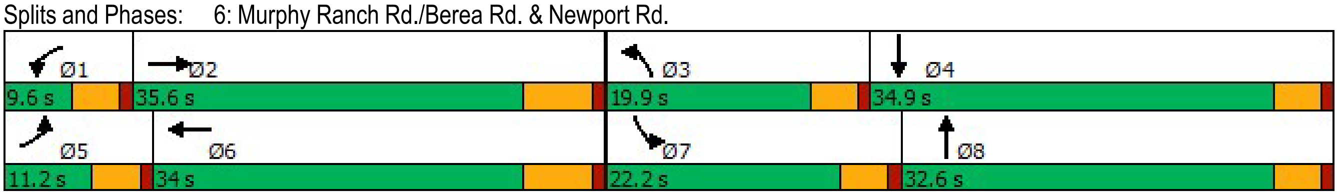
Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	64	1185	3	807	130	76	282	174
Future Volume (vph)	64	1185	3	807	130	76	282	174
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	11.2	35.6	9.6	34.0	19.9	32.6	22.2	34.9
Total Split (%)	11.2%	35.6%	9.6%	34.0%	19.9%	32.6%	22.2%	34.9%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.4	32.8	5.2	25.8	10.5	14.3	19.0	18.9
Actuated g/C Ratio	0.08	0.41	0.07	0.32	0.13	0.18	0.24	0.24
v/c Ratio	0.48	0.72	0.03	0.63	0.59	0.26	0.71	0.64
Control Delay	52.2	23.9	42.7	26.3	46.0	30.3	43.2	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	23.9	42.7	26.3	46.0	30.3	43.2	32.6
LOS	D	C	D	C	D	C	D	C
Approach Delay		25.2		26.3		39.9		38.1
Approach LOS		C		C		D		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 79.6	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 73.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1185	201	3	807	163	130	76	7	282	174	89
Future Volume (veh/h)	64	1185	201	3	807	163	130	76	7	282	174	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	1261	146	3	859	117	138	81	1	300	185	63
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	1696	196	7	1437	195	177	230	3	350	295	100
Arrive On Green	0.05	0.37	0.37	0.00	0.32	0.32	0.10	0.12	0.12	0.20	0.22	0.22
Sat Flow, veh/h	1781	4627	536	1781	4544	616	1781	1843	23	1781	1328	452
Grp Volume(v), veh/h	68	928	479	3	642	334	138	0	82	300	0	248
Grp Sat Flow(s),veh/h/ln	1781	1702	1758	1781	1702	1756	1781	0	1866	1781	0	1781
Q Serve(g_s), s	2.4	15.4	15.4	0.1	10.3	10.4	4.9	0.0	2.6	10.6	0.0	8.2
Cycle Q Clear(g_c), s	2.4	15.4	15.4	0.1	10.3	10.4	4.9	0.0	2.6	10.6	0.0	8.2
Prop In Lane	1.00		0.30	1.00		0.35	1.00		0.01	1.00		0.25
Lane Grp Cap(c), veh/h	97	1248	645	7	1076	555	177	0	233	350	0	395
V/C Ratio(X)	0.70	0.74	0.74	0.42	0.60	0.60	0.78	0.00	0.35	0.86	0.00	0.63
Avail Cap(c_a), veh/h	181	1543	797	137	1459	753	420	0	806	483	0	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.1	17.9	17.9	32.2	18.7	18.7	28.5	0.0	26.0	25.2	0.0	22.8
Incr Delay (d2), s/veh	3.4	1.5	3.0	13.5	0.5	1.0	2.8	0.0	0.9	8.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.0	5.4	0.1	3.4	3.6	2.2	0.0	1.2	5.1	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	19.4	20.8	45.7	19.2	19.8	31.4	0.0	26.9	33.5	0.0	24.5
LnGrp LOS	C	B	C	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1475			979			220			548	
Approach Delay, s/veh		20.5			19.5			29.7			29.4	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	30.0	11.0	19.0	8.1	26.7	17.3	12.7
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6
Max Green Setting (Gmax), s	5.0	29.4	15.3	30.3	6.6	27.8	17.6	28.0
Max Q Clear Time (g_c+I1), s	2.1	17.4	6.9	10.2	4.4	12.4	12.6	4.6
Green Ext Time (p_c), s	0.0	6.4	0.1	1.5	0.0	5.0	0.2	0.4

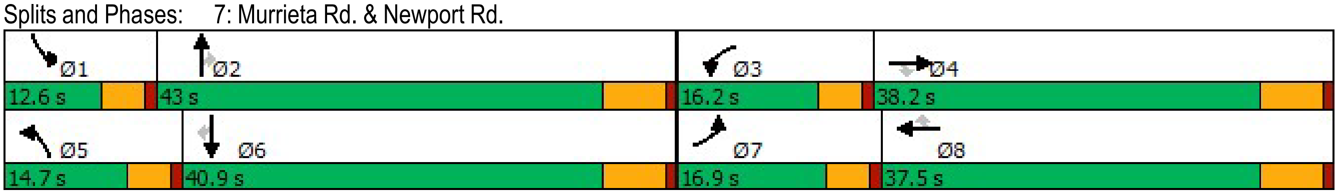
Intersection Summary	
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	1097	154	169	855	114	144	260	167	109	78	47
Future Volume (vph)	136	1097	154	169	855	114	144	260	167	109	78	47
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	16.9	38.2	38.2	16.2	37.5	37.5	14.7	43.0	43.0	12.6	40.9	40.9
Total Split (%)	15.4%	34.7%	34.7%	14.7%	34.1%	34.1%	13.4%	39.1%	39.1%	11.5%	37.2%	37.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.7	26.4	26.4	11.9	27.6	27.6	13.7	15.8	15.8	8.2	14.1	14.1
Actuated g/C Ratio	0.13	0.31	0.31	0.14	0.33	0.33	0.16	0.19	0.19	0.10	0.17	0.17
v/c Ratio	0.64	0.73	0.27	0.71	0.54	0.20	0.53	0.41	0.40	0.67	0.14	0.13
Control Delay	51.4	29.5	5.6	55.1	25.8	5.8	46.3	31.8	7.4	60.7	30.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	29.5	5.6	55.1	25.8	5.8	46.3	31.8	7.4	60.7	30.5	0.8
LOS	D	C	A	E	C	A	D	C	A	E	C	A
Approach Delay		29.0			28.2			28.3			38.7	
Approach LOS		C			C			C			D	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 84.3
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 29.3 Intersection LOS: C
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	1097	154	169	855	114	144	260	167	109	78	47
Future Volume (veh/h)	136	1097	154	169	855	114	144	260	167	109	78	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	1155	79	178	900	58	152	274	74	115	82	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	1657	507	219	1767	549	190	575	257	147	489	213
Arrive On Green	0.10	0.32	0.32	0.12	0.35	0.35	0.11	0.16	0.16	0.08	0.14	0.14
Sat Flow, veh/h	1781	5106	1562	1781	5106	1585	1781	3554	1585	1781	3554	1551
Grp Volume(v), veh/h	143	1155	79	178	900	58	152	274	74	115	82	21
Grp Sat Flow(s),veh/h/ln	1781	1702	1562	1781	1702	1585	1781	1777	1585	1781	1777	1551
Q Serve(g_s), s	5.5	13.8	2.5	6.8	9.8	1.7	5.8	4.9	2.9	4.4	1.4	0.8
Cycle Q Clear(g_c), s	5.5	13.8	2.5	6.8	9.8	1.7	5.8	4.9	2.9	4.4	1.4	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	180	1657	507	219	1767	549	190	575	257	147	489	213
V/C Ratio(X)	0.79	0.70	0.16	0.81	0.51	0.11	0.80	0.48	0.29	0.78	0.17	0.10
Avail Cap(c_a), veh/h	313	2333	714	295	2282	708	257	1867	833	203	1761	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	20.6	16.8	29.9	18.2	15.5	30.6	26.6	25.8	31.5	26.7	26.4
Incr Delay (d2), s/veh	3.0	0.5	0.1	8.8	0.2	0.1	8.6	0.6	0.6	8.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.6	0.8	3.2	3.3	0.5	2.7	1.9	1.0	2.1	0.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	21.2	17.0	38.7	18.4	15.6	39.2	27.3	26.4	39.8	26.8	26.6
LnGrp LOS	C	C	B	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1377			1136			500			218	
Approach Delay, s/veh		22.2			21.4			30.8			33.6	
Approach LOS		C			C			C			C	

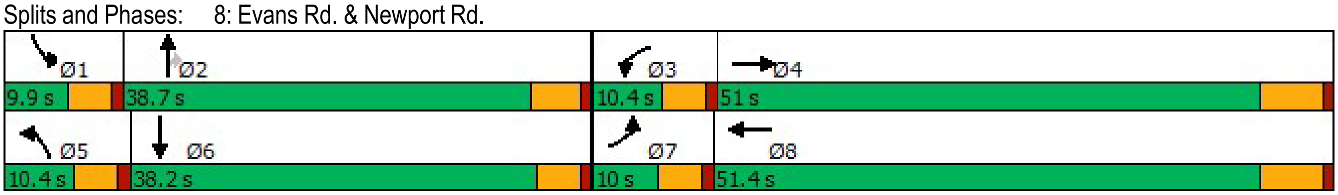
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	17.5	13.2	28.9	12.1	15.8	11.7	30.4
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.0	36.8	11.6	32.0	10.1	34.7	12.3	31.3
Max Q Clear Time (g_c+I1), s	6.4	6.9	8.8	15.8	7.8	3.4	7.5	11.8
Green Ext Time (p_c), s	0.0	1.8	0.1	6.7	0.0	0.5	0.1	5.7

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	15	1380	71	998	65	66	98	60	111
Future Volume (vph)	15	1380	71	998	65	66	98	60	111
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.0	51.0	10.4	51.4	10.4	38.7	38.7	9.9	38.2
Total Split (%)	9.1%	46.4%	9.5%	46.7%	9.5%	35.2%	35.2%	9.0%	34.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	45.2	5.8	54.0	5.8	15.4	15.4	5.3	15.4
Actuated g/C Ratio	0.06	0.49	0.06	0.58	0.06	0.17	0.17	0.06	0.17
v/c Ratio	0.17	0.93	0.73	0.39	0.67	0.24	0.31	0.67	0.50
Control Delay	48.9	34.8	79.8	12.8	73.1	34.0	6.9	76.1	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	34.8	79.8	12.8	73.1	34.0	6.9	76.1	37.3
LOS	D	C	E	B	E	C	A	E	D
Approach Delay		35.0		17.1		33.6			49.3
Approach LOS		C		B		C			D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 92.4	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1380	37	71	998	28	65	66	98	60	111	24
Future Volume (veh/h)	15	1380	37	71	998	28	65	66	98	60	111	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	1568	33	81	1134	25	74	75	63	68	126	20
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	1792	38	104	2788	61	95	254	215	87	207	33
Arrive On Green	0.02	0.50	0.50	0.06	0.54	0.54	0.05	0.14	0.14	0.05	0.13	0.13
Sat Flow, veh/h	1781	3557	75	1781	5138	113	1781	1870	1578	1781	1573	250
Grp Volume(v), veh/h	17	782	819	81	751	408	74	75	63	68	0	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1855	1781	1702	1847	1781	1870	1578	1781	0	1823
Q Serve(g_s), s	0.8	31.6	31.8	3.6	10.5	10.5	3.3	2.9	2.9	3.1	0.0	6.1
Cycle Q Clear(g_c), s	0.8	31.6	31.8	3.6	10.5	10.5	3.3	2.9	2.9	3.1	0.0	6.1
Prop In Lane	1.00		0.04	1.00		0.06	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	35	895	935	104	1847	1002	95	254	215	87	0	240
V/C Ratio(X)	0.49	0.87	0.88	0.78	0.41	0.41	0.78	0.29	0.29	0.78	0.00	0.61
Avail Cap(c_a), veh/h	119	982	1025	127	1897	1029	127	775	654	116	0	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.3	17.8	17.9	37.7	10.9	10.9	37.9	31.5	31.5	38.1	0.0	33.2
Incr Delay (d2), s/veh	3.9	8.2	8.2	17.2	0.1	0.3	13.5	0.6	0.8	15.0	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	12.4	13.0	2.0	3.2	3.5	1.8	1.3	1.1	1.7	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	26.1	26.0	54.9	11.0	11.2	51.4	32.2	32.3	53.1	0.0	35.7
LnGrp LOS	D	C	C	D	B	B	D	C	C	D	A	D
Approach Vol, veh/h		1618			1240			212			214	
Approach Delay, s/veh		26.2			13.9			38.9			41.2	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	16.1	9.3	47.1	8.9	15.8	6.2	50.2
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2
Max Green Setting (Gmax), s	5.3	33.6	5.8	44.8	5.8	* 34	5.4	45.2
Max Q Clear Time (g_c+I1), s	5.1	4.9	5.6	33.8	5.3	8.1	2.8	12.5
Green Ext Time (p_c), s	0.0	0.6	0.0	7.1	0.0	0.8	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

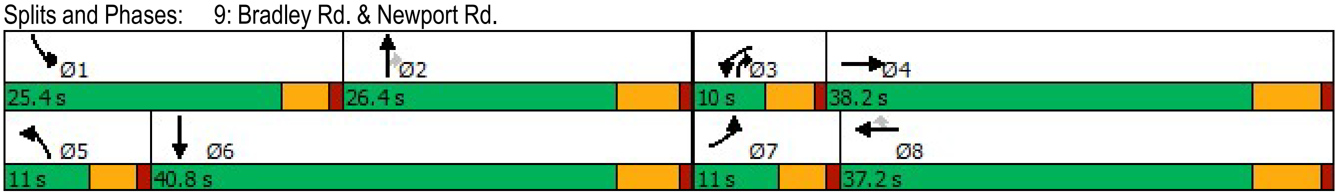
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	188	1218	215	954	177	176	216	290	202	244
Future Volume (vph)	188	1218	215	954	177	176	216	290	202	244
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	26.4	10.0	25.4	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	26.4%	10.0%	25.4%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.5	29.2	5.5	28.2	28.2	6.5	15.6	27.1	14.7	23.8
Actuated g/C Ratio	0.07	0.34	0.06	0.33	0.33	0.07	0.18	0.31	0.17	0.27
v/c Ratio	1.49	0.79	1.04	0.61	0.30	1.39	0.68	0.52	0.71	0.45
Control Delay	288.1	30.7	115.5	27.2	5.3	250.0	45.4	17.7	49.0	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	288.1	30.7	115.5	27.2	5.3	250.0	45.4	17.7	49.0	18.1
LOS	F	C	F	C	A	F	D	B	D	B
Approach Delay		63.6		38.4			86.4			27.9
Approach LOS		E		D			F			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 86.7	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.49	
Intersection Signal Delay: 53.7	Intersection LOS: D
Intersection Capacity Utilization 72.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	1218	63	215	954	177	176	216	290	202	244	188
Future Volume (veh/h)	188	1218	63	215	954	177	176	216	290	202	244	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	198	1282	43	226	1004	138	185	227	203	213	257	158
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	1721	58	250	1663	501	153	300	369	256	466	276
Arrive On Green	0.09	0.34	0.34	0.07	0.33	0.33	0.09	0.16	0.16	0.14	0.22	0.22
Sat Flow, veh/h	1781	5073	170	3456	5106	1538	1781	1870	1585	1781	2133	1263
Grp Volume(v), veh/h	198	860	465	226	1004	138	185	227	203	213	212	203
Grp Sat Flow(s),veh/h/ln	1781	1702	1839	1728	1702	1538	1781	1870	1585	1781	1777	1619
Q Serve(g_s), s	6.4	16.7	16.7	4.8	12.3	5.0	6.4	8.7	8.4	8.7	7.9	8.3
Cycle Q Clear(g_c), s	6.4	16.7	16.7	4.8	12.3	5.0	6.4	8.7	8.4	8.7	7.9	8.3
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	153	1155	624	250	1663	501	153	300	369	256	388	354
V/C Ratio(X)	1.30	0.75	0.75	0.90	0.60	0.28	1.21	0.76	0.55	0.83	0.55	0.57
Avail Cap(c_a), veh/h	153	1460	789	250	2121	639	153	516	552	497	833	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	21.8	21.8	34.4	21.1	18.6	34.1	29.9	25.2	31.1	25.9	26.0
Incr Delay (d2), s/veh	172.9	1.6	2.9	32.0	0.4	0.3	140.6	3.9	1.3	2.7	1.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	6.0	6.7	3.0	4.3	1.6	8.5	3.9	3.0	3.6	3.2	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	207.0	23.4	24.7	66.3	21.5	18.9	174.7	33.8	26.5	33.7	27.1	27.5
LnGrp LOS	F	C	C	E	C	B	F	C	C	C	C	C
Approach Vol, veh/h		1523			1368			615			628	
Approach Delay, s/veh		47.7			28.6			73.8			29.5	
Approach LOS		D			C			E			C	

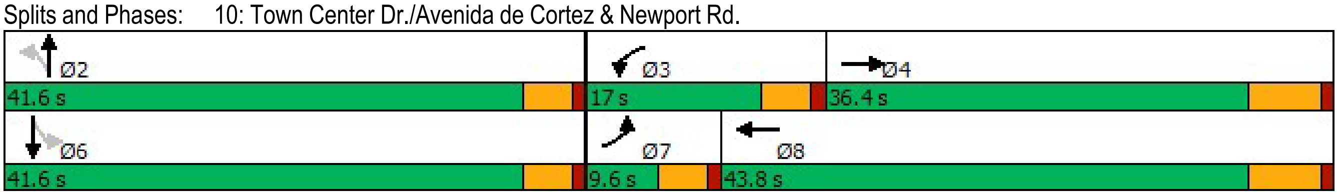
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	17.8	10.0	31.5	11.0	22.1	11.0	30.5
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	20.8	20.6	5.4	32.0	6.4	35.0	6.4	31.0
Max Q Clear Time (g_c+I1), s	10.7	10.7	6.8	18.7	8.4	10.3	8.4	14.3
Green Ext Time (p_c), s	0.2	1.3	0.0	6.5	0.0	2.3	0.0	6.2

Intersection Summary			
HCM 6th Ctrl Delay			42.5
HCM 6th LOS			D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	7	1634	211	1257	97	22	71	18
Future Volume (vph)	7	1634	211	1257	97	22	71	18
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.4	17.0	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.3%	17.9%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	30.7	12.3	46.2	15.1	15.1	15.1	15.1
Actuated g/C Ratio	0.07	0.42	0.17	0.63	0.20	0.20	0.20	0.20
v/c Ratio	0.05	0.80	0.72	0.39	0.37	0.45	0.52	0.09
Control Delay	38.3	24.1	46.5	9.8	27.8	7.4	38.2	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	24.1	46.5	9.8	27.8	7.4	38.2	14.5
LOS	D	C	D	A	C	A	D	B
Approach Delay		24.1		14.9		13.3		30.6
Approach LOS		C		B		B		C

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 73.8
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 86.9% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1634	107	211	1257	30	97	22	214	71	18	16
Future Volume (veh/h)	7	1634	107	211	1257	30	97	22	214	71	18	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1738	57	224	1337	18	103	23	141	76	19	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	2315	76	271	3158	43	338	38	234	208	256	54
Arrive On Green	0.01	0.43	0.43	0.15	0.57	0.57	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	5398	177	1781	5521	74	1384	223	1368	1218	1497	315
Grp Volume(v), veh/h	7	1204	591	224	906	449	103	0	164	76	0	23
Grp Sat Flow(s),veh/h/ln	1781	1870	1834	1781	1870	1855	1384	0	1592	1218	0	1812
Q Serve(g_s), s	0.2	16.8	16.9	7.6	8.5	8.5	4.2	0.0	5.9	3.8	0.0	0.7
Cycle Q Clear(g_c), s	0.2	16.8	16.9	7.6	8.5	8.5	4.9	0.0	5.9	9.7	0.0	0.7
Prop In Lane	1.00		0.10	1.00		0.04	1.00		0.86	1.00		0.17
Lane Grp Cap(c), veh/h	16	1604	786	271	2140	1061	338	0	272	208	0	310
V/C Ratio(X)	0.43	0.75	0.75	0.83	0.42	0.42	0.31	0.00	0.60	0.37	0.00	0.07
Avail Cap(c_a), veh/h	143	1820	892	356	2266	1123	926	0	949	726	0	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.6	14.9	14.9	25.5	7.5	7.5	23.7	0.0	23.8	28.3	0.0	21.6
Incr Delay (d2), s/veh	6.5	1.6	3.2	9.0	0.1	0.3	0.5	0.0	2.1	1.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.7	6.0	3.5	2.2	2.2	1.4	0.0	2.3	1.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	16.5	18.1	34.5	7.6	7.8	24.2	0.0	25.9	29.4	0.0	21.7
LnGrp LOS	D	B	B	C	A	A	C	A	C	C	A	C
Approach Vol, veh/h		1802			1579			267			99	
Approach Delay, s/veh		17.1			11.5			25.3			27.6	
Approach LOS		B			B			C			C	

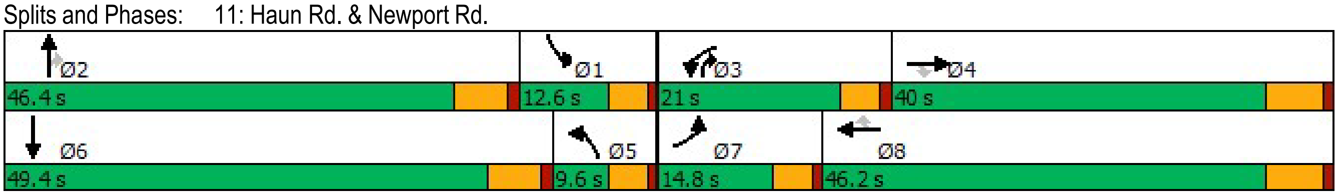
Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.2	14.1	32.8		15.2	5.2	41.7
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2
Max Green Setting (Gmax), s		37.0	12.4	30.2		37.0	5.0	37.6
Max Q Clear Time (g_c+I1), s		7.9	9.6	18.9		11.7	2.2	10.5
Green Ext Time (p_c), s		1.4	0.1	7.8		0.3	0.0	9.4

Intersection Summary		
HCM 6th Ctrl Delay		15.6
HCM 6th LOS		B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	158	1635	110	514	1298	364	137	55	495	111	37
Future Volume (vph)	158	1635	110	514	1298	364	137	55	495	111	37
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	14.8	40.0	40.0	21.0	46.2	46.2	9.6	46.4	21.0	12.6	49.4
Total Split (%)	12.3%	33.3%	33.3%	17.5%	38.5%	38.5%	8.0%	38.7%	17.5%	10.5%	41.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.3	34.3	34.3	16.6	42.6	42.6	6.5	10.6	26.0	14.6	15.2
Actuated g/C Ratio	0.09	0.36	0.36	0.18	0.45	0.45	0.07	0.11	0.28	0.15	0.16
v/c Ratio	0.52	0.87	0.16	0.85	0.56	0.43	0.58	0.29	0.50	0.21	0.18
Control Delay	48.7	35.0	3.0	52.3	21.9	4.1	54.2	45.2	17.2	36.4	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	35.0	3.0	52.3	21.9	4.1	54.2	45.2	17.2	36.4	14.8
LOS	D	D	A	D	C	A	D	D	B	D	B
Approach Delay		34.3			26.1			26.9			26.4
Approach LOS		C			C			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	1635	110	514	1298	364	137	55	495	111	37	59
Future Volume (veh/h)	158	1635	110	514	1298	364	137	55	495	111	37	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	1777	46	559	1411	217	149	60	496	121	40	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	2127	601	638	2735	762	319	253	997	198	224	123
Arrive On Green	0.07	0.38	0.38	0.18	0.49	0.49	0.09	0.14	0.14	0.06	0.10	0.10
Sat Flow, veh/h	3563	5611	1585	3563	5611	1563	3563	1870	3170	3563	2209	1213
Grp Volume(v), veh/h	172	1777	46	559	1411	217	149	60	496	121	31	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1563	1781	1870	1585	1781	1777	1645
Q Serve(g_s), s	4.0	24.3	1.0	12.9	14.6	4.5	3.4	2.4	7.1	2.8	1.4	1.5
Cycle Q Clear(g_c), s	4.0	24.3	1.0	12.9	14.6	4.5	3.4	2.4	7.1	2.8	1.4	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	252	2127	601	638	2735	762	319	253	997	198	180	167
V/C Ratio(X)	0.68	0.84	0.08	0.88	0.52	0.28	0.47	0.24	0.50	0.61	0.17	0.19
Avail Cap(c_a), veh/h	430	2244	634	691	2735	762	319	898	2091	337	917	848
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	23.9	7.1	33.8	14.8	5.3	36.6	32.6	10.9	39.0	34.7	34.8
Incr Delay (d2), s/veh	1.2	2.8	0.1	10.8	0.2	0.2	0.4	0.5	0.4	1.1	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	9.9	0.5	6.1	5.2	2.0	1.4	1.1	2.8	1.2	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	26.6	7.1	44.6	15.0	5.5	37.0	33.1	11.2	40.1	35.2	35.4
LnGrp LOS	D	C	A	D	B	A	D	C	B	D	D	D
Approach Vol, veh/h		1995			2187			705			185	
Approach Delay, s/veh		27.3			21.6			18.5			38.5	
Approach LOS		C			C			B			D	

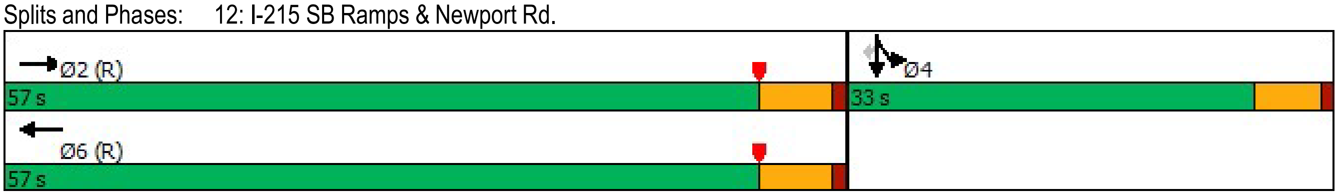
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	17.2	19.7	38.2	12.2	14.4	10.6	47.4
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	8.0	40.6	16.4	33.8	5.0	43.6	10.2	40.0
Max Q Clear Time (g_c+I1), s	4.8	9.1	14.9	26.3	5.4	3.5	6.0	16.6
Green Ext Time (p_c), s	0.0	2.3	0.2	5.7	0.0	0.3	0.1	10.9

Intersection Summary		
HCM 6th Ctrl Delay		24.0
HCM 6th LOS		C

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1630	651	1646	819	375	0	576
Future Volume (vph)	1630	651	1646	819	375	0	576
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	57.0		57.0		33.0	33.0	33.0
Total Split (%)	63.3%		63.3%		36.7%	36.7%	36.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	56.3	90.0	56.3	90.0	22.2	22.2	22.2
Actuated g/C Ratio	0.63	1.00	0.63	1.00	0.25	0.25	0.25
v/c Ratio	0.37	0.37	0.49	0.54	0.79	0.70	0.68
Control Delay	9.1	0.6	5.9	5.3	44.3	35.2	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	0.6	5.9	5.3	44.3	35.2	34.0
LOS	A	A	A	A	D	D	C
Approach Delay	6.6		5.7			38.0	
Approach LOS	A		A			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1630	651	0	1646	819	0	0	0	375	0	576
Future Volume (veh/h)	0	1630	651	0	1646	819	0	0	0	375	0	576
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	1698	0	0	1715	0				542	0	292
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	4807		0	3692					751	0	337
Arrive On Green	0.00	0.65	0.00	0.00	1.00	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	7363	1572	0	5656	1610				3421	0	1535
Grp Volume(v), veh/h	0	1698	0	0	1715	0				542	0	292
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	9.4	0.0	0.0	0.0	0.0				13.2	0.0	16.5
Cycle Q Clear(g_c), s	0.0	9.4	0.0	0.0	0.0	0.0				13.2	0.0	16.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4807		0	3692					751	0	337
V/C Ratio(X)	0.00	0.35		0.00	0.46					0.72	0.00	0.87
Avail Cap(c_a), veh/h	0	4807		0	3692					1045	0	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.57	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.0	0.0	0.0	0.0	0.0				32.6	0.0	33.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.4	0.0				0.7	0.0	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	0.0	0.0	0.1	0.0				5.2	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.2	0.0	0.0	0.4	0.0				33.3	0.0	43.1
LnGrp LOS	A	A		A	A					C	A	D
Approach Vol, veh/h		1698	A		1715	A					834	
Approach Delay, s/veh		7.2			0.4						36.7	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		64.8		25.2		64.8						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		51.0		27.5		51.0						
Max Q Clear Time (g_c+I1), s		11.4		18.5		2.0						
Green Ext Time (p_c), s		16.0		1.2		17.3						

Intersection Summary			
HCM 6th Ctrl Delay			10.2
HCM 6th LOS			B

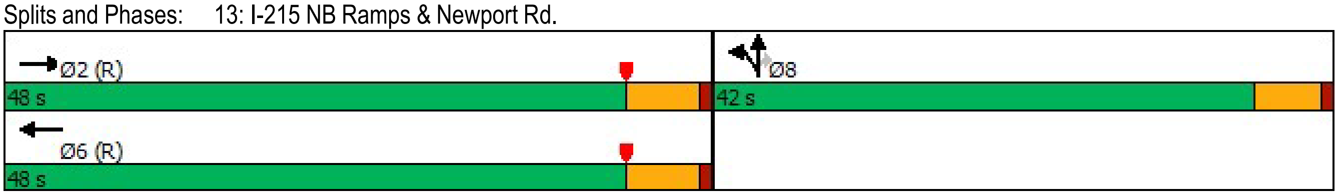
Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1460	494	2121	479	350	0	595
Future Volume (vph)	1460	494	2121	479	350	0	595
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	48.0		48.0		42.0	42.0	42.0
Total Split (%)	53.3%		53.3%		46.7%	46.7%	46.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	53.7	90.0	53.7	90.0	24.8	24.8	24.8
Actuated g/C Ratio	0.60	1.00	0.60	1.00	0.28	0.28	0.28
v/c Ratio	0.47	0.33	0.50	0.33	0.64	0.78	0.62
Control Delay	7.5	1.1	12.0	0.6	33.4	38.7	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	1.1	12.0	0.6	33.4	38.7	29.3
LOS	A	A	B	A	C	D	C
Approach Delay	5.9		9.9			33.8	
Approach LOS	A		A			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Ye low, Master Inters ction	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 62.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1460	494	0	2121	479	350	0	595	0	0	0
Future Volume (veh/h)	0	1460	494	0	2121	479	350	0	595	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	1537	0	0	2233	0	512	0	276			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	3677		0	4982		741	0	324			
Arrive On Green	0.00	1.00	0.00	0.00	0.67	0.00	0.21	0.00	0.21			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	3591	0	1572			
Grp Volume(v), veh/h	0	1537	0	0	2233	0	512	0	276			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	12.8	0.0	11.9	0.0	15.2			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	12.8	0.0	11.9	0.0	15.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3677		0	4982		741	0	324			
V/C Ratio(X)	0.00	0.42		0.00	0.45		0.69	0.00	0.85			
Avail Cap(c_a), veh/h	0	3677		0	4982		1456	0	638			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	7.2	0.0	33.1	0.0	34.4			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.3	0.0	0.4	0.0	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	3.7	0.0	4.9	0.0	5.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	7.5	0.0	33.5	0.0	36.8			
LnGrp LOS	A	A		A	A		C	A	D			
Approach Vol, veh/h		1537	A		2233	A		788				
Approach Delay, s/veh		0.4			7.5			34.7				
Approach LOS		A			A			C				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		65.9				65.9		24.1				
Change Period (Y+Rc), s		6.0				6.0		5.5				
Max Green Setting (Gmax), s		42.0				42.0		36.5				
Max Q Clear Time (g_c+I1), s		2.0				14.8		17.2				
Green Ext Time (p_c), s		13.8				18.9		1.4				

Intersection Summary			
HCM 6th Ctrl Delay			9.8
HCM 6th LOS			A

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	24	11	0	14	41	175	18	19	195	14
Future Vol, veh/h	8	0	24	11	0	14	41	175	18	19	195	14
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	28	13	0	16	47	201	21	22	224	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	590	592	232	596	590	212	240	0	0	222	0	0
Stage 1	276	276	-	306	306	-	-	-	-	-	-	-
Stage 2	314	316	-	290	284	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	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	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	419	419	807	415	420	828	1327	-	-	1347	-	-
Stage 1	730	682	-	704	662	-	-	-	-	-	-	-
Stage 2	697	655	-	718	676	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	392	394	807	383	395	828	1327	-	-	1347	-	-
Mov Cap-2 Maneuver	392	394	-	383	395	-	-	-	-	-	-	-
Stage 1	700	669	-	675	635	-	-	-	-	-	-	-
Stage 2	655	628	-	680	663	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	11.9	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1327	-	-	638	548	1347	-	-
HCM Lane V/C Ratio	0.036	-	-	0.058	0.052	0.016	-	-
HCM Control Delay (s)	7.8	0	-	11	11.9	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-	-

Intersection						
Int Delay, s/veh	0.9					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	19	32	231	225	5
Future Vol, veh/h	3	19	32	231	225	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	21	35	251	245	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	569	248	250	0	-	0
Stage 1	248	-	-	-	-	-
Stage 2	321	-	-	-	-	-
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	484	791	1316	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	469	791	1316	-	-	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	1	0
HCM LOS	B		

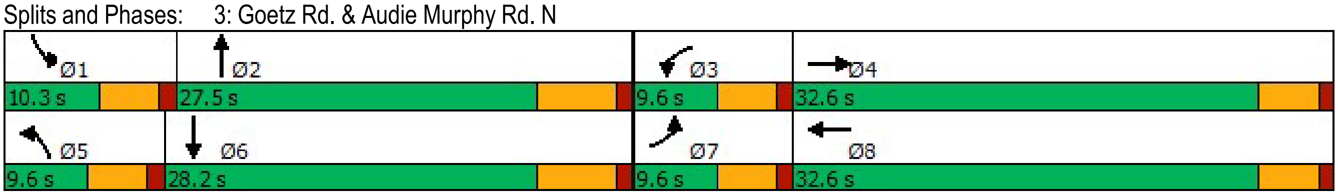
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1316	-	723	-	-
HCM Lane V/C Ratio	0.026	-	0.033	-	-
HCM Control Delay (s)	7.8	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7
Lane Configurations								
Traffic Volume (vph)	0	12	1	3	509	28	383	
Future Volume (vph)	0	12	1	3	509	28	383	
Turn Type	NA	Prot	NA	Prot	NA	Prot	NA	
Protected Phases	4	3	8	5	2	1	6	7
Permitted Phases								
Detector Phase	4	3	8	5	2	1	6	
Switch Phase								
Minimum Initial (s)	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	32.6	9.6	32.6	9.6	26.8	9.6	26.8	9.6
Total Split (s)	32.6	9.6	32.6	9.6	27.5	10.3	28.2	9.6
Total Split (%)	40.8%	12.0%	40.8%	12.0%	34.4%	12.9%	35.3%	12%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.6	4.6	4.6	4.6	5.8	4.6	5.8	
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	15.8	7.1	16.6	7.1	21.5	7.3	21.6	
Actuated g/C Ratio	0.45	0.20	0.47	0.20	0.61	0.21	0.61	
v/c Ratio	0.00	0.04	0.10	0.01	0.28	0.08	0.20	
Control Delay	0.0	24.4	3.6	25.0	11.4	23.4	10.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	0.0	24.4	3.6	25.0	11.4	23.4	10.9	
LOS	A	C	A	C	B	C	B	
Approach Delay			6.6		11.5		11.7	
Approach LOS			A		B		B	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 35.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.28
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 39.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	12	1	70	3	509	23	28	383	1
Future Volume (veh/h)	0	0	2	12	1	70	3	509	23	28	383	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	13	1	15	3	566	26	31	426	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	7	0	31	4	63	7	1262	58	68	1453	3
Arrive On Green	0.00	0.00	0.00	0.02	0.04	0.04	0.00	0.37	0.37	0.04	0.40	0.40
Sat Flow, veh/h	1781	1870	0	1781	100	1500	1781	3456	159	1781	3637	9
Grp Volume(v), veh/h	0	0	0	13	0	16	3	291	301	31	208	219
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	0	1600	1781	1777	1838	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.3	0.0	3.4	3.4	0.5	2.2	2.2
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.2	0.0	0.3	0.0	3.4	3.4	0.5	2.2	2.2
Prop In Lane	1.00		0.00	1.00		0.94	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	7	7	0	31	0	67	7	649	671	68	710	747
V/C Ratio(X)	0.00	0.00	0.00	0.42	0.00	0.24	0.41	0.45	0.45	0.45	0.29	0.29
Avail Cap(c_a), veh/h	329	1936	0	329	0	1656	329	1425	1474	375	1471	1547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	13.2	0.0	12.5	13.4	6.5	6.5	12.7	5.5	5.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.4	0.0	1.8	13.0	0.5	0.5	1.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.5	0.5	0.1	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	16.6	0.0	14.4	26.4	7.0	7.0	14.5	5.8	5.7
LnGrp LOS	A	A	A	B	A	B	C	A	A	B	A	A
Approach Vol, veh/h		0			29			595			458	
Approach Delay, s/veh		0.0			15.4			7.1			6.3	
Approach LOS					B			A			A	

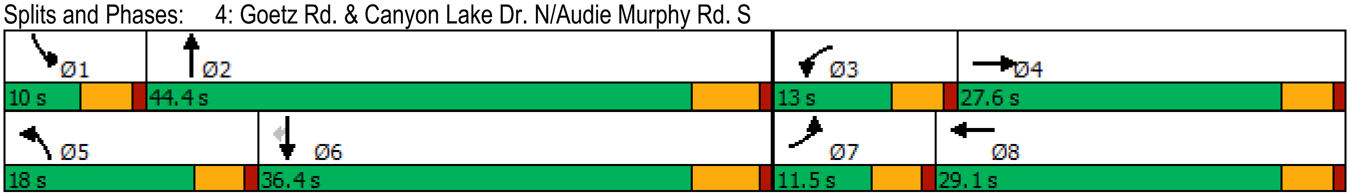
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	15.7	5.1	0.7	4.7	16.6	0.0	5.7
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.7	21.7	5.0	28.0	5.0	22.4	5.0	28.0
Max Q Clear Time (g_c+I1), s	2.5	5.4	2.2	0.0	2.0	4.2	0.0	2.3
Green Ext Time (p_c), s	0.0	2.9	0.0	0.0	0.0	2.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	43	28	143	53	242	462	19	355	37
Future Volume (vph)	43	28	143	53	242	462	19	355	37
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	11.5	27.6	13.0	29.1	18.0	44.4	10.0	36.4	36.4
Total Split (%)	12.1%	29.1%	13.7%	30.6%	18.9%	46.7%	10.5%	38.3%	38.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.1	12.2	8.6	13.2	13.8	31.6	5.3	14.6	14.6
Actuated g/C Ratio	0.09	0.18	0.12	0.19	0.20	0.46	0.08	0.21	0.21
v/c Ratio	0.31	0.48	0.72	0.20	0.77	0.45	0.16	0.53	0.09
Control Delay	38.6	11.1	52.9	23.3	45.5	13.5	37.5	26.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	11.1	52.9	23.3	45.5	13.5	37.5	26.7	0.4
LOS	D	B	D	C	D	B	D	C	A
Approach Delay		16.4		43.9		22.3		24.8	
Approach LOS		B		D		C		C	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 69.3	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	28	154	143	53	9	242	462	173	19	355	37
Future Volume (veh/h)	43	28	154	143	53	9	242	462	173	19	355	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	31	80	159	59	4	269	513	128	21	394	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	70	182	202	378	26	324	969	240	45	669	298
Arrive On Green	0.05	0.15	0.15	0.11	0.22	0.22	0.18	0.35	0.35	0.03	0.19	0.19
Sat Flow, veh/h	1781	462	1192	1781	1732	117	1781	2808	697	1781	3554	1583
Grp Volume(v), veh/h	48	0	111	159	0	63	269	324	317	21	394	29
Grp Sat Flow(s),veh/h/ln	1781	0	1654	1781	0	1849	1781	1777	1727	1781	1777	1583
Q Serve(g_s), s	1.4	0.0	3.3	4.7	0.0	1.5	7.8	7.8	7.9	0.6	5.4	0.8
Cycle Q Clear(g_c), s	1.4	0.0	3.3	4.7	0.0	1.5	7.8	7.8	7.9	0.6	5.4	0.8
Prop In Lane	1.00		0.72	1.00		0.06	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	85	0	252	202	0	403	324	613	596	45	669	298
V/C Ratio(X)	0.57	0.00	0.44	0.79	0.00	0.16	0.83	0.53	0.53	0.47	0.59	0.10
Avail Cap(c_a), veh/h	228	0	706	278	0	842	443	1274	1238	179	2020	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	20.7	23.2	0.0	17.0	21.2	14.1	14.1	25.9	19.9	18.1
Incr Delay (d2), s/veh	2.2	0.0	1.2	6.6	0.0	0.2	6.9	0.7	0.7	2.8	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.3	2.2	0.0	0.6	3.4	2.6	2.5	0.3	2.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	0.0	21.9	29.9	0.0	17.2	28.1	14.8	14.9	28.7	20.8	18.2
LnGrp LOS	C	A	C	C	A	B	C	B	B	C	C	B
Approach Vol, veh/h		159			222			910			444	
Approach Delay, s/veh		23.5			26.3			18.8			21.0	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.4	10.7	12.8	14.4	15.9	7.2	16.3
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.4	38.6	8.4	23.0	13.4	30.6	6.9	24.5
Max Q Clear Time (g_c+I1), s	2.6	9.9	6.7	5.3	9.8	7.4	3.4	3.5
Green Ext Time (p_c), s	0.0	3.8	0.0	0.5	0.1	2.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

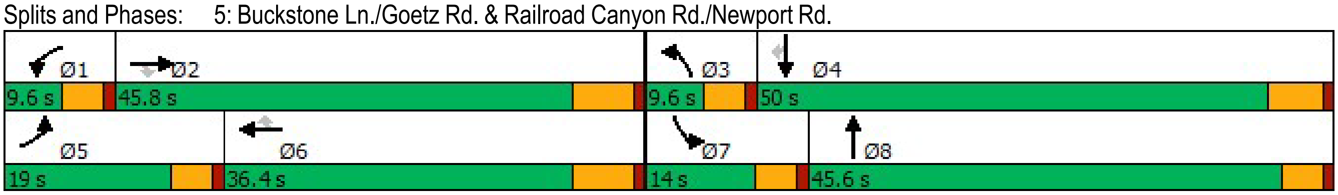
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	505	893	6	12	617	378	1	1	317	5	344
Future Volume (vph)	505	893	6	12	617	378	1	1	317	5	344
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	19.0	45.8	45.8	9.6	36.4	36.4	9.6	45.6	14.0	50.0	50.0
Total Split (%)	16.5%	39.8%	39.8%	8.3%	31.7%	31.7%	8.3%	39.7%	12.2%	43.5%	43.5%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	15.7	36.3	36.3	5.5	16.7	16.7	5.5	14.5	12.0	14.9	14.9
Actuated g/C Ratio	0.24	0.55	0.55	0.08	0.25	0.25	0.08	0.22	0.18	0.22	0.22
v/c Ratio	0.64	0.33	0.01	0.08	0.50	0.57	0.01	0.03	0.53	0.38	0.38
Control Delay	31.3	12.4	0.0	39.4	24.1	6.8	40.0	13.2	33.1	6.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	12.4	0.0	39.4	24.1	6.8	40.0	13.2	33.1	6.6	6.2
LOS	C	B	A	D	C	A	D	B	C	A	A
Approach Delay		19.2			17.7			15.6		19.1	
Approach LOS		B			B			B		B	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 66.5	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 18.7	Intersection LOS: B
Intersection Capacity Utilization 59.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	893	6	12	617	378	1	1	9	317	5	344
Future Volume (veh/h)	505	893	6	12	617	378	1	1	9	317	5	344
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	521	921	5	12	636	252	1	1	4	327	0	189
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	652	2201	683	27	1315	408	3	15	58	451	0	540
Arrive On Green	0.19	0.43	0.43	0.02	0.26	0.26	0.00	0.05	0.05	0.13	0.00	0.17
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	323	1292	3563	0	3170
Grp Volume(v), veh/h	521	921	5	12	636	252	1	0	5	327	0	189
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	0	1615	1781	0	1585
Q Serve(g_s), s	8.0	6.9	0.1	0.4	5.9	7.8	0.0	0.0	0.2	4.9	0.0	2.9
Cycle Q Clear(g_c), s	8.0	6.9	0.1	0.4	5.9	7.8	0.0	0.0	0.2	4.9	0.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	652	2201	683	27	1315	408	3	0	73	451	0	540
V/C Ratio(X)	0.80	0.42	0.01	0.44	0.48	0.62	0.31	0.00	0.07	0.72	0.00	0.35
Avail Cap(c_a), veh/h	897	3643	1131	160	2778	862	160	0	1193	603	0	2525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	11.0	9.0	27.1	17.5	18.2	27.7	0.0	25.4	23.3	0.0	20.3
Incr Delay (d2), s/veh	2.5	0.1	0.0	4.2	0.3	1.5	19.2	0.0	0.4	1.6	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.8	0.0	0.2	1.8	2.8	0.0	0.0	0.1	1.9	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	11.1	9.0	31.3	17.7	19.7	46.9	0.0	25.8	24.9	0.0	20.7
LnGrp LOS	C	B	A	C	B	B	D	A	C	C	A	C
Approach Vol, veh/h		1447			900			6			516	
Approach Delay, s/veh		15.7			18.5			29.3			23.4	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.4	30.1	4.7	15.3	15.1	20.5	11.6	8.3				
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8				
Max Green Setting (Gmax), s	5.0	39.6	5.0	44.2	14.4	30.2	9.4	* 41				
Max Q Clear Time (g_c+I1), s	2.4	8.9	2.0	4.9	10.0	9.8	6.9	2.2				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.7	0.5	4.5	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			B									

Notes

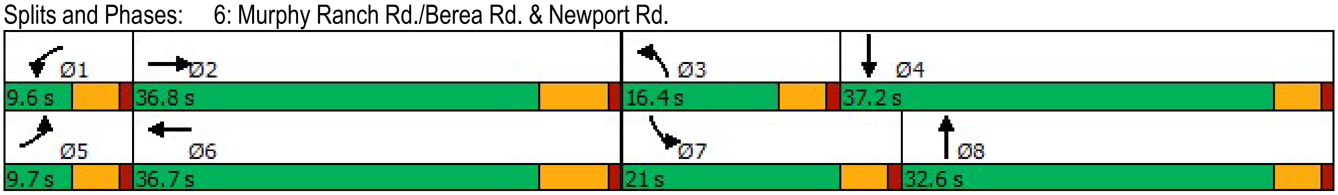
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	41	1244	14	971	90	58	229	47
Future Volume (vph)	41	1244	14	971	90	58	229	47
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	9.7	36.8	9.6	36.7	16.4	32.6	21.0	37.2
Total Split (%)	9.7%	36.8%	9.6%	36.7%	16.4%	32.6%	21.0%	37.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.7	30.2	5.7	26.7	8.6	13.9	14.5	18.4
Actuated g/C Ratio	0.08	0.42	0.08	0.37	0.12	0.19	0.20	0.26
v/c Ratio	0.30	0.65	0.10	0.67	0.44	0.19	0.66	0.17
Control Delay	45.8	20.6	42.6	22.6	42.5	28.1	41.7	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	20.6	42.6	22.6	42.5	28.1	41.7	17.2
LOS	D	C	D	C	D	C	D	B
Approach Delay		21.4		22.9		36.4		35.5
Approach LOS		C		C		D		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 71.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 24.1	Intersection LOS: C
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1244	88	14	971	247	90	58	8	229	47	32
Future Volume (veh/h)	41	1244	88	14	971	247	90	58	8	229	47	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1282	63	14	1001	176	93	60	6	236	48	22
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1850	91	31	1515	266	120	187	19	288	250	115
Arrive On Green	0.04	0.37	0.37	0.02	0.35	0.35	0.07	0.11	0.11	0.16	0.21	0.21
Sat Flow, veh/h	1781	4979	245	1781	4370	767	1781	1673	167	1781	1214	556
Grp Volume(v), veh/h	42	876	469	14	779	398	93	0	66	236	0	70
Grp Sat Flow(s),veh/h/ln	1781	1702	1820	1781	1702	1732	1781	0	1840	1781	0	1770
Q Serve(g_s), s	1.4	12.9	12.9	0.5	11.5	11.5	3.0	0.0	2.0	7.6	0.0	1.9
Cycle Q Clear(g_c), s	1.4	12.9	12.9	0.5	11.5	11.5	3.0	0.0	2.0	7.6	0.0	1.9
Prop In Lane	1.00		0.13	1.00		0.44	1.00		0.09	1.00		0.31
Lane Grp Cap(c), veh/h	75	1265	676	31	1180	601	120	0	206	288	0	365
V/C Ratio(X)	0.56	0.69	0.69	0.45	0.66	0.66	0.77	0.00	0.32	0.82	0.00	0.19
Avail Cap(c_a), veh/h	153	1758	940	150	1752	892	355	0	870	493	0	974
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.8	15.8	15.8	28.8	16.4	16.4	27.2	0.0	24.2	24.0	0.0	19.4
Incr Delay (d2), s/veh	2.4	0.7	1.3	3.8	0.6	1.3	4.0	0.0	0.9	2.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.9	4.2	0.2	3.5	3.7	1.4	0.0	0.9	3.2	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	16.5	17.1	32.6	17.0	17.7	31.2	0.0	25.1	26.2	0.0	19.7
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		1387			1191			159			306	
Approach Delay, s/veh		17.1			17.4			28.7			24.7	
Approach LOS		B			B			C			C	

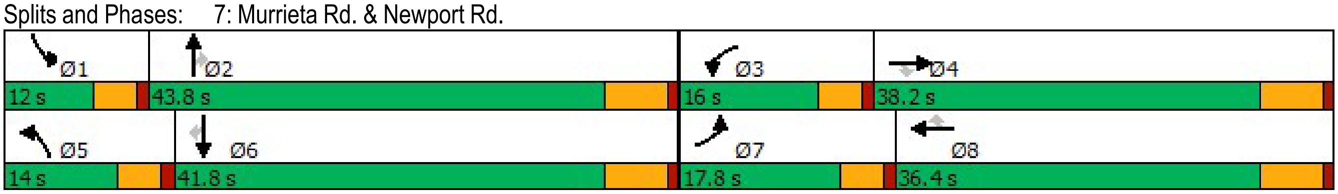
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	28.2	8.6	16.8	7.1	26.7	14.2	11.2
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6
Max Green Setting (Gmax), s	5.0	30.6	11.8	32.6	5.1	30.5	16.4	28.0
Max Q Clear Time (g_c+I1), s	2.5	14.9	5.0	3.9	3.4	13.5	9.6	4.0
Green Ext Time (p_c), s	0.0	7.1	0.1	0.3	0.0	6.4	0.2	0.3

Intersection Summary		
HCM 6th Ctrl Delay		18.6
HCM 6th LOS		B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	1062	98	213	1017	186	180	244	96	133	115	45
Future Volume (vph)	202	1062	98	213	1017	186	180	244	96	133	115	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	17.8	38.2	38.2	16.0	36.4	36.4	14.0	43.8	43.8	12.0	41.8	41.8
Total Split (%)	16.2%	34.7%	34.7%	14.5%	33.1%	33.1%	12.7%	39.8%	39.8%	10.9%	38.0%	38.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.5	26.3	26.3	11.6	24.5	24.5	9.6	16.0	16.0	7.5	14.0	14.0
Actuated g/C Ratio	0.16	0.31	0.31	0.14	0.29	0.29	0.11	0.19	0.19	0.09	0.17	0.17
v/c Ratio	0.72	0.68	0.17	0.88	0.70	0.32	0.91	0.37	0.25	0.85	0.20	0.13
Control Delay	52.0	28.0	4.0	72.9	29.7	5.8	83.8	30.7	4.6	82.8	30.5	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	28.0	4.0	72.9	29.7	5.8	83.8	30.7	4.6	82.8	30.5	0.7
LOS	D	C	A	E	C	A	F	C	A	F	C	A
Approach Delay		29.9			33.1			44.3			49.7	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 83.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 34.8	Intersection LOS: C
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	1062	98	213	1017	186	180	244	96	133	115	45
Future Volume (veh/h)	202	1062	98	213	1017	186	180	244	96	133	115	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	206	1084	49	217	1038	96	184	249	33	136	117	11
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	1543	472	258	1572	482	223	560	246	171	455	203
Arrive On Green	0.14	0.30	0.30	0.14	0.31	0.31	0.13	0.16	0.16	0.10	0.13	0.13
Sat Flow, veh/h	1781	5106	1563	1781	5106	1565	1781	3554	1559	1781	3554	1585
Grp Volume(v), veh/h	206	1084	49	217	1038	96	184	249	33	136	117	11
Grp Sat Flow(s),veh/h/ln	1781	1702	1563	1781	1702	1565	1781	1777	1559	1781	1777	1585
Q Serve(g_s), s	8.1	13.6	1.6	8.6	12.7	3.3	7.3	4.6	1.3	5.4	2.1	0.4
Cycle Q Clear(g_c), s	8.1	13.6	1.6	8.6	12.7	3.3	7.3	4.6	1.3	5.4	2.1	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	1543	472	258	1572	482	223	560	246	171	455	203
V/C Ratio(X)	0.83	0.70	0.10	0.84	0.66	0.20	0.82	0.44	0.13	0.80	0.26	0.05
Avail Cap(c_a), veh/h	326	2266	693	282	2139	655	232	1853	813	183	1755	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	22.3	18.1	30.0	21.7	18.4	30.8	27.5	26.1	31.9	28.3	27.6
Incr Delay (d2), s/veh	10.2	0.6	0.1	17.2	0.5	0.2	18.9	0.6	0.2	18.3	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.7	0.5	4.5	4.4	1.1	4.0	1.8	0.5	3.0	0.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	22.9	18.2	47.2	22.1	18.6	49.6	28.1	26.4	50.2	28.6	27.7
LnGrp LOS	D	C	B	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1339			1351			466			264	
Approach Delay, s/veh		25.4			25.9			36.5			39.7	
Approach LOS		C			C			D			D	

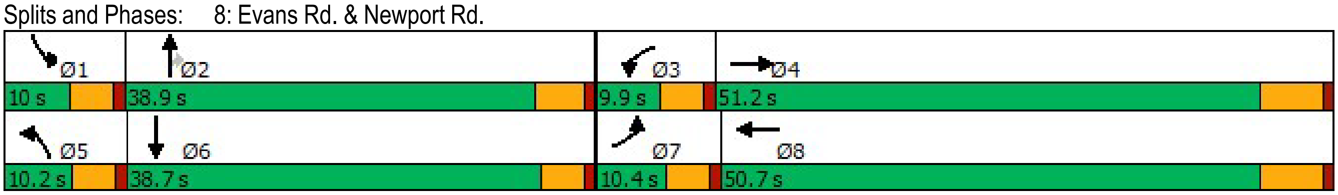
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	17.6	15.0	28.0	13.6	15.4	14.6	28.4
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	7.4	37.6	11.4	32.0	9.4	35.6	13.2	30.2
Max Q Clear Time (g_c+I1), s	7.4	6.6	10.6	15.6	9.3	4.1	10.1	14.7
Green Ext Time (p_c), s	0.0	1.5	0.0	6.2	0.0	0.6	0.1	6.1

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	22	1249	41	1433	25	20	33	44	20
Future Volume (vph)	22	1249	41	1433	25	20	33	44	20
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.4	51.2	9.9	50.7	10.2	38.9	38.9	10.0	38.7
Total Split (%)	9.5%	46.5%	9.0%	46.1%	9.3%	35.4%	35.4%	9.1%	35.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.6	45.8	7.5	47.3	7.5	17.3	17.3	7.6	19.1
Actuated g/C Ratio	0.11	0.69	0.11	0.71	0.11	0.26	0.26	0.11	0.29
v/c Ratio	0.12	0.55	0.22	0.43	0.13	0.04	0.07	0.23	0.08
Control Delay	45.0	16.8	45.7	12.9	45.2	30.7	0.3	45.7	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	16.8	45.7	12.9	45.2	30.7	0.3	45.7	19.4
LOS	D	B	D	B	D	C	A	D	B
Approach Delay		17.3		13.8		22.3			33.3
Approach LOS		B		B		C			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 66.7	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1249	22	41	1433	43	25	20	33	44	20	19
Future Volume (veh/h)	22	1249	22	41	1433	43	25	20	33	44	20	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	1315	18	43	1508	40	26	21	8	46	21	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1757	24	77	2587	69	53	121	102	81	100	43
Arrive On Green	0.03	0.49	0.49	0.04	0.51	0.51	0.03	0.06	0.06	0.05	0.08	0.08
Sat Flow, veh/h	1781	3588	49	1781	5111	136	1781	1870	1585	1781	1241	532
Grp Volume(v), veh/h	23	651	682	43	1004	544	26	21	8	46	0	30
Grp Sat Flow(s),veh/h/ln	1781	1777	1860	1781	1702	1843	1781	1870	1585	1781	0	1772
Q Serve(g_s), s	0.7	16.9	16.9	1.4	11.9	11.9	0.8	0.6	0.3	1.5	0.0	0.9
Cycle Q Clear(g_c), s	0.7	16.9	16.9	1.4	11.9	11.9	0.8	0.6	0.3	1.5	0.0	0.9
Prop In Lane	1.00		0.03	1.00		0.07	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	48	870	911	77	1723	933	53	121	102	81	0	142
V/C Ratio(X)	0.48	0.75	0.75	0.56	0.58	0.58	0.49	0.17	0.08	0.57	0.00	0.21
Avail Cap(c_a), veh/h	180	1394	1459	165	2641	1429	174	1102	934	168	0	1054
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.5	11.8	11.8	26.9	9.9	9.9	27.4	25.4	25.2	26.8	0.0	24.7
Incr Delay (d2), s/veh	2.8	1.3	1.3	2.3	0.3	0.6	2.6	0.7	0.3	2.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.8	5.0	0.6	3.0	3.3	0.4	0.3	0.1	0.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	13.1	13.1	29.2	10.2	10.5	30.1	26.1	25.6	29.2	0.0	25.4
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	A	C
Approach Vol, veh/h		1356			1591			55			76	
Approach Delay, s/veh		13.4			10.8			27.9			27.7	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	8.8	7.1	34.3	6.3	9.7	6.1	35.2				
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2				
Max Green Setting (Gmax), s	5.4	33.8	5.3	45.0	5.6	* 34	5.8	44.5				
Max Q Clear Time (g_c+I1), s	3.5	2.6	3.4	18.9	2.8	2.9	2.7	13.9				
Green Ext Time (p_c), s	0.0	0.1	0.0	9.1	0.0	0.1	0.0	11.8				
Intersection Summary												
HCM 6th Ctrl Delay			12.7									
HCM 6th LOS			B									

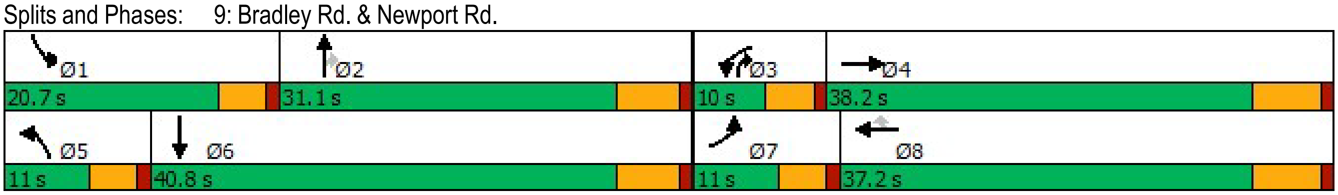
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	168	1179	282	1227	276	72	194	183	269	252
Future Volume (vph)	168	1179	282	1227	276	72	194	183	269	252
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	31.1	10.0	20.7	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	31.1%	10.0%	20.7%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.4	30.3	5.4	29.2	29.2	6.2	15.8	27.1	16.2	28.1
Actuated g/C Ratio	0.07	0.34	0.06	0.33	0.33	0.07	0.18	0.30	0.18	0.32
v/c Ratio	1.40	0.77	1.44	0.78	0.42	0.63	0.62	0.34	0.89	0.38
Control Delay	256.0	30.2	254.2	31.5	5.1	66.1	42.6	9.9	67.4	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	256.0	30.2	254.2	31.5	5.1	66.1	42.6	9.9	67.4	15.8
LOS	F	C	F	C	A	E	D	A	E	B
Approach Delay		57.2		62.6			33.1			36.0
Approach LOS		E		E			C			D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 89.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.44	
Intersection Signal Delay: 53.5	Intersection LOS: D
Intersection Capacity Utilization 75.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	1179	65	282	1227	276	72	194	183	269	252	167
Future Volume (veh/h)	168	1179	65	282	1227	276	72	194	183	269	252	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	179	1254	55	300	1305	214	77	206	118	286	268	128
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	1723	76	231	1691	513	99	272	336	324	640	297
Arrive On Green	0.08	0.34	0.34	0.07	0.33	0.33	0.06	0.15	0.15	0.18	0.27	0.27
Sat Flow, veh/h	1781	5015	220	3456	5106	1550	1781	1870	1585	1781	2356	1093
Grp Volume(v), veh/h	179	851	458	300	1305	214	77	206	118	286	200	196
Grp Sat Flow(s),veh/h/ln	1781	1702	1831	1728	1702	1550	1781	1870	1585	1781	1777	1672
Q Serve(g_s), s	6.4	17.7	17.7	5.4	18.5	8.7	3.4	8.5	5.1	12.6	7.5	7.8
Cycle Q Clear(g_c), s	6.4	17.7	17.7	5.4	18.5	8.7	3.4	8.5	5.1	12.6	7.5	7.8
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.65
Lane Grp Cap(c), veh/h	141	1170	629	231	1691	513	99	272	336	324	482	454
V/C Ratio(X)	1.27	0.73	0.73	1.30	0.77	0.42	0.78	0.76	0.35	0.88	0.42	0.43
Avail Cap(c_a), veh/h	141	1349	725	231	1960	595	141	586	603	355	770	725
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	23.2	23.2	37.7	24.3	21.0	37.6	33.2	27.1	32.2	24.2	24.3
Incr Delay (d2), s/veh	164.8	1.7	3.1	162.3	1.7	0.5	9.6	4.3	0.6	19.6	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	6.5	7.2	7.3	6.8	2.9	1.7	3.9	1.8	6.8	3.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	202.0	24.9	26.3	200.0	25.9	21.5	47.2	37.5	27.7	51.8	24.7	24.9
LnGrp LOS	F	C	C	F	C	C	D	D	C	D	C	C
Approach Vol, veh/h		1488			1819			401			682	
Approach Delay, s/veh		46.7			54.1			36.5			36.1	
Approach LOS		D			D			D			D	

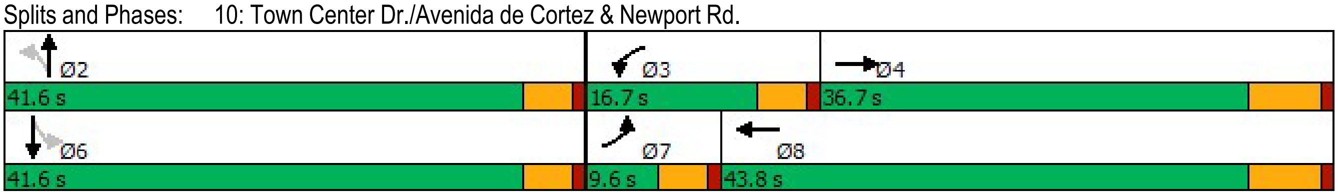
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	17.5	10.0	34.0	9.1	27.7	11.0	33.0
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	16.1	25.3	5.4	32.0	6.4	35.0	6.4	31.0
Max Q Clear Time (g_c+I1), s	14.6	10.5	7.4	19.7	5.4	9.8	8.4	20.5
Green Ext Time (p_c), s	0.1	1.2	0.0	6.1	0.0	2.1	0.0	6.2

Intersection Summary	
HCM 6th Ctrl Delay	47.2
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	1597	195	1697	51	19	63	15
Future Volume (vph)	8	1597	195	1697	51	19	63	15
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.7	16.7	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.6%	17.6%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	31.1	11.7	46.0	14.4	14.4	14.4	14.4
Actuated g/C Ratio	0.07	0.43	0.16	0.63	0.20	0.20	0.20	0.20
v/c Ratio	0.07	0.75	0.69	0.53	0.20	0.32	0.29	0.07
Control Delay	38.0	22.0	45.0	11.0	24.7	7.9	27.0	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	22.0	45.0	11.0	24.7	7.9	27.0	16.7
LOS	D	C	D	B	C	A	C	B
Approach Delay		22.1		14.4		12.4		24.2
Approach LOS		C		B		B		C

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 72.9
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 17.8 Intersection LOS: B
Intersection Capacity Utilization 78.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.



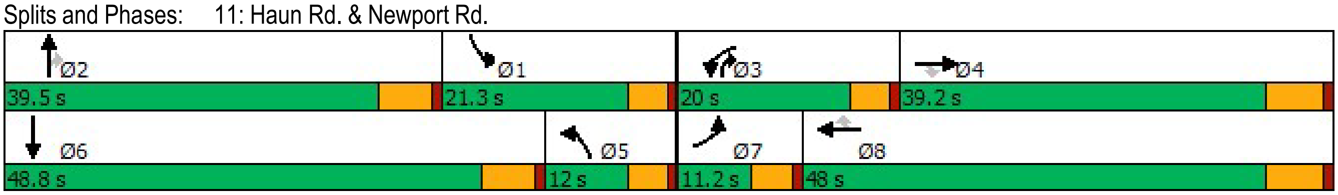
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1597	69	195	1697	67	51	19	119	63	15	8
Future Volume (veh/h)	8	1597	69	195	1697	67	51	19	119	63	15	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	1699	47	207	1805	57	54	20	80	67	16	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	21	2351	65	255	3050	96	339	53	214	264	240	60
Arrive On Green	0.01	0.43	0.43	0.14	0.56	0.56	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	5430	150	1781	5406	171	1392	322	1288	1290	1444	361
Grp Volume(v), veh/h	9	1170	576	207	1249	613	54	0	100	67	0	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1839	1781	1870	1835	1392	0	1610	1290	0	1805
Q Serve(g_s), s	0.3	15.4	15.4	6.7	13.0	13.1	2.0	0.0	3.3	2.9	0.0	0.6
Cycle Q Clear(g_c), s	0.3	15.4	15.4	6.7	13.0	13.1	2.6	0.0	3.3	6.2	0.0	0.6
Prop In Lane	1.00		0.08	1.00		0.09	1.00		0.80	1.00		0.20
Lane Grp Cap(c), veh/h	21	1620	796	255	2111	1036	339	0	267	264	0	300
V/C Ratio(X)	0.44	0.72	0.72	0.81	0.59	0.59	0.16	0.00	0.37	0.25	0.00	0.07
Avail Cap(c_a), veh/h	149	1911	940	361	2356	1156	970	0	998	849	0	1119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	14.0	14.0	24.8	8.5	8.5	22.1	0.0	22.1	24.9	0.0	21.0
Incr Delay (d2), s/veh	5.3	1.1	2.3	6.2	0.3	0.7	0.2	0.0	0.9	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.0	5.2	2.9	3.3	3.4	0.7	0.0	1.3	0.9	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	15.1	16.2	31.0	8.8	9.2	22.3	0.0	23.0	25.4	0.0	21.1
LnGrp LOS	C	B	B	C	A	A	C	A	C	C	A	C
Approach Vol, veh/h		1755			2069			154			87	
Approach Delay, s/veh		15.6			11.1			22.8			24.4	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.5	13.1	32.0		14.5	5.3	39.9				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		37.0	12.1	30.5		37.0	5.0	37.6				
Max Q Clear Time (g_c+I1), s		5.3	8.7	17.4		8.2	2.3	15.1				
Green Ext Time (p_c), s		0.8	0.1	8.4		0.3	0.0	12.9				

Intersection Summary			
HCM 6th Ctrl Delay			13.8
HCM 6th LOS			B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	131	1219	252	830	1486	220	324	71	910	320	108
Future Volume (vph)	131	1219	252	830	1486	220	324	71	910	320	108
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	11.2	39.2	39.2	20.0	48.0	48.0	12.0	39.5	20.0	21.3	48.8
Total Split (%)	9.3%	32.7%	32.7%	16.7%	40.0%	40.0%	10.0%	32.9%	16.7%	17.8%	40.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.5	29.4	29.4	15.7	38.6	38.6	10.7	10.9	25.1	18.9	15.2
Actuated g/C Ratio	0.07	0.32	0.32	0.17	0.42	0.42	0.12	0.12	0.27	0.20	0.16
v/c Ratio	0.52	0.71	0.34	1.36	0.66	0.29	0.77	0.33	0.85	0.43	0.36
Control Delay	52.5	31.6	5.1	203.1	24.7	4.3	55.0	46.3	26.8	35.7	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	31.6	5.1	203.1	24.7	4.3	55.0	46.3	26.8	35.7	17.8
LOS	D	C	A	F	C	A	D	D	C	D	B
Approach Delay		29.1			81.3			34.9			28.3
Approach LOS		C			F			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.36	
Intersection Signal Delay: 52.4	Intersection LOS: D
Intersection Capacity Utilization 82.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1219	252	830	1486	220	324	71	910	320	108	116
Future Volume (veh/h)	131	1219	252	830	1486	220	324	71	910	320	108	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	1257	115	856	1532	124	334	73	875	330	111	51
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	1644	458	586	2246	635	753	376	1159	411	253	110
Arrive On Green	0.06	0.29	0.29	0.16	0.40	0.40	0.21	0.20	0.20	0.12	0.11	0.11
Sat Flow, veh/h	3563	5611	1565	3563	5611	1585	3563	1870	3170	3563	2409	1049
Grp Volume(v), veh/h	135	1257	115	856	1532	124	334	73	875	330	80	82
Grp Sat Flow(s),veh/h/ln	1781	1870	1565	1781	1870	1585	1781	1870	1585	1781	1777	1681
Q Serve(g_s), s	3.5	19.1	2.8	15.4	21.1	2.9	7.6	3.0	12.8	8.5	4.0	4.3
Cycle Q Clear(g_c), s	3.5	19.1	2.8	15.4	21.1	2.9	7.6	3.0	12.8	8.5	4.0	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	203	1644	458	586	2246	635	753	376	1159	411	187	177
V/C Ratio(X)	0.67	0.76	0.25	1.46	0.68	0.20	0.44	0.19	0.76	0.80	0.43	0.46
Avail Cap(c_a), veh/h	251	1976	551	586	2503	707	753	673	1661	635	815	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	30.2	7.3	39.2	23.2	6.9	32.2	31.1	10.1	40.4	39.3	39.4
Incr Delay (d2), s/veh	2.6	1.5	0.3	217.2	0.7	0.1	0.2	0.2	1.2	2.0	1.6	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.1	1.8	24.0	8.4	1.5	3.1	1.3	3.6	3.7	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	31.7	7.6	256.4	23.8	7.1	32.3	31.4	11.3	42.5	40.9	41.3
LnGrp LOS	D	C	A	F	C	A	C	C	B	D	D	D
Approach Vol, veh/h		1507			2512			1282			492	
Approach Delay, s/veh		31.1			102.2			17.9			42.0	
Approach LOS		C			F			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	24.6	20.0	33.6	24.4	15.7	9.9	43.7
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	16.7	33.7	15.4	33.0	7.4	43.0	6.6	41.8
Max Q Clear Time (g_c+I1), s	10.5	14.8	17.4	21.1	9.6	6.3	5.5	23.1
Green Ext Time (p_c), s	0.3	4.0	0.0	6.3	0.0	0.8	0.0	10.2

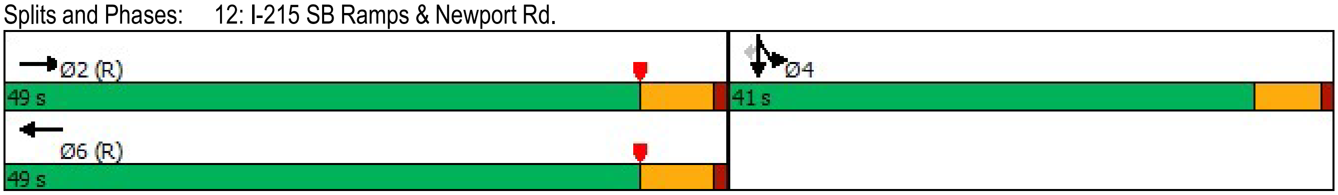
Intersection Summary			
HCM 6th Ctrl Delay			60.0
HCM 6th LOS			E

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1976	481	1881	601	534	0	659
Future Volume (vph)	1976	481	1881	601	534	0	659
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	50.6	90.0	50.6	90.0	27.9	27.9	27.9
Actuated g/C Ratio	0.56	1.00	0.56	1.00	0.31	0.31	0.31
v/c Ratio	0.49	0.27	0.60	0.38	0.77	0.70	0.67
Control Delay	13.3	0.4	8.0	1.4	37.5	30.6	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	0.4	8.0	1.4	37.5	30.6	29.6
LOS	B	A	A	A	D	C	C
Approach Delay	10.7		6.4			32.7	
Approach LOS	B		A			C	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 73.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1976	481	0	1881	601	0	0	0	534	0	659
Future Volume (veh/h)	0	1976	481	0	1881	601	0	0	0	534	0	659
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	2016	0	0	1919	0				743	0	394
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	4294		0	3298					989	0	444
Arrive On Green	0.00	0.58	0.00	0.00	1.00	0.00				0.29	0.00	0.29
Sat Flow, veh/h	0	7363	1572	0	5656	1610				3421	0	1535
Grp Volume(v), veh/h	0	2016	0	0	1919	0				743	0	394
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	14.1	0.0	0.0	0.0	0.0				17.7	0.0	22.1
Cycle Q Clear(g_c), s	0.0	14.1	0.0	0.0	0.0	0.0				17.7	0.0	22.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4294		0	3298					989	0	444
V/C Ratio(X)	0.00	0.47		0.00	0.58					0.75	0.00	0.89
Avail Cap(c_a), veh/h	0	4294		0	3298					1350	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.61	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.8	0.0	0.0	0.0	0.0				29.1	0.0	30.6
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.8	0.0				0.9	0.0	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.7	0.0	0.0	0.2	0.0				6.9	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.0	0.0	0.0	0.8	0.0				30.0	0.0	40.3
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		2016	A		1919	A					1137	
Approach Delay, s/veh		11.0			0.8						33.5	
Approach LOS		B			A						C	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		58.5		31.5		58.5
Change Period (Y+Rc), s		6.0		5.5		6.0
Max Green Setting (Gmax), s		43.0		35.5		43.0
Max Q Clear Time (g_c+I1), s		16.1		24.1		2.0
Green Ext Time (p_c), s		16.7		1.9		19.6

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

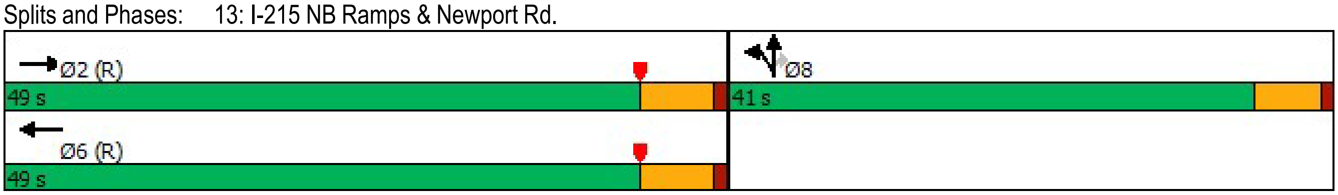
Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	2057	436	2024	403	463	0	821
Future Volume (vph)	2057	436	2024	403	463	0	821
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	47.6	90.0	47.6	90.0	30.9	30.9	30.9
Actuated g/C Ratio	0.53	1.00	0.53	1.00	0.34	0.34	0.34
v/c Ratio	0.74	0.29	0.53	0.27	0.67	0.87	0.69
Control Delay	11.5	0.4	15.3	0.4	30.2	42.4	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	0.4	15.3	0.4	30.2	42.4	28.6
LOS	B	A	B	A	C	D	C
Approach Delay	9.6		12.8			33.8	
Approach LOS	A		B			C	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Ye low, Master Inters ction
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 15.9 Intersection LOS: B
Intersection Capacity Utilization 83.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2057	436	0	2024	403	463	0	821	0	0	0
Future Volume (veh/h)	0	2057	436	0	2024	403	463	0	821	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	2143	0	0	2108	0	321	0	973			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	2939		0	3982		610	0	1069			
Arrive On Green	0.00	1.00	0.00	0.00	0.53	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	1795	0	3145			
Grp Volume(v), veh/h	0	2143	0	0	2108	0	321	0	973			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	16.5	0.0	12.9	0.0	26.6			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	16.5	0.0	12.9	0.0	26.6			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2939		0	3982		610	0	1069			
V/C Ratio(X)	0.00	0.73		0.00	0.53		0.53	0.00	0.91			
Avail Cap(c_a), veh/h	0	2939		0	3982		708	0	1241			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	13.7	0.0	23.9	0.0	28.4			
Incr Delay (d2), s/veh	0.0	1.6	0.0	0.0	0.5	0.0	0.3	0.0	8.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.0	0.0	5.9	0.0	5.1	0.0	10.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.6	0.0	0.0	14.2	0.0	24.1	0.0	36.9			
LnGrp LOS	A	A		A	B		C	A	D			
Approach Vol, veh/h		2143	A		2108	A		1294				
Approach Delay, s/veh		1.6			14.2			33.7				
Approach LOS		A			B			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		53.9				53.9		36.1				
Change Period (Y+Rc), s		6.0				6.0		5.5				
Max Green Setting (Gmax), s		43.0				43.0		35.5				
Max Q Clear Time (g_c+I1), s		2.0				18.5		28.6				
Green Ext Time (p_c), s		23.2				16.5		2.0				

Intersection Summary	
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing Plus Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Goetz Road**

Total of Both Approaches (VPH) = **435**

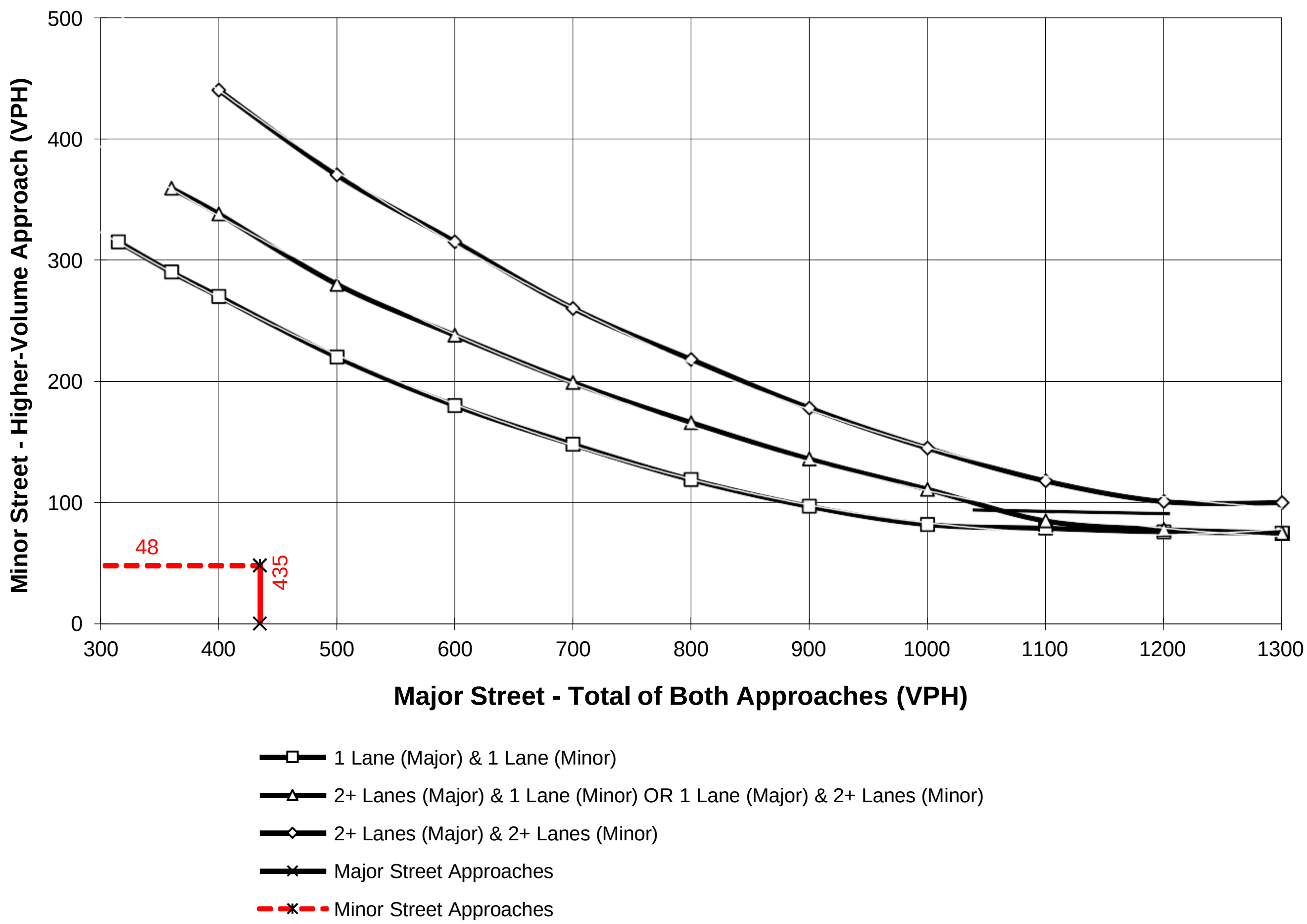
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Street B/Paseo La Plaza**

High Volume Approach (VPH) = **48**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

TRAFFIC CONDITIONS **E+P**

___ DIST ___ CO ___ RTE ___ PM

CALC CS DATE 10/05/21

CHK CS DATE 10/05/21

Jurisdiction: **City of Menifee**

Major Street: **Goetz Road**

Minor Street: **Street A**

Critical Approach Speed (Major) 45 mph

Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lane **1** lane

Major Street Future ADT = **6,478** vpd

Minor Street Future ADT = **274** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .... √

or **RURAL (R)**

In built up area of isolated community of < 10,000 population ....

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL		Minimum Requirements EADT			
URBAN	RURAL XX	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **6,478**	1 **274**	8,000	5,600 *	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **6,478**	1 **274**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ..... A **16%**	B **32%**				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 5.3:

E+P CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1698	678	1715	853	344	329	318
v/c Ratio	0.37	0.37	0.49	0.54	0.79	0.70	0.68
Control Delay	9.1	0.6	5.9	5.3	44.3	35.2	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	0.6	5.9	5.3	44.3	35.2	34.0
Queue Length 50th (ft)	111	0	93	120	180	149	142
Queue Length 95th (ft)	148	0	103	282	260	226	218
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	4571	1845	3530	1579	542	571	572
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.37	0.49	0.54	0.63	0.58	0.56

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1537	520	2233	504	331	331	332
v/c Ratio	0.47	0.33	0.50	0.33	0.64	0.78	0.62
Control Delay	7.5	1.1	12.0	0.6	33.4	38.7	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	1.1	12.0	0.6	33.4	38.7	29.3
Queue Length 50th (ft)	99	9	170	0	164	169	146
Queue Length 95th (ft)	116	35	258	0	211	236	196
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	3272	1583	4449	1550	762	609	769
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.33	0.50	0.33	0.43	0.54	0.43

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2016	491	1919	613	425	402	390
v/c Ratio	0.49	0.27	0.60	0.38	0.77	0.70	0.67
Control Delay	13.3	0.4	8.0	1.4	37.5	30.6	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	0.4	8.0	1.4	37.5	30.6	29.6
Queue Length 50th (ft)	164	0	118	14	215	180	172
Queue Length 95th (ft)	229	0	137	46	287	248	238
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	4108	1845	3173	1615	700	726	728
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.27	0.60	0.38	0.61	0.55	0.54

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	2143	454	2108	420	434	450	453
v/c Ratio	0.74	0.29	0.53	0.27	0.67	0.87	0.69
Control Delay	11.5	0.4	15.3	0.4	30.2	42.4	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	0.4	15.3	0.4	30.2	42.4	28.6
Queue Length 50th (ft)	153	0	198	0	199	229	193
Queue Length 95th (ft)	167	0	241	0	287	#370	285
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	2899	1583	3942	1551	741	593	749
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.29	0.53	0.27	0.59	0.76	0.60

Intersection Summary

95th percentile volume e ceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 6.1:

OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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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	0	0	0	21	0	19	0	256	8	10	219	0
Future Vol, veh/h	0	0	0	21	0	19	0	256	8	10	219	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	28	0	25	0	337	11	13	288	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	657	657	343	-	0	0	348	0	0
Stage 1	343	343	-	-	-	-	-	-	-
Stage 2	314	314	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	430	385	700	0	-	-	1211	-	0
Stage 1	719	637	-	0	-	-	-	-	0
Stage 2	741	656	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	424	0	700	-	-	-	1211	-	-
Mov Cap-2 Maneuver	424	0	-	-	-	-	-	-	-
Stage 1	719	0	-	-	-	-	-	-	-
Stage 2	731	0	-	-	-	-	-	-	-

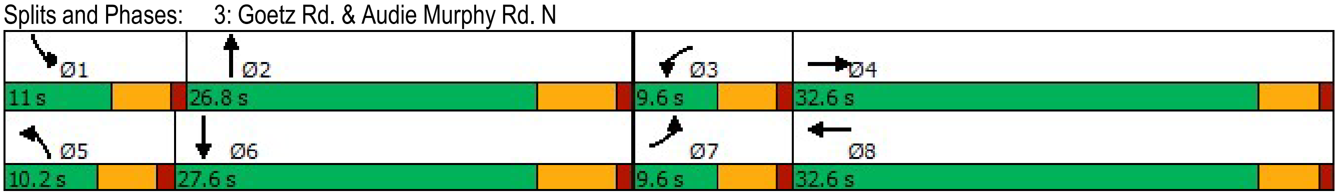
Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	522	1211	-
HCM Lane V/C Ratio	-	-	0.101	0.011	-
HCM Control Delay (s)	-	-	12.7	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	8	66	5	49	346	82	624
Future Volume (vph)	8	8	66	5	49	346	82	624
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.6	9.6	32.6	9.6	26.8	9.6	26.8
Total Split (s)	9.6	32.6	9.6	32.6	10.2	26.8	11.0	27.6
Total Split (%)	12.0%	40.8%	12.0%	40.8%	12.8%	33.5%	13.8%	34.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.9	17.9	7.9	20.9	8.2	26.1	9.0	26.4
Actuated g/C Ratio	0.17	0.39	0.17	0.46	0.18	0.57	0.20	0.58
v/c Ratio	0.03	0.09	0.24	0.07	0.17	0.22	0.26	0.34
Control Delay	31.0	8.2	32.8	6.5	30.0	15.0	30.8	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	8.2	32.8	6.5	30.0	15.0	30.8	16.1
LOS	C	A	C	A	C	B	C	B
Approach Delay		11.1		21.2		16.6		17.8
Approach LOS		B		C		B		B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 45.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.34	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 44.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	8	48	66	5	48	49	346	58	82	624	10
Future Volume (veh/h)	8	8	48	66	5	48	49	346	58	82	624	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	9	43	72	5	52	53	376	55	89	678	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	21	32	151	121	24	246	98	839	122	138	1044	17
Arrive On Green	0.01	0.11	0.11	0.07	0.17	0.17	0.06	0.27	0.27	0.08	0.29	0.29
Sat Flow, veh/h	1781	281	1345	1781	141	1466	1781	3113	452	1781	3578	58
Grp Volume(v), veh/h	9	0	52	72	0	57	53	213	218	89	337	352
Grp Sat Flow(s),veh/h/ln	1781	0	1626	1781	0	1607	1781	1777	1788	1781	1777	1860
Q Serve(g_s), s	0.2	0.0	1.2	1.6	0.0	1.3	1.2	4.1	4.2	2.0	6.9	6.9
Cycle Q Clear(g_c), s	0.2	0.0	1.2	1.6	0.0	1.3	1.2	4.1	4.2	2.0	6.9	6.9
Prop In Lane	1.00		0.83	1.00		0.91	1.00		0.25	1.00		0.03
Lane Grp Cap(c), veh/h	21	0	182	121	0	270	98	479	482	138	518	542
V/C Ratio(X)	0.43	0.00	0.29	0.59	0.00	0.21	0.54	0.45	0.45	0.65	0.65	0.65
Avail Cap(c_a), veh/h	215	0	1099	215	0	1086	241	901	907	275	935	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	16.9	18.7	0.0	14.9	19.1	12.6	12.6	18.6	12.8	12.8
Incr Delay (d2), s/veh	5.0	0.0	0.9	1.7	0.0	0.4	1.7	0.7	0.7	1.9	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.7	0.0	0.4	0.4	1.3	1.3	0.7	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	0.0	17.7	20.5	0.0	15.2	20.8	13.2	13.2	20.4	14.2	14.1
LnGrp LOS	C	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		61			129			484			778	
Approach Delay, s/veh		18.8			18.2			14.1			14.9	
Approach LOS		B			B			B			B	

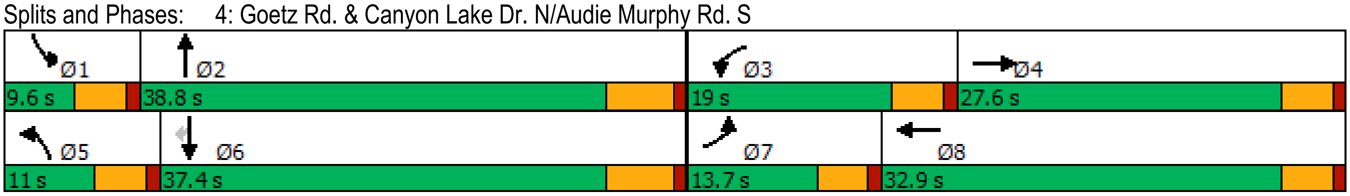
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	17.0	7.4	9.2	6.9	17.9	5.1	11.6
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	6.4	21.0	5.0	28.0	5.6	21.8	5.0	28.0
Max Q Clear Time (g_c+I1), s	4.0	6.2	3.6	3.2	3.2	8.9	2.2	3.3
Green Ext Time (p_c), s	0.0	1.9	0.0	0.2	0.0	3.1	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	57	31	306	39	121	369	20	678	34
Future Volume (vph)	57	31	306	39	121	369	20	678	34
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	13.7	27.6	19.0	32.9	11.0	38.8	9.6	37.4	37.4
Total Split (%)	14.4%	29.1%	20.0%	34.6%	11.6%	40.8%	10.1%	39.4%	39.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.0	16.8	14.7	19.3	6.5	32.2	5.1	24.4	24.4
Actuated g/C Ratio	0.16	0.20	0.18	0.23	0.08	0.39	0.06	0.30	0.30
v/c Ratio	0.24	0.81	1.13	0.15	1.01	0.43	0.21	0.75	0.07
Control Delay	38.7	33.0	126.4	18.6	123.0	18.9	46.2	31.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	33.0	126.4	18.6	123.0	18.9	46.2	31.5	0.2
LOS	D	C	F	B	F	B	D	C	A
Approach Delay		33.9		109.6		39.0		30.5	
Approach LOS		C		F		D		C	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 82.3	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 47.3	Intersection LOS: D
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	31	283	306	39	18	121	369	137	20	678	34
Future Volume (veh/h)	57	31	283	306	39	18	121	369	137	20	678	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	36	230	356	45	9	141	429	115	23	788	26
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	43	275	329	505	101	146	945	251	45	1009	444
Arrive On Green	0.05	0.20	0.20	0.18	0.33	0.33	0.08	0.34	0.34	0.03	0.28	0.28
Sat Flow, veh/h	1781	216	1383	1781	1509	302	1781	2774	737	1781	3554	1565
Grp Volume(v), veh/h	66	0	266	356	0	54	141	273	271	23	788	26
Grp Sat Flow(s),veh/h/ln	1781	0	1600	1781	0	1811	1781	1777	1734	1781	1777	1565
Q Serve(g_s), s	2.9	0.0	12.5	14.4	0.0	1.6	6.2	9.4	9.5	1.0	15.9	0.9
Cycle Q Clear(g_c), s	2.9	0.0	12.5	14.4	0.0	1.6	6.2	9.4	9.5	1.0	15.9	0.9
Prop In Lane	1.00		0.86	1.00		0.17	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	87	0	318	329	0	605	146	606	591	45	1009	444
V/C Ratio(X)	0.76	0.00	0.84	1.08	0.00	0.09	0.97	0.45	0.46	0.51	0.78	0.06
Avail Cap(c_a), veh/h	208	0	471	329	0	656	146	751	733	114	1438	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	0.0	30.1	31.8	0.0	17.8	35.7	20.0	20.1	37.6	25.7	20.4
Incr Delay (d2), s/veh	5.0	0.0	8.3	73.8	0.0	0.1	63.5	0.5	0.6	3.3	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	5.4	12.8	0.0	0.7	5.1	3.6	3.5	0.5	6.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	38.4	105.7	0.0	17.9	99.3	20.6	20.7	40.9	27.5	20.4
LnGrp LOS	D	A	D	F	A	B	F	C	C	D	C	C
Approach Vol, veh/h		332			410			685			837	
Approach Delay, s/veh		39.0			94.1			36.8			27.7	
Approach LOS		D			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	32.4	19.0	20.1	11.0	28.0	8.4	30.7
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.0	33.0	14.4	23.0	6.4	31.6	9.1	28.3
Max Q Clear Time (g_c+I1), s	3.0	11.5	16.4	14.5	8.2	17.9	4.9	3.6
Green Ext Time (p_c), s	0.0	2.9	0.0	1.1	0.0	4.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	44.1
HCM 6th LOS	D

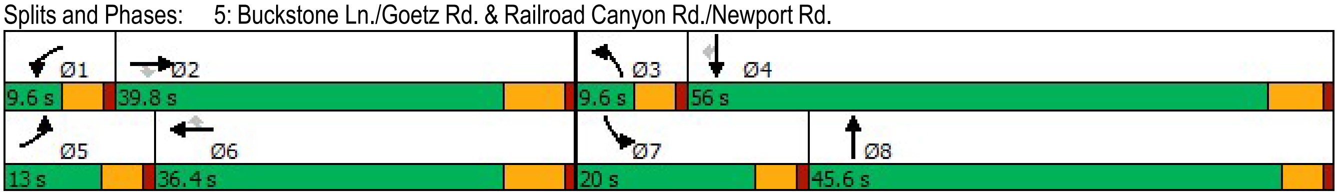
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	349	678	1	14	729	304	11	11	657	9	627
Future Volume (vph)	349	678	1	14	729	304	11	11	657	9	627
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	13.0	39.8	39.8	9.6	36.4	36.4	9.6	45.6	20.0	56.0	56.0
Total Split (%)	11.3%	34.6%	34.6%	8.3%	31.7%	31.7%	8.3%	39.7%	17.4%	48.7%	48.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	9.1	32.0	32.0	5.4	19.0	19.0	5.4	14.8	16.7	25.8	25.8
Actuated g/C Ratio	0.12	0.44	0.44	0.07	0.26	0.26	0.07	0.20	0.23	0.35	0.35
v/c Ratio	0.88	0.33	0.00	0.11	0.59	0.50	0.09	0.11	0.90	0.49	0.50
Control Delay	58.8	17.7	0.0	44.9	27.3	6.5	44.5	14.6	48.1	8.2	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	17.7	0.0	44.9	27.3	6.5	44.5	14.6	48.1	8.2	8.4
LOS	E	B	A	D	C	A	D	B	D	A	A
Approach Delay		31.6			21.5			21.8		28.5	
Approach LOS		C			C			C		C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 73.3	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	678	1	14	729	304	11	11	24	657	9	627
Future Volume (veh/h)	349	678	1	14	729	304	11	11	24	657	9	627
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	375	729	1	15	784	229	12	12	12	706	0	423
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	451	1848	562	33	1275	396	27	55	55	805	0	874
Arrive On Green	0.13	0.36	0.36	0.02	0.25	0.25	0.01	0.06	0.06	0.23	0.00	0.28
Sat Flow, veh/h	3456	5106	1552	1781	5106	1585	1781	856	856	3563	0	3170
Grp Volume(v), veh/h	375	729	1	15	784	229	12	0	24	706	0	423
Grp Sat Flow(s),veh/h/ln	1728	1702	1552	1781	1702	1585	1781	0	1712	1781	0	1585
Q Serve(g_s), s	6.8	6.8	0.0	0.5	8.8	8.2	0.4	0.0	0.9	12.3	0.0	7.2
Cycle Q Clear(g_c), s	6.8	6.8	0.0	0.5	8.8	8.2	0.4	0.0	0.9	12.3	0.0	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	451	1848	562	33	1275	396	27	0	111	805	0	874
V/C Ratio(X)	0.83	0.39	0.00	0.46	0.61	0.58	0.45	0.00	0.22	0.88	0.00	0.48
Avail Cap(c_a), veh/h	451	2663	809	138	2394	743	138	0	1090	852	0	2471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	15.3	13.1	31.3	21.4	21.2	31.5	0.0	28.6	24.1	0.0	19.5
Incr Delay (d2), s/veh	11.8	0.1	0.0	3.7	0.5	1.3	4.3	0.0	1.0	9.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	2.1	0.0	0.2	3.0	3.0	0.2	0.0	0.4	5.6	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	15.4	13.1	35.0	21.9	22.5	35.8	0.0	29.5	33.4	0.0	19.9
LnGrp LOS	D	B	B	D	C	C	D	A	C	C	A	B
Approach Vol, veh/h		1105			1028			36			1129	
Approach Delay, s/veh		23.5			22.2			31.6			28.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	29.5	5.6	23.6	13.0	22.3	19.2	10.0
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	33.6	5.0	50.2	8.4	30.2	15.4	* 41
Max Q Clear Time (g_c+I1), s	2.5	8.8	2.4	9.2	8.8	10.8	14.3	2.9
Green Ext Time (p_c), s	0.0	4.5	0.0	1.7	0.0	5.3	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

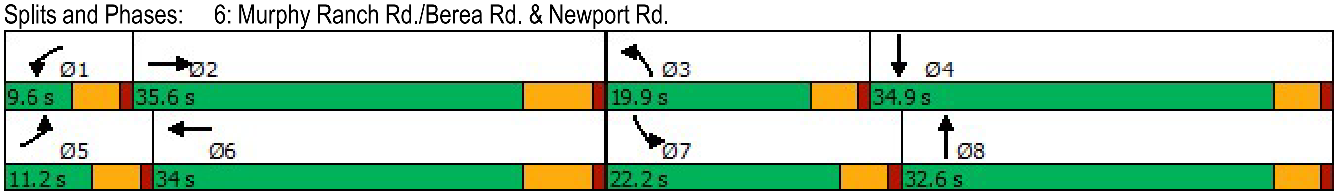
Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	69	1360	3	929	142	84	341	194
Future Volume (vph)	69	1360	3	929	142	84	341	194
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	11.2	35.6	9.6	34.0	19.9	32.6	22.2	34.9
Total Split (%)	11.2%	35.6%	9.6%	34.0%	19.9%	32.6%	22.2%	34.9%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.3	35.1	5.1	28.2	11.1	15.5	19.1	19.6
Actuated g/C Ratio	0.08	0.42	0.06	0.34	0.13	0.19	0.23	0.24
v/c Ratio	0.54	0.80	0.03	0.70	0.64	0.28	0.89	0.71
Control Delay	57.4	26.6	43.7	28.1	49.3	30.8	61.5	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	26.6	43.7	28.1	49.3	30.8	61.5	36.9
LOS	E	C	D	C	D	C	E	D
Approach Delay		27.9		28.2		42.0		50.2
Approach LOS		C		C		D		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 83.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 80.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1360	221	3	929	189	142	84	8	341	194	96
Future Volume (veh/h)	69	1360	221	3	929	189	142	84	8	341	194	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1447	167	3	988	145	151	89	3	363	206	70
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	1734	200	7	1465	214	190	218	7	403	321	109
Arrive On Green	0.05	0.37	0.37	0.00	0.33	0.33	0.11	0.12	0.12	0.23	0.24	0.24
Sat Flow, veh/h	1781	4629	534	1781	4494	658	1781	1799	61	1781	1329	452
Grp Volume(v), veh/h	73	1064	550	3	748	385	151	0	92	363	0	276
Grp Sat Flow(s),veh/h/ln	1781	1702	1759	1781	1702	1748	1781	0	1859	1781	0	1781
Q Serve(g_s), s	3.0	20.8	20.8	0.1	13.9	13.9	6.0	0.0	3.3	14.5	0.0	10.2
Cycle Q Clear(g_c), s	3.0	20.8	20.8	0.1	13.9	13.9	6.0	0.0	3.3	14.5	0.0	10.2
Prop In Lane	1.00		0.30	1.00		0.38	1.00		0.03	1.00		0.25
Lane Grp Cap(c), veh/h	94	1276	659	7	1109	570	190	0	225	403	0	429
V/C Ratio(X)	0.78	0.83	0.83	0.42	0.67	0.68	0.80	0.00	0.41	0.90	0.00	0.64
Avail Cap(c_a), veh/h	161	1369	707	122	1295	665	373	0	712	429	0	738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.2	20.8	20.8	36.3	21.3	21.3	31.9	0.0	29.7	27.5	0.0	24.9
Incr Delay (d2), s/veh	5.0	4.4	8.1	13.6	1.1	2.2	2.9	0.0	1.2	19.9	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	7.5	8.4	0.1	4.8	5.1	2.7	0.0	1.5	8.2	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	25.1	28.9	49.9	22.4	23.5	34.8	0.0	30.9	47.4	0.0	26.5
LnGrp LOS	D	C	C	D	C	C	C	A	C	D	A	C
Approach Vol, veh/h		1687			1136			243			639	
Approach Delay, s/veh		27.0			22.9			33.3			38.4	
Approach LOS		C			C			C			D	

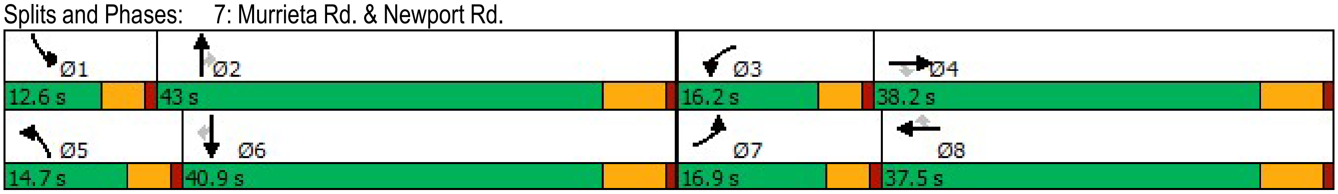
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	33.6	12.4	22.2	8.5	30.0	21.2	13.5
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6
Max Green Setting (Gmax), s	5.0	29.4	15.3	30.3	6.6	27.8	17.6	28.0
Max Q Clear Time (g_c+I1), s	2.1	22.8	8.0	12.2	5.0	15.9	16.5	5.3
Green Ext Time (p_c), s	0.0	4.6	0.1	1.6	0.0	5.1	0.1	0.4

Intersection Summary			
HCM 6th Ctrl Delay			28.1
HCM 6th LOS			C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1296	172	231	986	221	164	291	266	225	90	51
Future Volume (vph)	147	1296	172	231	986	221	164	291	266	225	90	51
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	16.9	38.2	38.2	16.2	37.5	37.5	14.7	43.0	43.0	12.6	40.9	40.9
Total Split (%)	15.4%	34.7%	34.7%	14.7%	34.1%	34.1%	13.4%	39.1%	39.1%	11.5%	37.2%	37.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	11.2	30.6	30.6	11.8	31.1	31.1	13.5	16.6	16.6	8.1	14.9	14.9
Actuated g/C Ratio	0.13	0.34	0.34	0.13	0.35	0.35	0.15	0.19	0.19	0.09	0.17	0.17
v/c Ratio	0.70	0.78	0.28	1.04	0.58	0.33	0.65	0.46	0.56	1.47	0.16	0.15
Control Delay	56.7	31.1	5.3	111.2	26.6	5.1	53.1	33.9	10.2	275.3	31.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	31.1	5.3	111.2	26.6	5.1	53.1	33.9	10.2	275.3	31.6	0.9
LOS	E	C	A	F	C	A	D	C	B	F	C	A
Approach Delay		30.7			36.9			29.6			176.9	
Approach LOS		C			D			C			F	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 88.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.47	
Intersection Signal Delay: 45.6	Intersection LOS: D
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1296	172	231	986	221	164	291	266	225	90	51
Future Volume (veh/h)	147	1296	172	231	986	221	164	291	266	225	90	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1364	98	243	1038	171	173	306	178	237	95	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	1732	530	252	1908	592	209	564	252	174	495	216
Arrive On Green	0.11	0.34	0.34	0.14	0.37	0.37	0.12	0.16	0.16	0.10	0.14	0.14
Sat Flow, veh/h	1781	5106	1562	1781	5106	1585	1781	3554	1585	1781	3554	1550
Grp Volume(v), veh/h	155	1364	98	243	1038	171	173	306	178	237	95	26
Grp Sat Flow(s),veh/h/ln	1781	1702	1562	1781	1702	1585	1781	1777	1585	1781	1777	1550
Q Serve(g_s), s	7.0	19.8	3.6	11.1	13.1	6.2	7.8	6.5	8.7	8.0	1.9	1.2
Cycle Q Clear(g_c), s	7.0	19.8	3.6	11.1	13.1	6.2	7.8	6.5	8.7	8.0	1.9	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	190	1732	530	252	1908	592	209	564	252	174	495	216
V/C Ratio(X)	0.81	0.79	0.18	0.97	0.54	0.29	0.83	0.54	0.71	1.37	0.19	0.12
Avail Cap(c_a), veh/h	267	1991	609	252	1947	604	219	1593	711	174	1502	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	24.5	19.1	35.0	20.2	18.0	35.4	31.8	32.7	37.0	31.2	30.9
Incr Delay (d2), s/veh	8.6	1.9	0.2	46.7	0.3	0.3	20.3	0.8	3.6	196.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	7.2	1.2	7.7	4.6	2.1	4.3	2.6	3.3	12.7	0.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	26.4	19.3	81.7	20.5	18.3	55.7	32.6	36.3	233.7	31.4	31.2
LnGrp LOS	D	C	B	F	C	B	E	C	D	F	C	C
Approach Vol, veh/h		1617			1452			657			358	
Approach Delay, s/veh		27.7			30.5			39.7			165.3	
Approach LOS		C			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	19.2	16.2	34.0	14.2	17.6	13.4	36.9
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.0	36.8	11.6	32.0	10.1	34.7	12.3	31.3
Max Q Clear Time (g_c+I1), s	10.0	10.7	13.1	21.8	9.8	3.9	9.0	15.1
Green Ext Time (p_c), s	0.0	2.3	0.0	6.0	0.0	0.6	0.1	6.5

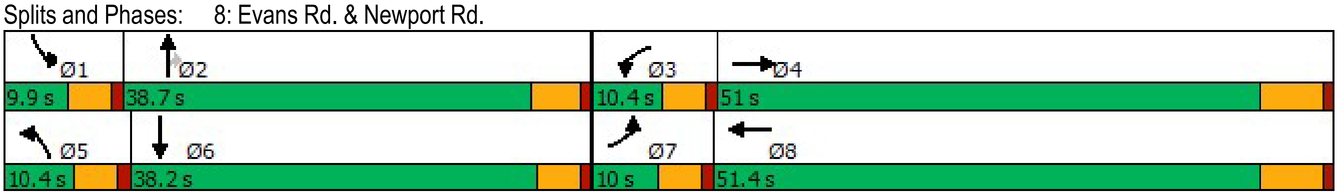
Intersection Summary	
HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	22	1827	91	1344	77	71	132	108	120
Future Volume (vph)	22	1827	91	1344	77	71	132	108	120
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.0	51.0	10.4	51.4	10.4	38.7	38.7	9.9	38.2
Total Split (%)	9.1%	46.4%	9.5%	46.7%	9.5%	35.2%	35.2%	9.0%	34.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	45.1	5.8	51.9	5.8	16.0	16.0	5.3	16.0
Actuated g/C Ratio	0.06	0.48	0.06	0.56	0.06	0.17	0.17	0.06	0.17
v/c Ratio	0.25	1.24	0.93	0.56	0.79	0.25	0.41	1.22	0.55
Control Delay	51.5	139.4	116.0	16.5	89.9	34.0	12.1	198.8	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	139.4	116.0	16.5	89.9	34.0	12.1	198.8	37.9
LOS	D	F	F	B	F	C	B	F	D
Approach Delay		138.4		22.5		39.1			104.3
Approach LOS		F		C		D			F

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 93
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 85.1 Intersection LOS: F
Intersection Capacity Utilization 89.6% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑↱		↰	↑	↱	↰	↱	
Traffic Volume (veh/h)	22	1827	45	91	1344	55	77	71	132	108	120	34
Future Volume (veh/h)	22	1827	45	91	1344	55	77	71	132	108	120	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	2076	42	103	1527	55	88	81	102	123	136	32
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	1804	36	117	2761	99	112	254	215	107	194	46
Arrive On Green	0.03	0.51	0.51	0.07	0.55	0.55	0.06	0.14	0.14	0.06	0.13	0.13
Sat Flow, veh/h	1781	3561	72	1781	5055	182	1781	1870	1578	1781	1461	344
Grp Volume(v), veh/h	25	1032	1086	103	1028	554	88	81	102	123	0	168
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1781	1702	1833	1781	1870	1578	1781	0	1805
Q Serve(g_s), s	1.2	44.8	44.8	5.1	17.4	17.4	4.3	3.5	5.3	5.3	0.0	7.9
Cycle Q Clear(g_c), s	1.2	44.8	44.8	5.1	17.4	17.4	4.3	3.5	5.3	5.3	0.0	7.9
Prop In Lane	1.00		0.04	1.00		0.10	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	46	900	940	117	1860	1001	112	254	215	107	0	240
V/C Ratio(X)	0.54	1.15	1.16	0.88	0.55	0.55	0.78	0.32	0.48	1.15	0.00	0.70
Avail Cap(c_a), veh/h	109	900	940	117	1860	1001	117	711	600	107	0	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	21.8	21.8	41.0	13.0	13.0	40.8	34.5	35.3	41.6	0.0	36.7
Incr Delay (d2), s/veh	3.6	78.9	82.0	47.4	0.4	0.7	25.1	0.7	1.6	133.8	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	34.9	37.3	3.6	5.5	6.0	2.6	1.6	2.0	6.3	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	100.7	103.8	88.4	13.4	13.7	65.9	35.2	36.9	175.3	0.0	40.4
LnGrp LOS	D	F	F	F	B	B	E	D	D	F	A	D
Approach Vol, veh/h		2143			1685			271			291	
Approach Delay, s/veh		101.6			18.1			45.8			97.4	
Approach LOS		F			B			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	17.1	10.4	51.0	10.2	16.8	6.9	54.5
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2
Max Green Setting (Gmax), s	5.3	33.6	5.8	44.8	5.8	* 34	5.4	45.2
Max Q Clear Time (g_c+I1), s	7.3	7.3	7.1	46.8	6.3	9.9	3.2	19.4
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	1.0	0.0	11.3

Intersection Summary	
HCM 6th Ctrl Delay	65.8
HCM 6th LOS	E

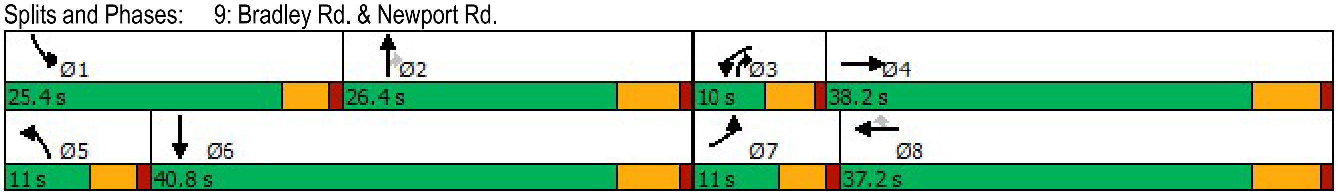
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	349	1624	248	1291	310	219	285	333	327	293
Future Volume (vph)	349	1624	248	1291	310	219	285	333	327	293
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	26.4	10.0	25.4	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	26.4%	10.0%	25.4%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.4	32.1	5.4	31.0	31.0	6.4	18.8	30.1	20.3	32.7
Actuated g/C Ratio	0.07	0.33	0.06	0.32	0.32	0.07	0.19	0.31	0.21	0.33
v/c Ratio	3.16	1.09	1.38	0.84	0.46	1.99	0.84	0.61	0.94	0.50
Control Delay	1018.3	83.9	236.4	37.4	5.3	505.0	59.2	22.2	73.6	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1018.3	83.9	236.4	37.4	5.3	505.0	59.2	22.2	73.6	20.9
LOS	F	F	F	D	A	F	E	C	E	C
Approach Delay		241.5		58.7			161.2			40.3
Approach LOS		F		E			F			D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 97.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 3.16	
Intersection Signal Delay: 138.0	Intersection LOS: F
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	1624	95	248	1291	310	219	285	333	327	293	269
Future Volume (veh/h)	349	1624	95	248	1291	310	219	285	333	327	293	269
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	367	1709	77	261	1359	278	231	300	249	344	308	243
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	1654	74	193	1633	492	118	347	382	374	626	480
Arrive On Green	0.07	0.33	0.33	0.06	0.32	0.32	0.07	0.19	0.19	0.21	0.33	0.33
Sat Flow, veh/h	1781	5008	225	3456	5106	1538	1781	1870	1585	1781	1901	1459
Grp Volume(v), veh/h	367	1161	625	261	1359	278	231	300	249	344	287	264
Grp Sat Flow(s),veh/h/ln	1781	1702	1829	1728	1702	1538	1781	1870	1585	1781	1777	1583
Q Serve(g_s), s	6.4	32.0	32.0	5.4	23.9	14.5	6.4	15.1	13.7	18.3	12.5	13.0
Cycle Q Clear(g_c), s	6.4	32.0	32.0	5.4	23.9	14.5	6.4	15.1	13.7	18.3	12.5	13.0
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	118	1124	604	193	1633	492	118	347	382	374	585	521
V/C Ratio(X)	3.12	1.03	1.03	1.36	0.83	0.57	1.96	0.87	0.65	0.92	0.49	0.51
Avail Cap(c_a), veh/h	118	1124	604	193	1633	492	118	398	425	382	642	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	32.5	32.5	45.8	30.5	27.4	45.3	38.3	33.1	37.5	26.0	26.2
Incr Delay (d2), s/veh	975.9	35.7	45.7	190.0	3.8	1.5	462.9	16.2	3.0	26.1	0.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.6	17.5	20.5	7.3	9.6	5.1	17.8	8.1	5.2	10.2	5.1	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1021.2	68.2	78.2	235.7	34.4	28.9	508.1	54.5	36.1	63.5	26.6	26.9
LnGrp LOS	F	F	F	F	C	C	F	D	D	E	C	C
Approach Vol, veh/h		2153			1898			780			895	
Approach Delay, s/veh		233.5			61.3			183.0			40.9	
Approach LOS		F			E			F			D	

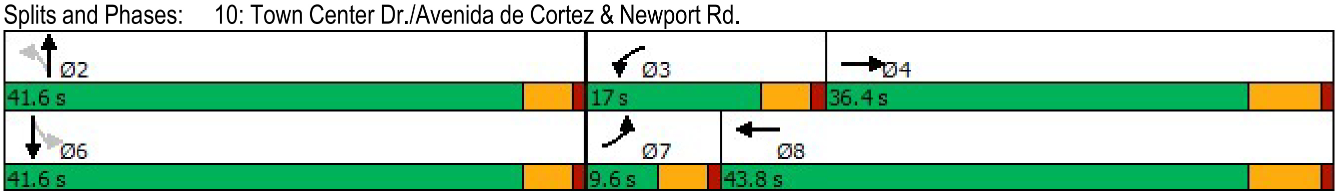
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	23.8	10.0	38.2	11.0	37.7	11.0	37.2
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	20.8	20.6	5.4	32.0	6.4	35.0	6.4	31.0
Max Q Clear Time (g_c+I1), s	20.3	17.1	7.4	34.0	8.4	15.0	8.4	25.9
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	3.0	0.0	3.7

Intersection Summary	
HCM 6th Ctrl Delay	139.4
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	2146	228	1754	134	24	88	19
Future Volume (vph)	8	2146	228	1754	134	24	88	19
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.4	17.0	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.3%	17.9%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	30.6	12.6	46.4	16.4	16.4	16.4	16.4
Actuated g/C Ratio	0.07	0.41	0.17	0.62	0.22	0.22	0.22	0.22
v/c Ratio	0.07	1.08	0.78	0.55	0.48	0.51	0.74	0.09
Control Delay	39.1	69.9	51.4	12.0	30.1	9.6	59.4	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	69.9	51.4	12.0	30.1	9.6	59.4	14.1
LOS	D	E	D	B	C	A	E	B
Approach Delay		69.8		16.5		16.3		46.3
Approach LOS		E		B		B		D

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 75.3	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 42.5	Intersection LOS: D
Intersection Capacity Utilization 100.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.

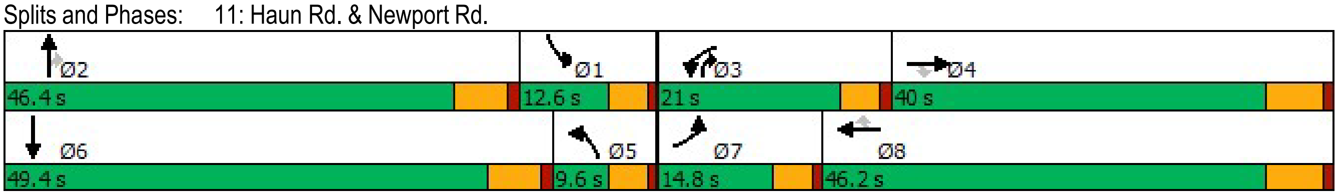


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2146	150	228	1754	36	134	24	251	88	19	17
Future Volume (veh/h)	8	2146	150	228	1754	36	134	24	251	88	19	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	2283	103	243	1866	24	143	26	180	94	20	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	2208	99	284	3110	40	380	43	298	213	309	77
Arrive On Green	0.01	0.41	0.41	0.16	0.56	0.56	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	5323	238	1781	5525	71	1382	201	1389	1173	1443	361
Grp Volume(v), veh/h	9	1599	787	243	1263	627	143	0	206	94	0	25
Grp Sat Flow(s),veh/h/ln	1781	1870	1821	1781	1870	1855	1382	0	1590	1173	0	1804
Q Serve(g_s), s	0.4	30.2	30.2	9.7	16.2	16.2	6.7	0.0	8.5	5.7	0.0	0.8
Cycle Q Clear(g_c), s	0.4	30.2	30.2	9.7	16.2	16.2	7.5	0.0	8.5	14.2	0.0	0.8
Prop In Lane	1.00		0.13	1.00		0.04	1.00		0.87	1.00		0.20
Lane Grp Cap(c), veh/h	20	1552	755	284	2106	1044	380	0	340	213	0	386
V/C Ratio(X)	0.44	1.03	1.04	0.86	0.60	0.60	0.38	0.00	0.61	0.44	0.00	0.06
Avail Cap(c_a), veh/h	122	1552	755	303	2106	1044	786	0	808	558	0	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	21.3	21.3	29.8	10.5	10.5	25.8	0.0	25.8	32.3	0.0	22.8
Incr Delay (d2), s/veh	5.5	31.0	44.1	18.5	0.5	1.0	0.6	0.0	1.7	1.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	17.4	19.6	5.2	5.0	5.1	2.2	0.0	3.3	1.7	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	52.3	65.4	48.3	11.0	11.5	26.4	0.0	27.6	33.7	0.0	22.9
LnGrp LOS	D	F	F	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		2395			2133			349			119	
Approach Delay, s/veh		56.6			15.4			27.1			31.4	
Approach LOS		E			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.2	16.2	36.4		20.2	5.4	47.2				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		37.0	12.4	30.2		37.0	5.0	37.6				
Max Q Clear Time (g_c+I1), s		10.5	11.7	32.2		16.2	2.4	18.2				
Green Ext Time (p_c), s		1.8	0.0	0.0		0.4	0.0	11.9				
Intersection Summary												
HCM 6th Ctrl Delay			36.3									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	272	1992	203	765	1666	453	259	78	726	136	45
Future Volume (vph)	272	1992	203	765	1666	453	259	78	726	136	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	14.8	40.0	40.0	21.0	46.2	46.2	9.6	46.4	21.0	12.6	49.4
Total Split (%)	12.3%	33.3%	33.3%	17.5%	38.5%	38.5%	8.0%	38.7%	17.5%	10.5%	41.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.3	34.3	34.3	16.6	40.5	40.5	6.9	11.1	26.4	14.5	15.2
Actuated g/C Ratio	0.11	0.36	0.36	0.18	0.43	0.43	0.07	0.12	0.28	0.15	0.16
v/c Ratio	0.73	1.07	0.28	1.27	0.76	0.55	1.04	0.39	0.72	0.26	0.25
Control Delay	53.7	71.8	9.0	167.7	26.9	7.4	108.7	46.4	22.0	37.4	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	71.8	9.0	167.7	26.9	7.4	108.7	46.4	22.0	37.4	13.1
LOS	D	E	A	F	C	A	F	D	C	D	B
Approach Delay		64.6			61.2			44.9			25.2
Approach LOS		E			E			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 58.4	Intersection LOS: E
Intersection Capacity Utilization 95.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	1992	203	765	1666	453	259	78	726	136	45	92
Future Volume (veh/h)	272	1992	203	765	1666	453	259	78	726	136	45	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	296	2165	147	832	1811	313	282	85	747	148	49	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	366	1992	563	614	2382	663	506	354	1146	217	192	171
Arrive On Green	0.10	0.35	0.35	0.17	0.42	0.42	0.14	0.19	0.19	0.06	0.11	0.11
Sat Flow, veh/h	3563	5611	1585	3563	5611	1562	3563	1870	3170	3563	1777	1576
Grp Volume(v), veh/h	296	2165	147	832	1811	313	282	85	747	148	49	60
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1562	1781	1870	1585	1781	1777	1576
Q Serve(g_s), s	7.7	33.8	3.8	16.4	26.1	9.6	7.0	3.7	12.3	3.9	2.4	3.4
Cycle Q Clear(g_c), s	7.7	33.8	3.8	16.4	26.1	9.6	7.0	3.7	12.3	3.9	2.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	366	1992	563	614	2382	663	506	354	1146	217	192	171
V/C Ratio(X)	0.81	1.09	0.26	1.36	0.76	0.47	0.56	0.24	0.65	0.68	0.25	0.35
Avail Cap(c_a), veh/h	382	1992	563	614	2382	663	506	797	1898	299	814	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	30.7	8.0	39.4	23.3	9.6	38.1	32.8	11.7	43.8	38.9	39.4
Incr Delay (d2), s/veh	10.9	48.3	0.2	170.7	1.5	0.5	0.8	0.3	0.6	1.4	0.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	22.6	2.1	21.3	10.5	4.2	3.0	1.6	3.7	1.7	1.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	79.0	8.2	210.1	24.8	10.1	38.9	33.1	12.4	45.2	39.6	40.6
LnGrp LOS	D	F	A	F	C	B	D	C	B	D	D	D
Approach Vol, veh/h		2608			2956			1114			257	
Approach Delay, s/veh		72.0			75.4			20.7			43.1	
Approach LOS		E			E			C			D	

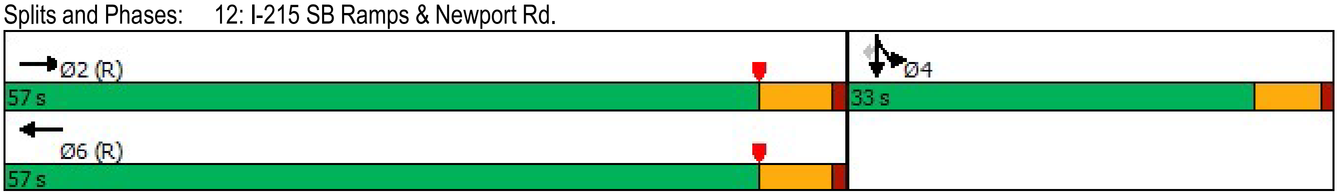
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	23.8	21.0	40.0	18.1	16.1	14.4	46.6
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	8.0	40.6	16.4	33.8	5.0	43.6	10.2	40.0
Max Q Clear Time (g_c+I1), s	5.9	14.3	18.4	35.8	9.0	5.4	9.7	28.1
Green Ext Time (p_c), s	0.0	3.7	0.0	0.0	0.0	0.6	0.0	8.9

Intersection Summary			
HCM 6th Ctrl Delay			64.1
HCM 6th LOS			E

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	2105	791	2131	889	440	0	803
Future Volume (vph)	2105	791	2131	889	440	0	803
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	57.0		57.0		33.0	33.0	33.0
Total Split (%)	63.3%		63.3%		36.7%	36.7%	36.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	53.6	90.0	53.6	90.0	24.9	24.9	24.9
Actuated g/C Ratio	0.60	1.00	0.60	1.00	0.28	0.28	0.28
v/c Ratio	0.50	0.45	0.66	0.59	0.84	0.86	0.83
Control Delay	11.4	0.8	8.3	5.6	46.4	44.9	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	0.8	8.3	5.6	46.4	44.9	42.5
LOS	B	A	A	A	D	D	D
Approach Delay	8.5		7.5			44.6	
Approach LOS	A		A			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 83.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2105	791	0	2131	889	0	0	0	440	0	803
Future Volume (veh/h)	0	2105	791	0	2131	889	0	0	0	440	0	803
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	2193	0	0	2220	0				305	0	854
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	4229		0	3248					510	0	914
Arrive On Green	0.00	0.57	0.00	0.00	1.00	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	7363	1572	0	5656	1610				1711	0	3070
Grp Volume(v), veh/h	0	2193	0	0	2220	0				305	0	854
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	16.3	0.0	0.0	0.0	0.0				13.7	0.0	24.4
Cycle Q Clear(g_c), s	0.0	16.3	0.0	0.0	0.0	0.0				13.7	0.0	24.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4229		0	3248					510	0	914
V/C Ratio(X)	0.00	0.52		0.00	0.68					0.60	0.00	0.93
Avail Cap(c_a), veh/h	0	4229		0	3248					523	0	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.22	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.6	0.0	0.0	0.0	0.0				27.0	0.0	30.7
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.2	0.0				1.2	0.0	15.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.4	0.0	0.0	0.4	0.0				5.4	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.7	0.0	0.0	1.2	0.0				28.2	0.0	46.1
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		2193	A		2220	A					1159	
Approach Delay, s/veh		11.7			1.2						41.4	
Approach LOS		B			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		57.7		32.3		57.7						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		51.0		27.5		51.0						
Max Q Clear Time (g_c+I1), s		18.3		26.4		2.0						
Green Ext Time (p_c), s		21.0		0.5		26.9						

Intersection Summary		
HCM 6th Ctrl Delay		13.7
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1816	674	2578	584	450	0	648
Future Volume (vph)	1816	674	2578	584	450	0	648
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	48.0		48.0		42.0	42.0	42.0
Total Split (%)	53.3%		53.3%		46.7%	46.7%	46.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	51.3	90.0	51.3	90.0	27.2	27.2	27.2
Actuated g/C Ratio	0.57	1.00	0.57	1.00	0.30	0.30	0.30
v/c Ratio	0.61	0.45	0.64	0.40	0.71	0.81	0.64
Control Delay	8.9	2.2	15.2	0.8	34.0	38.9	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	2.2	15.2	0.8	34.0	38.9	28.6
LOS	A	A	B	A	C	D	C
Approach Delay	7.1		12.6			33.8	
Approach LOS	A		B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Ye low, Master Inters ction

Natural Cycle: 55

Control Type: Actuated-Coordinated

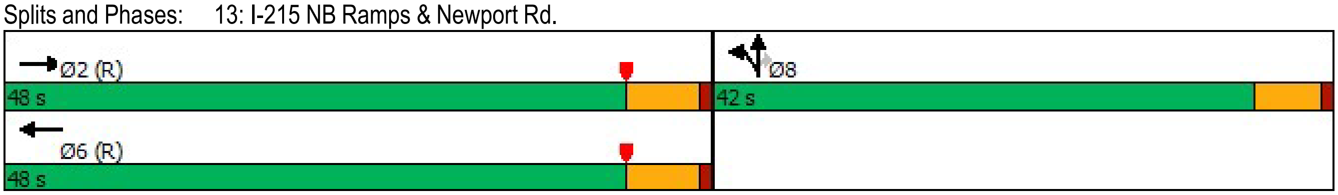
Maximum v/c Ratio: 0.81

Intersection Signal Delay: 14.0 Intersection LOS: B

Intersection Capacity Utilization 71.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1816	674	0	2578	584	450	0	648	0	0	0
Future Volume (veh/h)	0	1816	674	0	2578	584	450	0	648	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	1912	0	0	2714	0	627	0	322			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	3507		0	4751		852	0	373			
Arrive On Green	0.00	1.00	0.00	0.00	0.64	0.00	0.24	0.00	0.24			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	3591	0	1572			
Grp Volume(v), veh/h	0	1912	0	0	2714	0	627	0	322			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	18.7	0.0	14.5	0.0	17.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	18.7	0.0	14.5	0.0	17.7			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3507		0	4751		852	0	373			
V/C Ratio(X)	0.00	0.55		0.00	0.57		0.74	0.00	0.86			
Avail Cap(c_a), veh/h	0	3507		0	4751		1456	0	638			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	9.4	0.0	31.7	0.0	32.9			
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.5	0.0	0.5	0.0	2.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	5.9	0.0	6.0	0.0	6.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.0	0.0	9.9	0.0	32.2	0.0	35.5			
LnGrp LOS	A	A		A	A		C	A	D			
Approach Vol, veh/h		1912	A		2714	A		949				
Approach Delay, s/veh		0.6			9.9			33.3				
Approach LOS		A			A			C				

Timer - Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		63.2				63.2		26.8
Change Period (Y+Rc), s		6.0				6.0		5.5
Max Green Setting (Gmax), s		42.0				42.0		36.5
Max Q Clear Time (g_c+I1), s		2.0				20.7		19.7
Green Ext Time (p_c), s		19.3				18.4		1.7

Intersection Summary	
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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	0	0	0	12	0	15	0	205	19	21	230	0
Future Vol, veh/h	0	0	0	12	0	15	0	205	19	21	230	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	14	0	17	0	236	22	24	264	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	559	559	247	-	0	0	258	0	0
Stage 1	247	247	-	-	-	-	-	-	-
Stage 2	312	312	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	490	438	792	0	-	-	1307	-	0
Stage 1	794	702	-	0	-	-	-	-	0
Stage 2	742	658	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	479	0	792	-	-	-	1307	-	-
Mov Cap-2 Maneuver	479	0	-	-	-	-	-	-	-
Stage 1	794	0	-	-	-	-	-	-	-
Stage 2	726	0	-	-	-	-	-	-	-

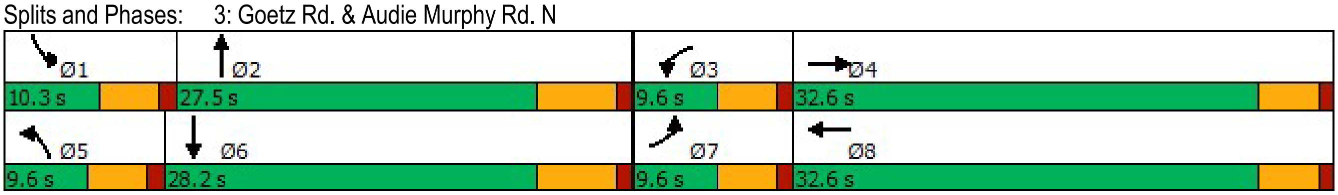
Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	614	1307	-
HCM Lane V/C Ratio	-	-	0.051	0.018	-
HCM Control Delay (s)	-	-	11.2	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	0	25	1	66	531	34	436
Future Volume (vph)	2	0	25	1	66	531	34	436
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.6	9.6	32.6	9.6	26.8	9.6	26.8
Total Split (s)	9.6	32.6	9.6	32.6	9.6	27.5	10.3	28.2
Total Split (%)	12.0%	40.8%	12.0%	40.8%	12.0%	34.4%	12.9%	35.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.5	16.9	7.5	18.3	7.5	25.9	7.8	24.1
Actuated g/C Ratio	0.18	0.40	0.18	0.43	0.18	0.61	0.18	0.57
v/c Ratio	0.01	0.04	0.09	0.12	0.23	0.30	0.12	0.24
Control Delay	30.0	0.1	29.2	5.0	30.8	13.5	28.1	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	0.1	29.2	5.0	30.8	13.5	28.1	14.4
LOS	C	A	C	A	C	B	C	B
Approach Delay		1.9		10.9		15.3		15.4
Approach LOS		A		B		B		B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 42.2	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.30	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 41.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N

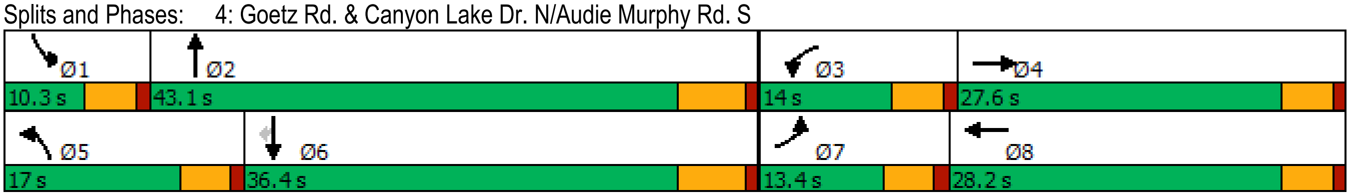


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	27	25	1	78	66	531	46	34	436	1
Future Volume (veh/h)	2	0	27	25	1	78	66	531	46	34	436	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	0	28	28	1	24	73	590	51	38	484	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	0	108	60	6	152	128	1010	87	78	1010	2
Arrive On Green	0.00	0.00	0.07	0.03	0.10	0.10	0.07	0.31	0.31	0.04	0.28	0.28
Sat Flow, veh/h	1781	0	1585	1781	64	1531	1781	3304	285	1781	3638	8
Grp Volume(v), veh/h	2	0	28	28	0	25	73	317	324	38	236	249
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1595	1781	1777	1812	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	0.6	0.6	0.0	0.5	1.4	5.4	5.4	0.7	4.0	4.0
Cycle Q Clear(g_c), s	0.0	0.0	0.6	0.6	0.0	0.5	1.4	5.4	5.4	0.7	4.0	4.0
Prop In Lane	1.00		1.00	1.00		0.96	1.00		0.16	1.00		0.00
Lane Grp Cap(c), veh/h	5	0	108	60	0	158	128	543	554	78	493	519
V/C Ratio(X)	0.40	0.00	0.26	0.46	0.00	0.16	0.57	0.58	0.59	0.49	0.48	0.48
Avail Cap(c_a), veh/h	249	0	1242	249	0	1250	249	1079	1100	284	1114	1172
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	15.8	16.9	0.0	14.7	16.0	10.5	10.5	16.7	10.8	10.8
Incr Delay (d2), s/veh	18.2	0.0	1.3	2.0	0.0	0.5	1.5	1.0	1.0	1.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.2	0.0	0.2	0.5	1.4	1.5	0.3	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	0.0	17.1	19.0	0.0	15.2	17.5	11.5	11.5	18.4	11.5	11.4
LnGrp LOS	D	A	B	B	A	B	B	B	B	B	B	B
Approach Vol, veh/h		30			53			714			523	
Approach Delay, s/veh		18.3			17.2			12.1			12.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	16.7	5.8	7.0	7.2	15.7	4.7	8.1				
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6				
Max Green Setting (Gmax), s	5.7	21.7	5.0	28.0	5.0	22.4	5.0	28.0				
Max Q Clear Time (g_c+I1), s	2.7	7.4	2.6	2.6	3.4	6.0	2.0	2.5				
Green Ext Time (p_c), s	0.0	3.0	0.0	0.1	0.0	2.3	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			12.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	54	30	182	57	262	555	23	434	47
Future Volume (vph)	54	30	182	57	262	555	23	434	47
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	13.4	27.6	14.0	28.2	17.0	43.1	10.3	36.4	36.4
Total Split (%)	14.1%	29.1%	14.7%	29.7%	17.9%	45.4%	10.8%	38.3%	38.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.8	12.2	9.6	16.3	12.7	30.5	5.5	16.7	16.7
Actuated g/C Ratio	0.10	0.17	0.13	0.23	0.18	0.43	0.08	0.23	0.23
v/c Ratio	0.36	0.51	0.85	0.18	0.92	0.59	0.19	0.58	0.10
Control Delay	39.6	11.6	64.9	23.3	68.7	17.3	39.0	27.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	11.6	64.9	23.3	68.7	17.3	39.0	27.0	0.4
LOS	D	B	E	C	E	B	D	C	A
Approach Delay		17.6		53.6		30.1		25.1	
Approach LOS		B		D		C		C	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 71.3	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 65.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	30	167	182	57	11	262	555	233	23	434	47
Future Volume (veh/h)	54	30	167	182	57	11	262	555	233	23	434	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	33	95	202	63	6	291	617	195	26	482	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	62	179	247	391	37	338	972	307	52	736	328
Arrive On Green	0.05	0.15	0.15	0.14	0.23	0.23	0.19	0.37	0.37	0.03	0.21	0.21
Sat Flow, veh/h	1781	425	1223	1781	1681	160	1781	2642	834	1781	3554	1583
Grp Volume(v), veh/h	60	0	128	202	0	69	291	415	397	26	482	40
Grp Sat Flow(s),veh/h/ln	1781	0	1648	1781	0	1841	1781	1777	1699	1781	1777	1583
Q Serve(g_s), s	2.0	0.0	4.4	6.8	0.0	1.8	9.7	11.8	11.9	0.9	7.7	1.3
Cycle Q Clear(g_c), s	2.0	0.0	4.4	6.8	0.0	1.8	9.7	11.8	11.9	0.9	7.7	1.3
Prop In Lane	1.00		0.74	1.00		0.09	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	93	0	241	247	0	428	338	654	625	52	736	328
V/C Ratio(X)	0.65	0.00	0.53	0.82	0.00	0.16	0.86	0.63	0.64	0.50	0.65	0.12
Avail Cap(c_a), veh/h	255	0	615	272	0	706	359	1076	1029	165	1766	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	24.3	25.8	0.0	18.8	24.1	16.0	16.1	29.4	22.4	19.9
Incr Delay (d2), s/veh	2.8	0.0	1.8	14.7	0.0	0.2	16.9	1.0	1.1	2.8	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.8	3.8	0.0	0.8	5.2	4.1	3.9	0.4	2.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.0	26.1	40.5	0.0	19.0	41.0	17.1	17.1	32.2	23.4	20.0
LnGrp LOS	C	A	C	D	A	B	D	B	B	C	C	C
Approach Vol, veh/h		188			271			1103			548	
Approach Delay, s/veh		27.8			35.0			23.4			23.6	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	28.5	13.1	13.6	16.3	18.6	7.8	18.9
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.7	37.3	9.4	23.0	12.4	30.6	8.8	23.6
Max Q Clear Time (g_c+I1), s	2.9	13.9	8.8	6.4	11.7	9.7	4.0	3.8
Green Ext Time (p_c), s	0.0	4.9	0.0	0.6	0.0	2.9	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

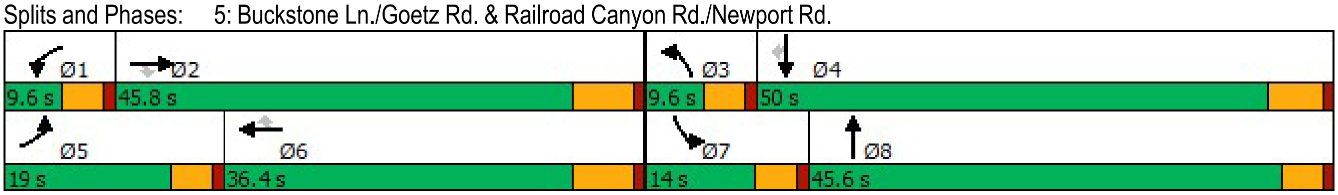
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	597	1014	6	13	708	452	1	8	379	12	407
Future Volume (vph)	597	1014	6	13	708	452	1	8	379	12	407
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	19.0	45.8	45.8	9.6	36.4	36.4	9.6	45.6	14.0	50.0	50.0
Total Split (%)	16.5%	39.8%	39.8%	8.3%	31.7%	31.7%	8.3%	39.7%	12.2%	43.5%	43.5%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	15.6	38.5	38.5	5.4	19.1	19.1	5.4	14.7	11.6	17.5	17.5
Actuated g/C Ratio	0.22	0.54	0.54	0.08	0.27	0.27	0.08	0.21	0.16	0.25	0.25
v/c Ratio	0.82	0.38	0.01	0.10	0.54	0.61	0.01	0.05	0.70	0.41	0.40
Control Delay	41.0	13.8	0.0	43.4	25.5	6.8	44.0	17.8	41.1	6.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	13.8	0.0	43.4	25.5	6.8	44.0	17.8	41.1	6.6	5.7
LOS	D	B	A	D	C	A	D	B	D	A	A
Approach Delay		23.8			18.5			19.2		22.7	
Approach LOS		C			B			B		C	

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 71.4
Natural Cycle: 115
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	597	1014	6	13	708	452	1	8	10	379	12	407
Future Volume (veh/h)	597	1014	6	13	708	452	1	8	10	379	12	407
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	615	1045	5	13	730	328	1	8	5	391	0	259
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	714	2471	767	29	1498	465	3	34	22	492	0	536
Arrive On Green	0.21	0.48	0.48	0.02	0.29	0.29	0.00	0.03	0.03	0.14	0.00	0.17
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	1070	669	3563	0	3170
Grp Volume(v), veh/h	615	1045	5	13	730	328	1	0	13	391	0	259
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	0	1738	1781	0	1585
Q Serve(g_s), s	11.0	8.5	0.1	0.5	7.6	11.9	0.0	0.0	0.5	6.8	0.0	4.8
Cycle Q Clear(g_c), s	11.0	8.5	0.1	0.5	7.6	11.9	0.0	0.0	0.5	6.8	0.0	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	714	2471	767	29	1498	465	3	0	56	492	0	536
V/C Ratio(X)	0.86	0.42	0.01	0.45	0.49	0.71	0.36	0.00	0.23	0.79	0.00	0.48
Avail Cap(c_a), veh/h	774	3144	976	138	2398	744	138	0	1108	521	0	2179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	10.8	8.6	31.4	18.7	20.2	32.1	0.0	30.3	26.8	0.0	24.2
Incr Delay (d2), s/veh	8.6	0.1	0.0	4.1	0.2	2.0	26.9	0.0	2.1	7.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	2.3	0.0	0.2	2.5	4.4	0.0	0.0	0.2	3.1	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	10.9	8.6	35.5	19.0	22.2	59.0	0.0	32.4	33.9	0.0	24.9
LnGrp LOS	C	B	A	D	B	C	E	A	C	C	A	C
Approach Vol, veh/h		1665			1071			14			650	
Approach Delay, s/veh		19.1			20.2			34.3			30.3	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	37.3	4.7	16.7	17.9	25.1	13.5	7.9
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	39.6	5.0	44.2	14.4	30.2	9.4	* 41
Max Q Clear Time (g_c+I1), s	2.5	10.5	2.0	6.8	13.0	13.9	8.8	2.5
Green Ext Time (p_c), s	0.0	7.2	0.0	1.0	0.2	5.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

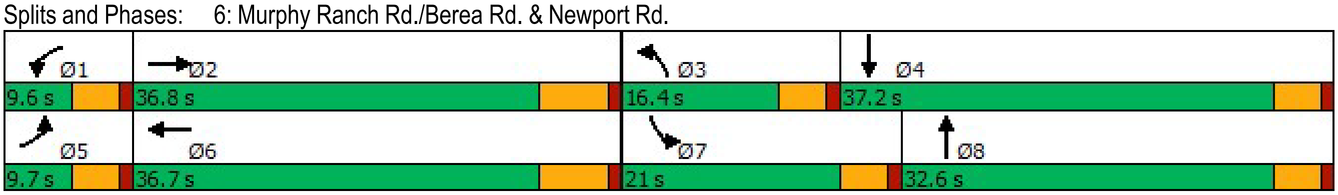
Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	44	1427	15	1126	101	70	272	55
Future Volume (vph)	44	1427	15	1126	101	70	272	55
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	9.7	36.8	9.6	36.7	16.4	32.6	21.0	37.2
Total Split (%)	9.7%	36.8%	9.6%	36.7%	16.4%	32.6%	21.0%	37.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	35.4	5.2	31.6	8.7	13.2	16.4	18.4
Actuated g/C Ratio	0.07	0.45	0.07	0.40	0.11	0.17	0.21	0.23
v/c Ratio	0.38	0.69	0.13	0.73	0.53	0.26	0.76	0.21
Control Delay	50.4	22.0	43.7	24.5	47.0	30.7	47.6	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	22.0	43.7	24.5	47.0	30.7	47.6	18.9
LOS	D	C	D	C	D	C	D	B
Approach Delay		22.7		24.7		39.9		40.5
Approach LOS		C		C		D		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 78.3	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 67.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1427	97	15	1126	308	101	70	9	272	55	35
Future Volume (veh/h)	44	1427	97	15	1126	308	101	70	9	272	55	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	1471	72	15	1161	239	104	72	7	280	57	25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1936	95	32	1547	319	134	192	19	327	274	120
Arrive On Green	0.04	0.39	0.39	0.02	0.36	0.36	0.08	0.11	0.11	0.18	0.22	0.22
Sat Flow, veh/h	1781	4980	244	1781	4244	873	1781	1678	163	1781	1232	541
Grp Volume(v), veh/h	45	1005	538	15	931	469	104	0	79	280	0	82
Grp Sat Flow(s),veh/h/ln	1781	1702	1820	1781	1702	1713	1781	0	1841	1781	0	1773
Q Serve(g_s), s	1.7	17.4	17.4	0.6	16.2	16.2	3.9	0.0	2.7	10.3	0.0	2.6
Cycle Q Clear(g_c), s	1.7	17.4	17.4	0.6	16.2	16.2	3.9	0.0	2.7	10.3	0.0	2.6
Prop In Lane	1.00		0.13	1.00		0.51	1.00		0.09	1.00		0.30
Lane Grp Cap(c), veh/h	75	1323	707	32	1241	625	134	0	210	327	0	395
V/C Ratio(X)	0.60	0.76	0.76	0.46	0.75	0.75	0.78	0.00	0.38	0.86	0.00	0.21
Avail Cap(c_a), veh/h	134	1538	822	132	1533	772	310	0	761	431	0	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.9	18.0	18.0	32.9	18.8	18.8	30.7	0.0	27.8	26.8	0.0	21.5
Incr Delay (d2), s/veh	2.8	1.9	3.6	3.8	1.7	3.2	3.6	0.0	1.1	10.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.7	6.4	0.3	5.4	5.7	1.8	0.0	1.2	5.1	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	19.9	21.5	36.7	20.5	22.1	34.3	0.0	28.9	36.8	0.0	21.7
LnGrp LOS	C	B	C	D	C	C	C	A	C	D	A	C
Approach Vol, veh/h		1588			1415			183			362	
Approach Delay, s/veh		20.9			21.2			32.0			33.4	
Approach LOS		C			C			C			C	

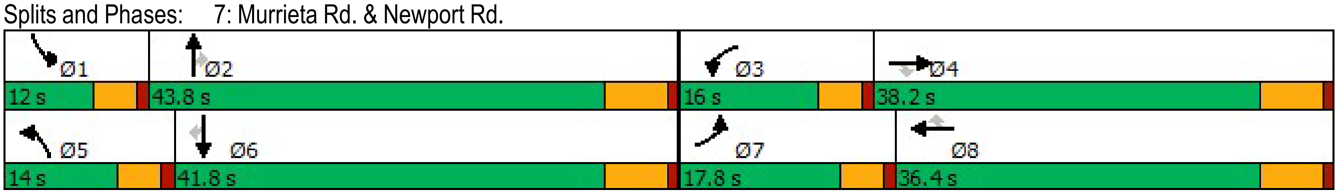
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	32.5	9.7	19.7	7.5	30.9	17.0	12.3
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6
Max Green Setting (Gmax), s	5.0	30.6	11.8	32.6	5.1	30.5	16.4	28.0
Max Q Clear Time (g_c+I1), s	2.6	19.4	5.9	4.6	3.7	18.2	12.3	4.7
Green Ext Time (p_c), s	0.0	6.6	0.1	0.4	0.0	6.5	0.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	1241	119	345	1205	353	207	278	197	298	141	49
Future Volume (vph)	219	1241	119	345	1205	353	207	278	197	298	141	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	17.8	38.2	38.2	16.0	36.4	36.4	14.0	43.8	43.8	12.0	41.8	41.8
Total Split (%)	16.2%	34.7%	34.7%	14.5%	33.1%	33.1%	12.7%	39.8%	39.8%	10.9%	38.0%	38.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.4	30.5	30.5	11.5	28.6	28.6	9.5	16.5	16.5	7.5	14.5	14.5
Actuated g/C Ratio	0.15	0.35	0.35	0.13	0.33	0.33	0.11	0.19	0.19	0.09	0.16	0.16
v/c Ratio	0.83	0.72	0.19	1.52	0.74	0.48	1.10	0.43	0.44	2.03	0.25	0.14
Control Delay	64.3	28.8	5.6	283.9	30.6	5.4	135.5	33.1	7.4	506.9	32.3	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	28.8	5.6	283.9	30.6	5.4	135.5	33.1	7.4	506.9	32.3	0.8
LOS	E	C	A	F	C	A	F	C	A	F	C	A
Approach Delay		31.9			71.9			56.7			318.9	
Approach LOS		C			E			E			F	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 87.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.03	
Intersection Signal Delay: 82.0	Intersection LOS: F
Intersection Capacity Utilization 85.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.

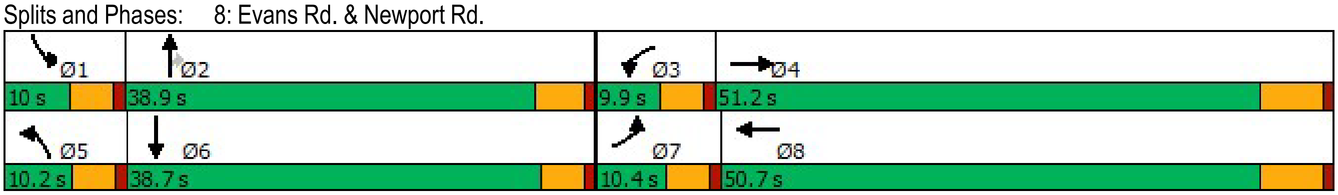


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	1241	119	345	1205	353	207	278	197	298	141	49
Future Volume (veh/h)	219	1241	119	345	1205	353	207	278	197	298	141	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	1266	70	352	1230	266	211	284	136	304	144	15
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	1683	515	261	1680	515	216	534	234	170	443	197
Arrive On Green	0.15	0.33	0.33	0.15	0.33	0.33	0.12	0.15	0.15	0.10	0.12	0.12
Sat Flow, veh/h	1781	5106	1563	1781	5106	1565	1781	3554	1559	1781	3554	1585
Grp Volume(v), veh/h	223	1266	70	352	1230	266	211	284	136	304	144	15
Grp Sat Flow(s),veh/h/ln	1781	1702	1563	1781	1702	1565	1781	1777	1559	1781	1777	1585
Q Serve(g_s), s	9.5	17.2	2.4	11.4	16.5	10.7	9.2	5.7	6.3	7.4	2.9	0.6
Cycle Q Clear(g_c), s	9.5	17.2	2.4	11.4	16.5	10.7	9.2	5.7	6.3	7.4	2.9	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	262	1683	515	261	1680	515	216	534	234	170	443	197
V/C Ratio(X)	0.85	0.75	0.14	1.35	0.73	0.52	0.98	0.53	0.58	1.79	0.33	0.08
Avail Cap(c_a), veh/h	303	2104	644	261	1985	608	216	1720	755	170	1629	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	23.2	18.3	33.1	23.0	21.1	34.0	30.5	30.7	35.1	31.0	30.0
Incr Delay (d2), s/veh	16.2	1.2	0.1	179.2	1.2	0.8	54.9	0.8	2.3	378.7	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	6.0	0.8	17.5	6.0	3.5	6.9	2.3	2.3	20.8	1.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	24.4	18.4	212.3	24.2	21.9	88.9	31.3	33.0	413.8	31.4	30.2
LnGrp LOS	D	C	B	F	C	C	F	C	C	F	C	C
Approach Vol, veh/h		1559			1848			631			463	
Approach Delay, s/veh		27.6			59.7			50.9			282.5	
Approach LOS		C			E			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	17.9	16.0	31.8	14.0	15.9	16.0	31.8				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2				
Max Green Setting (Gmax), s	7.4	37.6	11.4	32.0	9.4	35.6	13.2	30.2				
Max Q Clear Time (g_c+I1), s	9.4	8.3	13.4	19.2	11.2	4.9	11.5	18.5				
Green Ext Time (p_c), s	0.0	2.1	0.0	6.4	0.0	0.8	0.1	6.5				
Intersection Summary												
HCM 6th Ctrl Delay			70.3									
HCM 6th LOS			E									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	37	1762	64	2001	37	22	53	93	22
Future Volume (vph)	37	1762	64	2001	37	22	53	93	22
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.4	51.2	9.9	50.7	10.2	38.9	38.9	10.0	38.7
Total Split (%)	9.5%	46.5%	9.0%	46.1%	9.3%	35.4%	35.4%	9.1%	35.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.7	46.6	5.5	48.3	5.6	14.0	14.0	5.6	16.2
Actuated g/C Ratio	0.07	0.54	0.06	0.56	0.07	0.16	0.16	0.07	0.19
v/c Ratio	0.33	0.99	0.60	0.78	0.34	0.08	0.16	0.85	0.17
Control Delay	51.4	41.6	66.6	21.0	52.1	31.6	0.9	98.4	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	41.6	66.6	21.0	52.1	31.6	0.9	98.4	16.9
LOS	D	D	E	C	D	C	A	F	B
Approach Delay		41.8		22.3		23.8			67.5
Approach LOS		D		C		C			E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 85.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 32.3	Intersection LOS: C
Intersection Capacity Utilization 76.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1762	34	64	2001	100	37	22	53	93	22	35
Future Volume (veh/h)	37	1762	34	64	2001	100	37	22	53	93	22	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	1855	31	67	2106	100	39	23	29	98	23	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1960	33	86	2796	132	64	159	135	118	92	104
Arrive On Green	0.04	0.55	0.55	0.05	0.56	0.56	0.04	0.09	0.09	0.07	0.12	0.12
Sat Flow, veh/h	1781	3575	60	1781	4990	236	1781	1870	1585	1781	799	903
Grp Volume(v), veh/h	39	919	967	67	1433	773	39	23	29	98	0	49
Grp Sat Flow(s),veh/h/ln	1781	1777	1858	1781	1702	1822	1781	1870	1585	1781	0	1703
Q Serve(g_s), s	1.8	39.4	39.8	3.0	26.0	26.3	1.8	0.9	1.4	4.4	0.0	2.1
Cycle Q Clear(g_c), s	1.8	39.4	39.8	3.0	26.0	26.3	1.8	0.9	1.4	4.4	0.0	2.1
Prop In Lane	1.00		0.03	1.00		0.13	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	64	974	1018	86	1907	1021	64	159	135	118	0	197
V/C Ratio(X)	0.61	0.94	0.95	0.78	0.75	0.76	0.61	0.14	0.22	0.83	0.00	0.25
Avail Cap(c_a), veh/h	127	984	1029	116	1907	1021	123	778	659	118	0	714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.6	17.2	17.3	38.3	13.6	13.6	38.6	34.4	34.7	37.5	0.0	32.7
Incr Delay (d2), s/veh	3.4	16.8	17.1	14.4	1.7	3.3	3.4	0.4	0.8	34.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	16.8	17.8	1.6	8.1	9.2	0.8	0.4	0.5	3.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	33.9	34.4	52.6	15.3	16.9	42.0	34.9	35.4	72.1	0.0	33.4
LnGrp LOS	D	C	C	D	B	B	D	C	D	E	A	C
Approach Vol, veh/h		1925			2273			91			147	
Approach Delay, s/veh		34.3			16.9			38.1			59.2	
Approach LOS		C			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	12.0	8.5	50.7	7.5	14.5	7.5	51.7
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2
Max Green Setting (Gmax), s	5.4	33.8	5.3	45.0	5.6	* 34	5.8	44.5
Max Q Clear Time (g_c+I1), s	6.4	3.4	5.0	41.8	3.8	4.1	3.8	28.3
Green Ext Time (p_c), s	0.0	0.2	0.0	2.7	0.0	0.2	0.0	12.2

Intersection Summary	
HCM 6th Ctrl Delay	26.3
HCM 6th LOS	C

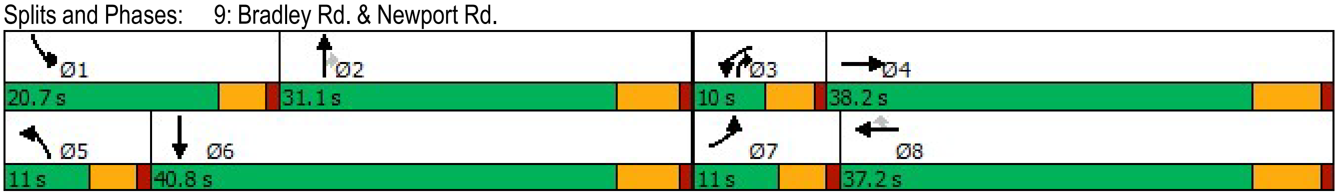
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	305	1655	346	1809	434	136	254	235	490	321
Future Volume (vph)	305	1655	346	1809	434	136	254	235	490	321
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	31.1	10.0	20.7	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	31.1%	10.0%	20.7%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.4	32.1	5.4	31.1	31.1	6.4	18.4	29.6	16.1	28.1
Actuated g/C Ratio	0.07	0.34	0.06	0.33	0.33	0.07	0.20	0.32	0.17	0.30
v/c Ratio	2.68	1.09	1.85	1.14	0.56	1.20	0.74	0.42	1.70	0.59
Control Delay	796.1	81.9	429.4	99.9	5.6	184.5	47.4	13.3	358.6	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	796.1	81.9	429.4	99.9	5.6	184.5	47.4	13.3	358.6	23.0
LOS	F	F	F	F	A	F	D	B	F	C
Approach Delay		186.2		128.1			64.5			174.0
Approach LOS		F		F			E			F

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 93.3	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.68	
Intersection Signal Delay: 148.7	Intersection LOS: F
Intersection Capacity Utilization 110.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	1655	126	346	1809	434	136	254	235	490	321	278
Future Volume (veh/h)	305	1655	126	346	1809	434	136	254	235	490	321	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	324	1761	120	368	1924	382	145	270	173	521	341	246
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	1721	117	206	1744	529	126	331	375	316	564	399
Arrive On Green	0.07	0.35	0.35	0.06	0.34	0.34	0.07	0.18	0.18	0.18	0.28	0.28
Sat Flow, veh/h	1781	4882	332	3456	5106	1550	1781	1870	1585	1781	1987	1406
Grp Volume(v), veh/h	324	1227	654	368	1924	382	145	270	173	521	304	283
Grp Sat Flow(s),veh/h/ln	1781	1702	1810	1728	1702	1550	1781	1870	1585	1781	1777	1616
Q Serve(g_s), s	6.4	32.0	32.0	5.4	31.0	19.6	6.4	12.6	8.5	16.1	13.4	13.8
Cycle Q Clear(g_c), s	6.4	32.0	32.0	5.4	31.0	19.6	6.4	12.6	8.5	16.1	13.4	13.8
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		0.87
Lane Grp Cap(c), veh/h	126	1200	638	206	1744	529	126	331	375	316	505	459
V/C Ratio(X)	2.58	1.02	1.03	1.79	1.10	0.72	1.15	0.82	0.46	1.65	0.60	0.62
Avail Cap(c_a), veh/h	126	1200	638	206	1744	529	126	521	536	316	685	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	29.4	29.4	42.7	29.9	26.1	42.2	35.9	29.7	37.3	28.1	28.2
Incr Delay (d2), s/veh	733.6	31.8	42.2	374.4	55.7	4.8	127.8	5.5	0.9	305.9	1.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.2	16.9	19.8	12.9	20.3	7.2	7.1	5.9	3.1	33.4	5.5	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	775.8	61.2	71.5	417.1	85.6	30.9	170.0	41.4	30.6	343.2	29.2	29.6
LnGrp LOS	F	F	F	F	F	C	F	D	C	F	C	C
Approach Vol, veh/h		2205			2674			588			1108	
Approach Delay, s/veh		169.2			123.4			69.9			177.0	
Approach LOS		F			F			E			F	

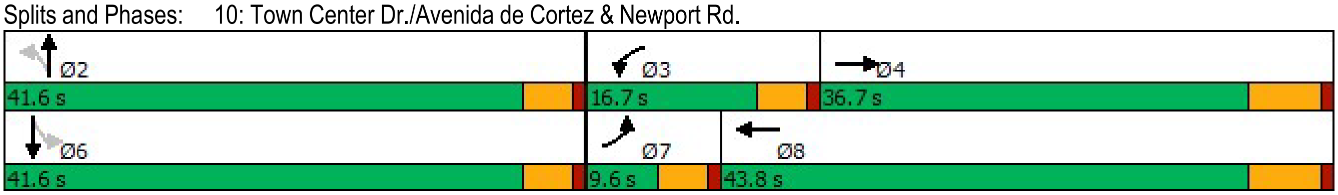
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.7	21.9	10.0	38.2	11.0	31.6	11.0	37.2
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	16.1	25.3	5.4	32.0	6.4	35.0	6.4	31.0
Max Q Clear Time (g_c+I1), s	18.1	14.6	7.4	34.0	8.4	15.8	8.4	33.0
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.0	3.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	143.0
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	2235	211	2451	78	21	80	16
Future Volume (vph)	12	2235	211	2451	78	21	80	16
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.7	16.7	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.6%	17.6%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	31.0	12.2	46.4	15.0	15.0	15.0	15.0
Actuated g/C Ratio	0.07	0.42	0.17	0.63	0.20	0.20	0.20	0.20
v/c Ratio	0.10	1.08	0.73	0.77	0.30	0.38	0.44	0.08
Control Delay	38.7	67.7	47.2	15.3	26.4	7.4	31.8	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	67.7	47.2	15.3	26.4	7.4	31.8	15.4
LOS	D	E	D	B	C	A	C	B
Approach Delay		67.6		17.8		13.1		27.5
Approach LOS		E		B		B		C

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 73.9	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 39.3	Intersection LOS: D
Intersection Capacity Utilization 96.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	2235	133	211	2451	91	78	21	160	80	16	12
Future Volume (veh/h)	12	2235	133	211	2451	91	78	21	160	80	16	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	2378	115	224	2607	83	83	22	123	85	17	8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	2420	116	268	3194	101	317	39	220	206	196	92
Arrive On Green	0.02	0.46	0.46	0.15	0.59	0.59	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	5305	254	1781	5406	171	1386	242	1354	1239	1203	566
Grp Volume(v), veh/h	13	1670	823	224	1797	893	83	0	145	85	0	25
Grp Sat Flow(s),veh/h/ln	1781	1870	1818	1781	1870	1835	1386	0	1596	1239	0	1768
Q Serve(g_s), s	0.5	29.3	30.1	8.2	25.3	25.9	3.6	0.0	5.6	4.5	0.0	0.8
Cycle Q Clear(g_c), s	0.5	29.3	30.1	8.2	25.3	25.9	4.4	0.0	5.6	10.1	0.0	0.8
Prop In Lane	1.00		0.14	1.00		0.09	1.00		0.85	1.00		0.32
Lane Grp Cap(c), veh/h	29	1707	829	268	2210	1084	317	0	260	206	0	288
V/C Ratio(X)	0.45	0.98	0.99	0.83	0.81	0.82	0.26	0.00	0.56	0.41	0.00	0.09
Avail Cap(c_a), veh/h	133	1707	829	322	2210	1084	858	0	883	690	0	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.6	17.9	18.1	27.6	10.8	10.9	25.6	0.0	25.8	30.4	0.0	23.8
Incr Delay (d2), s/veh	4.1	16.9	29.3	12.7	2.4	5.3	0.4	0.0	1.9	1.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	13.5	16.2	4.0	7.3	8.2	1.2	0.0	2.2	1.4	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	34.7	47.3	40.3	13.2	16.2	26.1	0.0	27.6	31.8	0.0	23.9
LnGrp LOS	D	C	D	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		2506			2914			228			110	
Approach Delay, s/veh		38.9			16.2			27.1			30.0	
Approach LOS		D			B			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.5	14.7	36.7		15.5	5.7	45.7				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		37.0	12.1	30.5		37.0	5.0	37.6				
Max Q Clear Time (g_c+I1), s		7.6	10.2	32.1		12.1	2.5	27.9				
Green Ext Time (p_c), s		1.2	0.1	0.0		0.4	0.0	8.7				

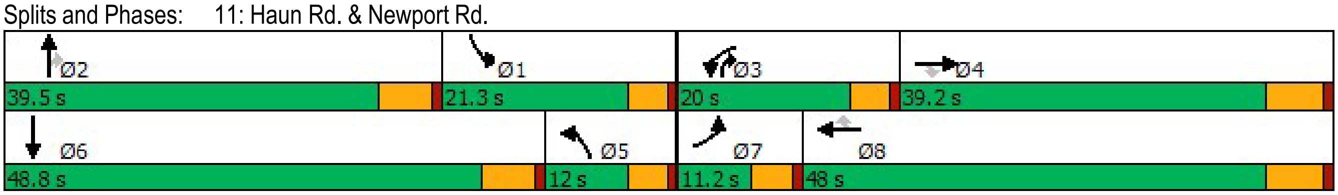
Intersection Summary		
HCM 6th Ctrl Delay		26.8
HCM 6th LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	224	1681	379	1195	1904	284	536	91	1275	431	143
Future Volume (vph)	224	1681	379	1195	1904	284	536	91	1275	431	143
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	11.2	39.2	39.2	20.0	48.0	48.0	12.0	39.5	20.0	21.3	48.8
Total Split (%)	9.3%	32.7%	32.7%	16.7%	40.0%	40.0%	10.0%	32.9%	16.7%	17.8%	40.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.7	33.4	33.4	15.6	42.3	42.3	10.3	11.4	25.7	20.7	18.2
Actuated g/C Ratio	0.07	0.34	0.34	0.16	0.43	0.43	0.10	0.12	0.26	0.21	0.18
v/c Ratio	0.92	0.92	0.46	2.10	0.82	0.36	1.43	0.44	1.24	0.57	0.62
Control Delay	87.9	41.6	6.6	526.1	30.1	7.3	240.2	49.5	140.2	39.1	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	41.6	6.6	526.1	30.1	7.3	240.2	49.5	140.2	39.1	27.6
LOS	F	D	A	F	C	A	F	D	F	D	C
Approach Delay		40.4			203.4			164.1			33.4
Approach LOS		D			F			F			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 98.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.10
Intersection Signal Delay: 133.1 | Intersection LOS: F
Intersection Capacity Utilization 112.4% | ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	1681	379	1195	1904	284	536	91	1275	431	143	277
Future Volume (veh/h)	224	1681	379	1195	1904	284	536	91	1275	431	143	277
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	231	1733	246	1232	1963	190	553	94	1251	444	147	217
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	1586	442	470	2009	567	845	494	1255	499	296	264
Arrive On Green	0.06	0.28	0.28	0.13	0.36	0.36	0.24	0.26	0.26	0.14	0.17	0.17
Sat Flow, veh/h	3563	5611	1565	3563	5611	1585	3563	1870	3170	3563	1777	1585
Grp Volume(v), veh/h	231	1733	246	1232	1963	190	553	94	1251	444	147	217
Grp Sat Flow(s),veh/h/ln	1781	1870	1565	1781	1870	1585	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	6.6	33.0	8.4	15.4	40.3	6.5	16.4	4.5	25.6	14.3	8.8	15.4
Cycle Q Clear(g_c), s	6.6	33.0	8.4	15.4	40.3	6.5	16.4	4.5	25.6	14.3	8.8	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	1586	442	470	2009	567	845	494	1255	499	296	264
V/C Ratio(X)	1.15	1.09	0.56	2.62	0.98	0.33	0.65	0.19	1.00	0.89	0.50	0.82
Avail Cap(c_a), veh/h	201	1586	442	470	2009	567	845	540	1333	510	654	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	41.9	10.4	50.7	37.0	11.1	40.2	33.3	14.0	49.3	44.2	47.0
Incr Delay (d2), s/veh	108.6	52.4	1.5	735.9	15.0	0.3	1.5	0.2	23.5	16.7	1.3	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	22.0	5.4	54.6	19.9	3.5	7.1	2.0	11.4	7.3	3.9	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	163.7	94.3	12.0	786.6	52.0	11.5	41.7	33.5	37.4	66.0	45.5	53.2
LnGrp LOS	F	F	B	F	D	B	D	C	D	E	D	D
Approach Vol, veh/h		2210			3385			1898			808	
Approach Delay, s/veh		92.4			317.1			38.5			58.8	
Approach LOS		F			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.9	36.6	20.0	39.2	32.3	25.3	11.2	48.0
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	16.7	33.7	15.4	33.0	7.4	43.0	6.6	41.8
Max Q Clear Time (g_c+I1), s	16.3	27.6	17.4	35.0	18.4	17.4	8.6	42.3
Green Ext Time (p_c), s	0.1	3.3	0.0	0.0	0.0	2.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	168.4
HCM 6th LOS	F

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	2770	625	2467	660	670	0	920
Future Volume (vph)	2770	625	2467	660	670	0	920
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	45.7	90.0	45.7	90.0	32.8	32.8	32.8
Actuated g/C Ratio	0.51	1.00	0.51	1.00	0.36	0.36	0.36
v/c Ratio	0.76	0.35	0.88	0.42	0.87	0.80	0.78
Control Delay	20.1	0.5	13.9	0.8	41.5	33.1	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	0.5	13.9	0.8	41.5	33.1	32.1
LOS	C	A	B	A	D	C	C
Approach Delay	16.5		11.1			35.7	
Approach LOS	B		B			D	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

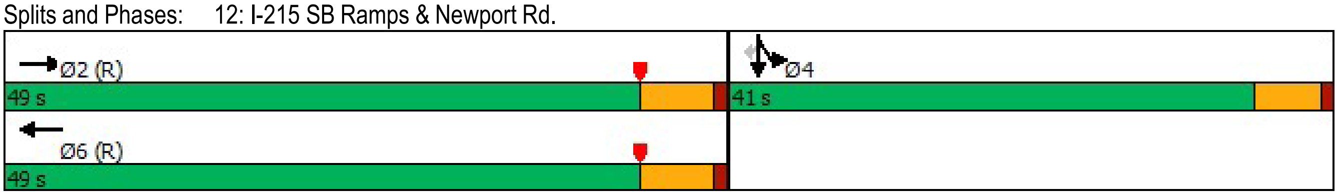
Maximum v/c Ratio: 0.88

Intersection Signal Delay: 18.2 Intersection LOS: B

Intersection Capacity Utilization 95.2% ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2770	625	0	2467	660	0	0	0	670	0	920
Future Volume (veh/h)	0	2770	625	0	2467	660	0	0	0	670	0	920
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	2827	0	0	2517	0				985	0	551
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	3620		0	2780					1302	0	584
Arrive On Green	0.00	0.49	0.00	0.00	0.98	0.00				0.38	0.00	0.38
Sat Flow, veh/h	0	7363	1572	0	5656	1610				3421	0	1535
Grp Volume(v), veh/h	0	2827	0	0	2517	0				985	0	551
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	28.5	0.0	0.0	6.1	0.0				22.5	0.0	31.2
Cycle Q Clear(g_c), s	0.0	28.5	0.0	0.0	6.1	0.0				22.5	0.0	31.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3620		0	2780					1302	0	584
V/C Ratio(X)	0.00	0.78		0.00	0.91					0.76	0.00	0.94
Avail Cap(c_a), veh/h	0	3620		0	2780					1350	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.10	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.9	0.0	0.0	0.4	0.0				24.2	0.0	26.9
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	5.5	0.0				2.1	0.0	22.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.3	0.0	0.0	1.7	0.0				8.6	0.0	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.1	0.0	0.0	5.9	0.0				26.4	0.0	49.6
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		2827	A		2517	A					1536	
Approach Delay, s/veh		19.1			5.9						34.7	
Approach LOS		B			A						C	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		39.8		50.2						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		43.0		35.5		43.0						
Max Q Clear Time (g_c+I1), s		30.5		33.2		8.1						
Green Ext Time (p_c), s		11.5		1.0		25.8						

Intersection Summary		
HCM 6th Ctrl Delay		17.7
HCM 6th LOS		B

Notes

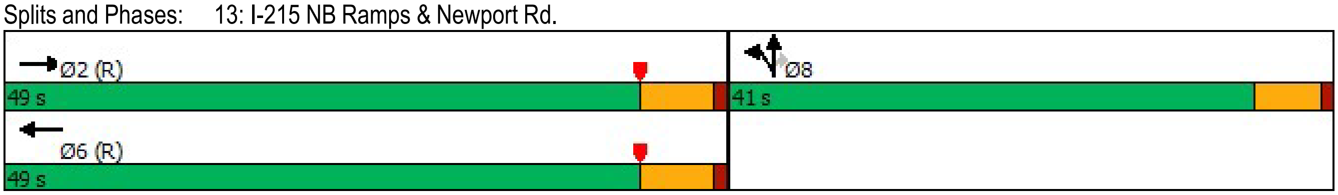
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	2697	724	2510	503	622	0	897
Future Volume (vph)	2697	724	2510	503	622	0	897
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	45.1	90.0	45.1	90.0	33.4	33.4	33.4
Actuated g/C Ratio	0.50	1.00	0.50	1.00	0.37	0.37	0.37
v/c Ratio	1.02	0.48	0.70	0.34	0.79	0.91	0.73
Control Delay	36.0	1.2	19.0	0.6	34.1	47.1	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	1.2	19.0	0.6	34.1	47.1	29.0
LOS	D	A	B	A	C	D	C
Approach Delay	28.7		15.9			36.7	
Approach LOS	C		B			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Ye low, Master Inters ction	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 98.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2697	724	0	2510	503	622	0	897	0	0	0
Future Volume (veh/h)	0	2697	724	0	2510	503	622	0	897	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	2809	0	0	2615	0	958	0	548			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	2758		0	3737		1338	0	586			
Arrive On Green	0.00	1.00	0.00	0.00	0.50	0.00	0.37	0.00	0.37			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	3591	0	1572			
Grp Volume(v), veh/h	0	2809	0	0	2615	0	958	0	548			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	45.0	0.0	0.0	24.2	0.0	20.5	0.0	30.2			
Cycle Q Clear(g_c), s	0.0	45.0	0.0	0.0	24.2	0.0	20.5	0.0	30.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2758		0	3737		1338	0	586			
V/C Ratio(X)	0.00	1.02		0.00	0.70		0.72	0.00	0.94			
Avail Cap(c_a), veh/h	0	2758		0	3737		1416	0	620			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	17.3	0.0	24.2	0.0	27.2			
Incr Delay (d2), s/veh	0.0	21.9	0.0	0.0	1.1	0.0	1.4	0.0	20.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	5.6	0.0	0.0	9.1	0.0	8.2	0.0	13.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.9	0.0	0.0	18.4	0.0	25.5	0.0	47.6			
LnGrp LOS	A	F		A	B		C	A	D			
Approach Vol, veh/h		2809	A		2615	A		1506				
Approach Delay, s/veh		21.9			18.4			33.6				
Approach LOS		C			B			C				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		51.0				51.0		39.0				
Change Period (Y+Rc), s		6.0				6.0		5.5				
Max Green Setting (Gmax), s		43.0				43.0		35.5				
Max Q Clear Time (g_c+I1), s		47.0				26.2		32.2				
Green Ext Time (p_c), s		0.0				14.6		1.3				

Intersection Summary			
HCM 6th Ctrl Delay			23.1
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 6.2:

OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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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	12	0	36	21	0	19	13	260	8	10	220	4
Future Vol, veh/h	12	0	36	21	0	19	13	260	8	10	220	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	47	28	0	25	17	342	11	13	289	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	712	705	292	723	702	348	294	0	0	353	0	0
Stage 1	318	318	-	382	382	-	-	-	-	-	-	-
Stage 2	394	387	-	341	320	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	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	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	347	361	747	342	362	695	1268	-	-	1206	-	-
Stage 1	693	654	-	640	613	-	-	-	-	-	-	-
Stage 2	631	610	-	674	652	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	327	350	747	313	351	695	1268	-	-	1206	-	-
Mov Cap-2 Maneuver	327	350	-	313	351	-	-	-	-	-	-	-
Stage 1	681	645	-	629	603	-	-	-	-	-	-	-
Stage 2	598	600	-	623	644	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.2	14.7	0.4	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1268	-	-	565	424	1206	-	-
HCM Lane V/C Ratio	0.013	-	-	0.112	0.124	0.011	-	-
HCM Control Delay (s)	7.9	0	-	12.2	14.7	8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.4	0	-	-

Intersection						
Int Delay, s/veh	0.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	28	10	276	276	1
Future Vol, veh/h	4	28	10	276	276	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	30	11	300	300	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	623	301	301	0	-	0
Stage 1	301	-	-	-	-	-
Stage 2	322	-	-	-	-	-
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	450	739	1260	-	-	-
Stage 1	751	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	446	739	1260	-	-	-
Mov Cap-2 Maneuver	446	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.3	0
HCM LOS	B		

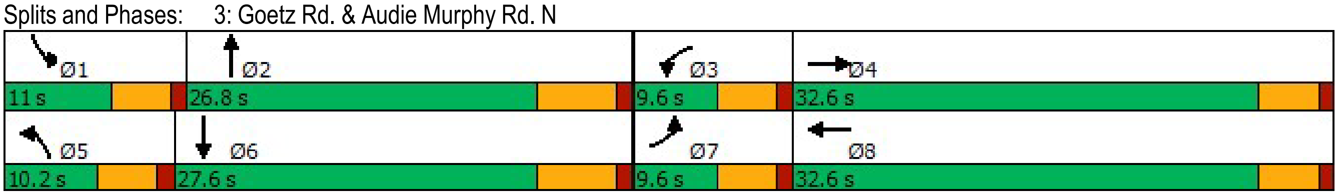
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1260	-	683	-	-
HCM Lane V/C Ratio	0.009	-	0.051	-	-
HCM Control Delay (s)	7.9	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	8	66	5	49	368	82	689
Future Volume (vph)	8	8	66	5	49	368	82	689
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.6	9.6	32.6	9.6	26.8	9.6	26.8
Total Split (s)	9.6	32.6	9.6	32.6	10.2	26.8	11.0	27.6
Total Split (%)	12.0%	40.8%	12.0%	40.8%	12.8%	33.5%	13.8%	34.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.9	17.9	7.9	20.9	8.1	27.2	9.0	27.5
Actuated g/C Ratio	0.17	0.38	0.17	0.45	0.17	0.58	0.19	0.59
v/c Ratio	0.03	0.09	0.24	0.08	0.17	0.23	0.26	0.37
Control Delay	31.5	8.3	33.5	6.6	30.6	14.8	31.5	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	8.3	33.5	6.6	30.6	14.8	31.5	16.3
LOS	C	A	C	A	C	B	C	B
Approach Delay		11.3		21.6		16.5		17.9
Approach LOS		B		C		B		B

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 46.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 46.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	8	48	66	5	48	49	368	58	82	689	10
Future Volume (veh/h)	8	8	48	66	5	48	49	368	58	82	689	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	9	43	72	5	52	53	400	55	89	749	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	21	31	149	120	23	244	97	904	124	136	1110	16
Arrive On Green	0.01	0.11	0.11	0.07	0.17	0.17	0.05	0.29	0.29	0.08	0.31	0.31
Sat Flow, veh/h	1781	281	1345	1781	141	1466	1781	3140	429	1781	3585	53
Grp Volume(v), veh/h	9	0	52	72	0	57	53	225	230	89	371	389
Grp Sat Flow(s),veh/h/ln	1781	0	1626	1781	0	1607	1781	1777	1792	1781	1777	1861
Q Serve(g_s), s	0.2	0.0	1.3	1.7	0.0	1.3	1.2	4.4	4.5	2.1	7.8	7.8
Cycle Q Clear(g_c), s	0.2	0.0	1.3	1.7	0.0	1.3	1.2	4.4	4.5	2.1	7.8	7.8
Prop In Lane	1.00		0.83	1.00		0.91	1.00		0.24	1.00		0.03
Lane Grp Cap(c), veh/h	21	0	181	120	0	267	97	512	516	136	550	576
V/C Ratio(X)	0.43	0.00	0.29	0.60	0.00	0.21	0.54	0.44	0.45	0.66	0.67	0.67
Avail Cap(c_a), veh/h	208	0	1063	208	0	1050	233	871	879	266	904	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	17.5	19.4	0.0	15.4	19.7	12.4	12.5	19.2	12.9	12.9
Incr Delay (d2), s/veh	5.0	0.0	0.9	1.8	0.0	0.4	1.8	0.6	0.6	2.0	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.5	0.7	0.0	0.5	0.5	1.3	1.4	0.8	2.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	0.0	18.4	21.2	0.0	15.8	21.5	13.0	13.1	21.2	14.4	14.3
LnGrp LOS	C	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		61			129			508			849	
Approach Delay, s/veh		19.5			18.8			13.9			15.0	
Approach LOS		B			B			B			B	

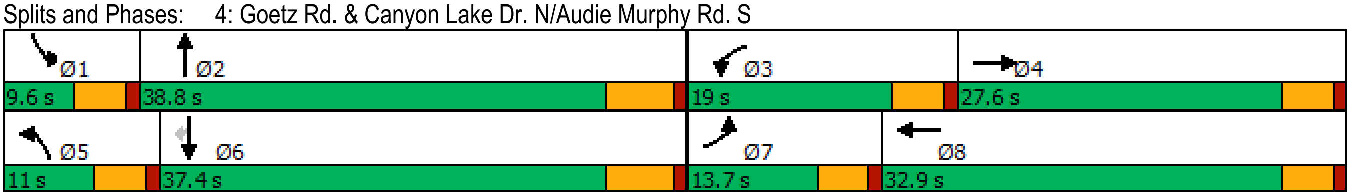
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	18.1	7.5	9.4	6.9	19.1	5.1	11.7
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	6.4	21.0	5.0	28.0	5.6	21.8	5.0	28.0
Max Q Clear Time (g_c+I1), s	4.1	6.5	3.7	3.3	3.2	9.8	2.2	3.3
Green Ext Time (p_c), s	0.0	2.1	0.0	0.2	0.0	3.4	0.0	0.3

Intersection Summary		
HCM 6th Ctrl Delay		15.2
HCM 6th LOS		B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	57	31	306	39	121	391	20	743	34
Future Volume (vph)	57	31	306	39	121	391	20	743	34
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	13.7	27.6	19.0	32.9	11.0	38.8	9.6	37.4	37.4
Total Split (%)	14.4%	29.1%	20.0%	34.6%	11.6%	40.8%	10.1%	39.4%	39.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.1	17.2	14.6	19.6	6.5	33.9	5.1	26.1	26.1
Actuated g/C Ratio	0.16	0.20	0.17	0.23	0.08	0.40	0.06	0.31	0.31
v/c Ratio	0.24	0.82	1.16	0.15	1.04	0.44	0.22	0.79	0.07
Control Delay	39.5	35.1	138.3	19.0	131.7	19.3	47.1	32.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	35.1	138.3	19.0	131.7	19.3	47.1	32.9	0.2
LOS	D	D	F	B	F	B	D	C	A
Approach Delay		35.7		119.6		40.3		31.8	
Approach LOS		D		F		D		C	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 84.4	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 49.6	Intersection LOS: D
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	31	283	306	39	18	121	391	137	20	743	34
Future Volume (veh/h)	57	31	283	306	39	18	121	391	137	20	743	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	36	230	356	45	9	141	455	115	23	864	26
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	43	273	318	495	99	141	1002	251	44	1073	472
Arrive On Green	0.05	0.20	0.20	0.18	0.33	0.33	0.08	0.36	0.36	0.02	0.30	0.30
Sat Flow, veh/h	1781	216	1383	1781	1509	302	1781	2812	705	1781	3554	1565
Grp Volume(v), veh/h	66	0	266	356	0	54	141	286	284	23	864	26
Grp Sat Flow(s),veh/h/ln	1781	0	1600	1781	0	1811	1781	1777	1740	1781	1777	1565
Q Serve(g_s), s	3.0	0.0	12.9	14.4	0.0	1.7	6.4	10.0	10.1	1.0	18.1	1.0
Cycle Q Clear(g_c), s	3.0	0.0	12.9	14.4	0.0	1.7	6.4	10.0	10.1	1.0	18.1	1.0
Prop In Lane	1.00		0.86	1.00		0.17	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	85	0	316	318	0	594	141	633	620	44	1073	472
V/C Ratio(X)	0.77	0.00	0.84	1.12	0.00	0.09	1.00	0.45	0.46	0.52	0.81	0.06
Avail Cap(c_a), veh/h	201	0	456	318	0	635	141	727	712	110	1392	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	31.2	33.1	0.0	18.8	37.1	19.9	20.0	38.8	26.0	20.0
Incr Delay (d2), s/veh	5.5	0.0	9.4	86.7	0.0	0.1	74.9	0.5	0.5	3.4	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	5.7	13.8	0.0	0.7	5.6	3.8	3.8	0.5	7.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	0.0	40.6	119.8	0.0	18.8	112.1	20.4	20.5	42.3	28.7	20.0
LnGrp LOS	D	A	D	F	A	B	F	C	C	D	C	C
Approach Vol, veh/h		332			410			711			913	
Approach Delay, s/veh		41.1			106.5			38.6			28.8	
Approach LOS		D			F			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	34.5	19.0	20.5	11.0	30.2	8.5	31.1				
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6				
Max Green Setting (Gmax), s	5.0	33.0	14.4	23.0	6.4	31.6	9.1	28.3				
Max Q Clear Time (g_c+I1), s	3.0	12.1	16.4	14.9	8.4	20.1	5.0	3.7				
Green Ext Time (p_c), s	0.0	3.1	0.0	1.0	0.0	4.3	0.0	0.2				

Intersection Summary			
HCM 6th Ctrl Delay			46.9
HCM 6th LOS			D

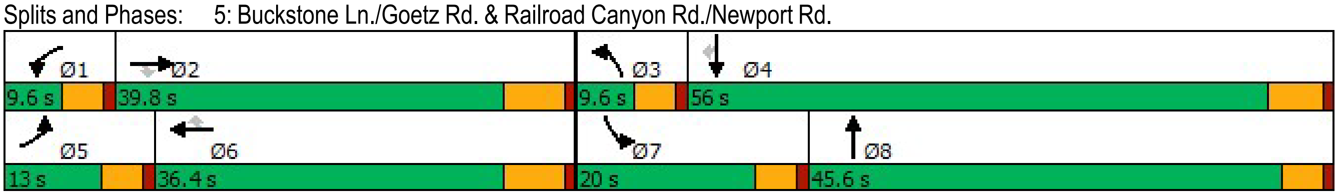
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	357	678	1	14	729	318	11	11	697	9	651
Future Volume (vph)	357	678	1	14	729	318	11	11	697	9	651
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	13.0	39.8	39.8	9.6	36.4	36.4	9.6	45.6	20.0	56.0	56.0
Total Split (%)	11.3%	34.6%	34.6%	8.3%	31.7%	31.7%	8.3%	39.7%	17.4%	48.7%	48.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	9.1	32.0	32.0	5.4	19.0	19.0	5.4	14.8	16.7	25.8	25.8
Actuated g/C Ratio	0.12	0.44	0.44	0.07	0.26	0.26	0.07	0.20	0.23	0.35	0.35
v/c Ratio	0.90	0.33	0.00	0.11	0.59	0.52	0.09	0.11	0.96	0.51	0.52
Control Delay	61.6	17.7	0.0	44.9	27.3	6.5	44.5	14.6	56.2	8.8	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	17.7	0.0	44.9	27.3	6.5	44.5	14.6	56.2	8.8	9.0
LOS	E	B	A	D	C	A	D	B	E	A	A
Approach Delay		32.8			21.3			21.8		33.2	
Approach LOS		C			C			C		C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 73.3	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 64.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	357	678	1	14	729	318	11	11	24	697	9	651
Future Volume (veh/h)	357	678	1	14	729	318	11	11	24	697	9	651
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	384	729	1	15	784	244	12	12	12	749	0	449
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	443	1833	557	32	1271	395	27	55	55	836	0	901
Arrive On Green	0.13	0.36	0.36	0.02	0.25	0.25	0.01	0.06	0.06	0.23	0.00	0.28
Sat Flow, veh/h	3456	5106	1552	1781	5106	1585	1781	856	856	3563	0	3170
Grp Volume(v), veh/h	384	729	1	15	784	244	12	0	24	749	0	449
Grp Sat Flow(s),veh/h/ln	1728	1702	1552	1781	1702	1585	1781	0	1712	1781	0	1585
Q Serve(g_s), s	7.1	7.0	0.0	0.5	8.9	8.9	0.4	0.0	0.9	13.3	0.0	7.7
Cycle Q Clear(g_c), s	7.1	7.0	0.0	0.5	8.9	8.9	0.4	0.0	0.9	13.3	0.0	7.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	443	1833	557	32	1271	395	27	0	110	836	0	901
V/C Ratio(X)	0.87	0.40	0.00	0.46	0.62	0.62	0.45	0.00	0.22	0.90	0.00	0.50
Avail Cap(c_a), veh/h	443	2619	796	136	2354	731	136	0	1072	838	0	2430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.0	15.7	13.5	31.8	21.8	21.8	32.0	0.0	29.1	24.3	0.0	19.6
Incr Delay (d2), s/veh	15.7	0.1	0.0	3.8	0.5	1.6	4.4	0.0	1.0	12.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	2.2	0.0	0.2	3.0	3.3	0.2	0.0	0.4	6.3	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	15.8	13.5	35.6	22.3	23.4	36.3	0.0	30.0	36.3	0.0	20.0
LnGrp LOS	D	B	B	D	C	C	D	A	C	D	A	B
Approach Vol, veh/h		1114			1043			36			1198	
Approach Delay, s/veh		25.5			22.8			32.1			30.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	29.7	5.6	24.4	13.0	22.5	20.0	10.0
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	33.6	5.0	50.2	8.4	30.2	15.4	* 41
Max Q Clear Time (g_c+I1), s	2.5	9.0	2.4	9.7	9.1	10.9	15.3	2.9
Green Ext Time (p_c), s	0.0	4.5	0.0	1.8	0.0	5.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

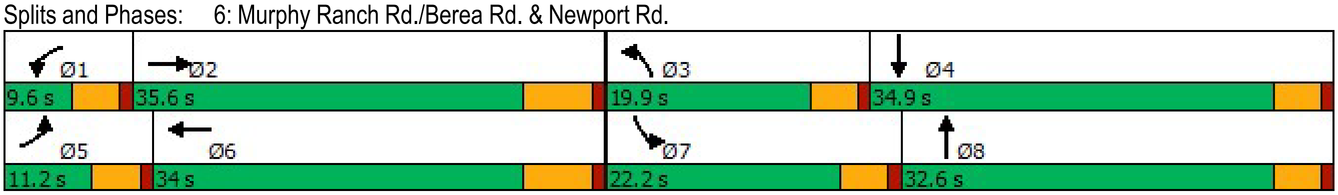
Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	69	1400	3	943	142	84	341	194
Future Volume (vph)	69	1400	3	943	142	84	341	194
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	11.2	35.6	9.6	34.0	19.9	32.6	22.2	34.9
Total Split (%)	11.2%	35.6%	9.6%	34.0%	19.9%	32.6%	22.2%	34.9%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.3	35.2	5.1	28.3	11.1	15.5	19.1	19.6
Actuated g/C Ratio	0.08	0.42	0.06	0.34	0.13	0.19	0.23	0.24
v/c Ratio	0.54	0.82	0.03	0.71	0.64	0.28	0.89	0.71
Control Delay	57.5	27.3	43.7	28.3	49.4	30.9	61.7	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	27.3	43.7	28.3	49.4	30.9	61.7	36.9
LOS	E	C	D	C	D	C	E	D
Approach Delay		28.5		28.4		42.1		50.3
Approach LOS		C		C		D		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 83.3	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 33.1	Intersection LOS: C
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1400	221	3	943	189	142	84	8	341	194	96
Future Volume (veh/h)	69	1400	221	3	943	189	142	84	8	341	194	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1489	167	3	1003	145	151	89	3	363	206	70
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	1754	197	7	1482	214	190	217	7	403	320	109
Arrive On Green	0.05	0.38	0.38	0.00	0.33	0.33	0.11	0.12	0.12	0.23	0.24	0.24
Sat Flow, veh/h	1781	4645	521	1781	4504	650	1781	1799	61	1781	1329	452
Grp Volume(v), veh/h	73	1091	565	3	757	391	151	0	92	363	0	276
Grp Sat Flow(s),veh/h/ln	1781	1702	1761	1781	1702	1750	1781	0	1859	1781	0	1781
Q Serve(g_s), s	3.0	21.6	21.7	0.1	14.1	14.2	6.1	0.0	3.4	14.6	0.0	10.3
Cycle Q Clear(g_c), s	3.0	21.6	21.7	0.1	14.1	14.2	6.1	0.0	3.4	14.6	0.0	10.3
Prop In Lane	1.00		0.30	1.00		0.37	1.00		0.03	1.00		0.25
Lane Grp Cap(c), veh/h	94	1285	665	7	1120	576	190	0	224	403	0	428
V/C Ratio(X)	0.78	0.85	0.85	0.42	0.68	0.68	0.80	0.00	0.41	0.90	0.00	0.64
Avail Cap(c_a), veh/h	160	1359	703	121	1285	661	370	0	707	426	0	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.5	21.0	21.0	36.6	21.3	21.3	32.1	0.0	30.0	27.7	0.0	25.1
Incr Delay (d2), s/veh	5.1	5.0	9.3	13.6	1.2	2.3	2.9	0.0	1.2	20.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	7.9	9.0	0.1	4.9	5.3	2.7	0.0	1.6	8.3	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	26.0	30.3	50.2	22.5	23.7	35.0	0.0	31.2	48.0	0.0	26.8
LnGrp LOS	D	C	C	D	C	C	D	A	C	D	A	C
Approach Vol, veh/h		1729			1151			243			639	
Approach Delay, s/veh		28.0			23.0			33.6			38.9	
Approach LOS		C			C			C			D	

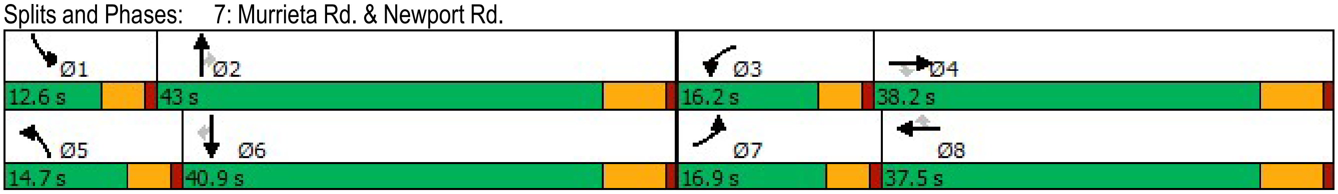
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	34.0	12.4	22.3	8.5	30.4	21.3	13.5
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6
Max Green Setting (Gmax), s	5.0	29.4	15.3	30.3	6.6	27.8	17.6	28.0
Max Q Clear Time (g_c+I1), s	2.1	23.7	8.1	12.3	5.0	16.2	16.6	5.4
Green Ext Time (p_c), s	0.0	4.2	0.1	1.6	0.0	5.1	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1336	172	231	1000	221	164	291	266	225	90	51
Future Volume (vph)	147	1336	172	231	1000	221	164	291	266	225	90	51
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	16.9	38.2	38.2	16.2	37.5	37.5	14.7	43.0	43.0	12.6	40.9	40.9
Total Split (%)	15.4%	34.7%	34.7%	14.7%	34.1%	34.1%	13.4%	39.1%	39.1%	11.5%	37.2%	37.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	11.2	31.3	31.3	11.7	31.8	31.8	13.4	16.6	16.6	8.1	15.0	15.0
Actuated g/C Ratio	0.12	0.35	0.35	0.13	0.35	0.35	0.15	0.19	0.19	0.09	0.17	0.17
v/c Ratio	0.70	0.79	0.27	1.05	0.58	0.33	0.65	0.47	0.56	1.48	0.16	0.15
Control Delay	57.3	31.4	5.2	114.2	26.5	5.0	53.8	34.2	10.3	280.8	31.7	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	31.4	5.2	114.2	26.5	5.0	53.8	34.2	10.3	280.8	31.7	0.9
LOS	E	C	A	F	C	A	D	C	B	F	C	A
Approach Delay		31.0			37.2			29.8			180.4	
Approach LOS		C			D			C			F	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 89.6	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay: 46.0	Intersection LOS: D
Intersection Capacity Utilization 77.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1336	172	231	1000	221	164	291	266	225	90	51
Future Volume (veh/h)	147	1336	172	231	1000	221	164	291	266	225	90	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1406	98	243	1053	171	173	306	178	237	95	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	1756	537	250	1926	598	208	563	251	172	491	214
Arrive On Green	0.11	0.34	0.34	0.14	0.38	0.38	0.12	0.16	0.16	0.10	0.14	0.14
Sat Flow, veh/h	1781	5106	1562	1781	5106	1585	1781	3554	1585	1781	3554	1550
Grp Volume(v), veh/h	155	1406	98	243	1053	171	173	306	178	237	95	26
Grp Sat Flow(s),veh/h/ln	1781	1702	1562	1781	1702	1585	1781	1777	1585	1781	1777	1550
Q Serve(g_s), s	7.0	20.6	3.6	11.2	13.4	6.2	7.9	6.6	8.8	8.0	2.0	1.2
Cycle Q Clear(g_c), s	7.0	20.6	3.6	11.2	13.4	6.2	7.9	6.6	8.8	8.0	2.0	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	190	1756	537	250	1926	598	208	563	251	172	491	214
V/C Ratio(X)	0.81	0.80	0.18	0.97	0.55	0.29	0.83	0.54	0.71	1.38	0.19	0.12
Avail Cap(c_a), veh/h	265	1974	604	250	1931	599	217	1580	705	172	1490	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	24.6	19.0	35.4	20.2	18.0	35.7	32.1	33.0	37.4	31.6	31.3
Incr Delay (d2), s/veh	8.9	2.2	0.2	49.2	0.3	0.3	20.8	0.8	3.7	201.7	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.5	1.2	7.9	4.7	2.1	4.4	2.7	3.4	12.9	0.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	26.8	19.2	84.6	20.5	18.3	56.5	32.9	36.7	239.1	31.8	31.5
LnGrp LOS	D	C	B	F	C	B	E	C	D	F	C	C
Approach Vol, veh/h		1659			1467			657			358	
Approach Delay, s/veh		28.1			30.9			40.1			169.0	
Approach LOS		C			C			D			F	

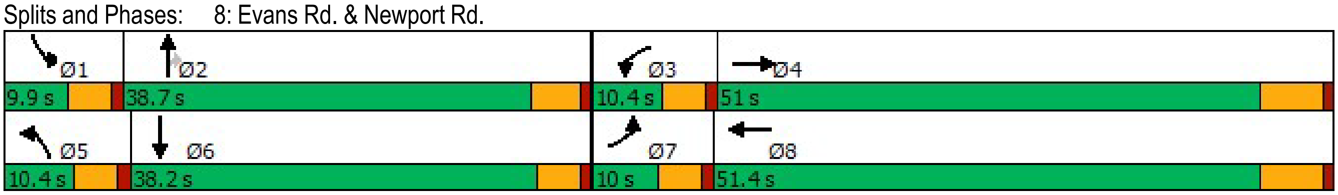
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	19.3	16.2	34.7	14.3	17.6	13.4	37.4
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	8.0	36.8	11.6	32.0	10.1	34.7	12.3	31.3
Max Q Clear Time (g_c+I1), s	10.0	10.8	13.2	22.6	9.9	4.0	9.0	15.4
Green Ext Time (p_c), s	0.0	2.3	0.0	5.7	0.0	0.6	0.1	6.5

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	22	1867	91	1358	77	71	132	108	120
Future Volume (vph)	22	1867	91	1358	77	71	132	108	120
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.0	51.0	10.4	51.4	10.4	38.7	38.7	9.9	38.2
Total Split (%)	9.1%	46.4%	9.5%	46.7%	9.5%	35.2%	35.2%	9.0%	34.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	45.1	5.8	51.9	5.8	16.0	16.0	5.3	16.0
Actuated g/C Ratio	0.06	0.48	0.06	0.56	0.06	0.17	0.17	0.06	0.17
v/c Ratio	0.25	1.27	0.93	0.57	0.79	0.25	0.41	1.22	0.55
Control Delay	51.5	151.0	116.0	16.6	89.9	34.0	12.1	198.8	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	151.0	116.0	16.6	89.9	34.0	12.1	198.8	37.9
LOS	D	F	F	B	F	C	B	F	D
Approach Delay		149.9		22.6		39.1			104.3
Approach LOS		F		C		D			F

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 93	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 91.0	Intersection LOS: F
Intersection Capacity Utilization 90.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1867	45	91	1358	55	77	71	132	108	120	34
Future Volume (veh/h)	22	1867	45	91	1358	55	77	71	132	108	120	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	2122	42	103	1543	55	88	81	102	123	136	32
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	1805	36	117	2763	98	112	254	215	107	194	46
Arrive On Green	0.03	0.51	0.51	0.07	0.55	0.55	0.06	0.14	0.14	0.06	0.13	0.13
Sat Flow, veh/h	1781	3563	70	1781	5057	180	1781	1870	1578	1781	1461	344
Grp Volume(v), veh/h	25	1054	1110	103	1039	559	88	81	102	123	0	168
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1781	1702	1833	1781	1870	1578	1781	0	1805
Q Serve(g_s), s	1.2	44.8	44.8	5.1	17.6	17.6	4.3	3.5	5.3	5.3	0.0	7.9
Cycle Q Clear(g_c), s	1.2	44.8	44.8	5.1	17.6	17.6	4.3	3.5	5.3	5.3	0.0	7.9
Prop In Lane	1.00		0.04	1.00		0.10	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	46	900	940	117	1860	1001	112	254	215	107	0	240
V/C Ratio(X)	0.54	1.17	1.18	0.88	0.56	0.56	0.78	0.32	0.48	1.15	0.00	0.70
Avail Cap(c_a), veh/h	109	900	940	117	1860	1001	117	711	600	107	0	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	21.8	21.8	41.0	13.1	13.1	40.8	34.5	35.3	41.6	0.0	36.7
Incr Delay (d2), s/veh	3.6	88.8	92.1	47.4	0.4	0.7	25.1	0.7	1.6	133.8	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	37.4	40.0	3.6	5.6	6.1	2.6	1.6	2.0	6.3	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	110.7	113.9	88.4	13.5	13.8	65.9	35.2	36.9	175.3	0.0	40.4
LnGrp LOS	D	F	F	F	B	B	E	D	D	F	A	D
Approach Vol, veh/h		2189			1701			271			291	
Approach Delay, s/veh		111.6			18.1			45.8			97.4	
Approach LOS		F			B			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	17.1	10.4	51.0	10.2	16.8	6.9	54.5				
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2				
Max Green Setting (Gmax), s	5.3	33.6	5.8	44.8	5.8	* 34	5.4	45.2				
Max Q Clear Time (g_c+I1), s	7.3	7.3	7.1	46.8	6.3	9.9	3.2	19.6				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	1.0	0.0	11.4				
Intersection Summary												
HCM 6th Ctrl Delay			70.9									
HCM 6th LOS			E									

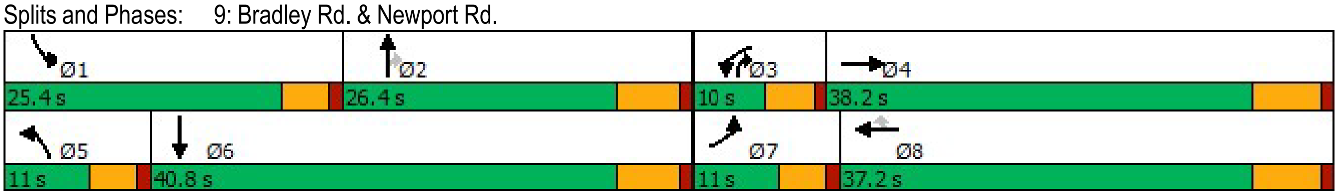
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	349	1664	248	1305	310	219	285	333	327	293
Future Volume (vph)	349	1664	248	1305	310	219	285	333	327	293
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	26.4	10.0	25.4	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	26.4%	10.0%	25.4%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.4	32.1	5.4	31.0	31.0	6.4	18.8	30.1	20.3	32.7
Actuated g/C Ratio	0.07	0.33	0.06	0.32	0.32	0.07	0.19	0.31	0.21	0.33
v/c Ratio	3.16	1.12	1.38	0.85	0.46	1.99	0.84	0.61	0.94	0.50
Control Delay	1018.3	93.8	236.4	37.9	5.3	505.0	59.2	22.2	73.6	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1018.3	93.8	236.4	37.9	5.3	505.0	59.2	22.2	73.6	20.9
LOS	F	F	F	D	A	F	E	C	E	C
Approach Delay		246.7		58.9			161.2			40.3
Approach LOS		F		E			F			D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 97.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 3.16	
Intersection Signal Delay: 140.5	Intersection LOS: F
Intersection Capacity Utilization 95.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	1664	95	248	1305	310	219	285	333	327	293	269
Future Volume (veh/h)	349	1664	95	248	1305	310	219	285	333	327	293	269
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	367	1752	77	261	1374	278	231	300	249	344	308	243
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	1656	73	193	1633	492	118	347	382	374	626	480
Arrive On Green	0.07	0.33	0.33	0.06	0.32	0.32	0.07	0.19	0.19	0.21	0.33	0.33
Sat Flow, veh/h	1781	5014	220	3456	5106	1538	1781	1870	1585	1781	1901	1459
Grp Volume(v), veh/h	367	1189	640	261	1374	278	231	300	249	344	287	264
Grp Sat Flow(s),veh/h/ln	1781	1702	1830	1728	1702	1538	1781	1870	1585	1781	1777	1583
Q Serve(g_s), s	6.4	32.0	32.0	5.4	24.3	14.5	6.4	15.1	13.7	18.3	12.5	13.0
Cycle Q Clear(g_c), s	6.4	32.0	32.0	5.4	24.3	14.5	6.4	15.1	13.7	18.3	12.5	13.0
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	118	1124	604	193	1633	492	118	347	382	374	585	521
V/C Ratio(X)	3.12	1.06	1.06	1.36	0.84	0.57	1.96	0.87	0.65	0.92	0.49	0.51
Avail Cap(c_a), veh/h	118	1124	604	193	1633	492	118	398	425	382	642	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	32.5	32.5	45.8	30.7	27.4	45.3	38.3	33.1	37.5	26.0	26.2
Incr Delay (d2), s/veh	975.9	43.5	53.3	190.0	4.1	1.5	462.9	16.2	3.0	26.1	0.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.6	18.7	21.8	7.3	9.7	5.1	17.8	8.1	5.2	10.2	5.1	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1021.2	76.0	85.7	235.7	34.8	28.9	508.1	54.5	36.1	63.5	26.6	26.9
LnGrp LOS	F	F	F	F	C	C	F	D	D	E	C	C
Approach Vol, veh/h		2196			1913			780			895	
Approach Delay, s/veh		236.8			61.4			183.0			40.9	
Approach LOS		F			E			F			D	

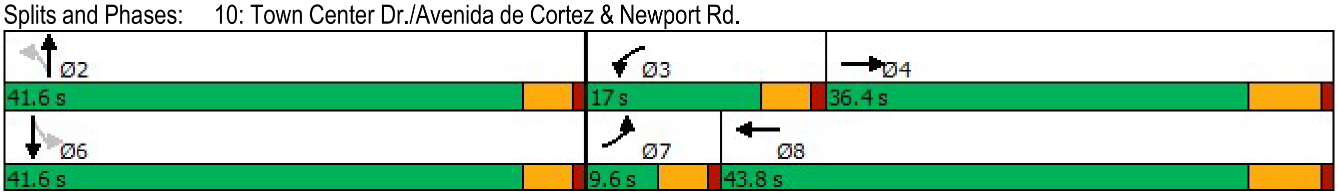
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	23.8	10.0	38.2	11.0	37.7	11.0	37.2
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	20.8	20.6	5.4	32.0	6.4	35.0	6.4	31.0
Max Q Clear Time (g_c+I1), s	20.3	17.1	7.4	34.0	8.4	15.0	8.4	26.3
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	3.0	0.0	3.5

Intersection Summary	
HCM 6th Ctrl Delay	141.2
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	2186	228	1768	134	24	88	19
Future Volume (vph)	8	2186	228	1768	134	24	88	19
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.4	17.0	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.3%	17.9%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	30.6	12.6	46.4	16.4	16.4	16.4	16.4
Actuated g/C Ratio	0.07	0.41	0.17	0.62	0.22	0.22	0.22	0.22
v/c Ratio	0.07	1.10	0.78	0.56	0.48	0.51	0.74	0.09
Control Delay	39.1	77.5	51.4	12.1	30.1	9.6	59.4	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	77.5	51.4	12.1	30.1	9.6	59.4	14.1
LOS	D	E	D	B	C	A	E	B
Approach Delay		77.4		16.5		16.3		46.3
Approach LOS		E		B		B		D

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 75.3	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 46.3	Intersection LOS: D
Intersection Capacity Utilization 101.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.

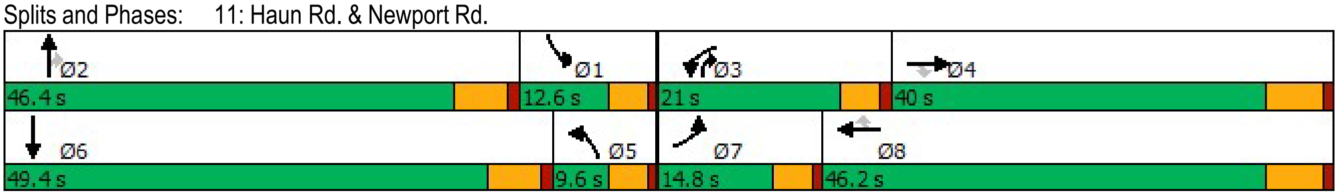


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2186	150	228	1768	36	134	24	251	88	19	17
Future Volume (veh/h)	8	2186	150	228	1768	36	134	24	251	88	19	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	2326	103	243	1881	24	143	26	180	94	20	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	2211	97	284	3110	40	380	43	298	213	309	77
Arrive On Green	0.01	0.41	0.41	0.16	0.56	0.56	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	5329	234	1781	5526	70	1382	201	1389	1173	1443	361
Grp Volume(v), veh/h	9	1627	802	243	1273	632	143	0	206	94	0	25
Grp Sat Flow(s),veh/h/ln	1781	1870	1822	1781	1870	1856	1382	0	1590	1173	0	1804
Q Serve(g_s), s	0.4	30.2	30.2	9.7	16.4	16.4	6.7	0.0	8.5	5.7	0.0	0.8
Cycle Q Clear(g_c), s	0.4	30.2	30.2	9.7	16.4	16.4	7.5	0.0	8.5	14.2	0.0	0.8
Prop In Lane	1.00		0.13	1.00		0.04	1.00		0.87	1.00		0.20
Lane Grp Cap(c), veh/h	20	1552	756	284	2106	1044	380	0	340	213	0	386
V/C Ratio(X)	0.44	1.05	1.06	0.86	0.60	0.61	0.38	0.00	0.61	0.44	0.00	0.06
Avail Cap(c_a), veh/h	122	1552	756	303	2106	1044	786	0	808	558	0	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	21.3	21.3	29.8	10.5	10.5	25.8	0.0	25.8	32.3	0.0	22.8
Incr Delay (d2), s/veh	5.5	36.8	50.0	18.5	0.5	1.0	0.6	0.0	1.7	1.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	18.6	20.9	5.2	5.0	5.2	2.2	0.0	3.3	1.7	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	58.1	71.3	48.3	11.0	11.5	26.4	0.0	27.6	33.7	0.0	22.9
LnGrp LOS	D	F	F	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		2438			2148			349			119	
Approach Delay, s/veh		62.4			15.4			27.1			31.4	
Approach LOS		E			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.2	16.2	36.4		20.2	5.4	47.2				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		37.0	12.4	30.2		37.0	5.0	37.6				
Max Q Clear Time (g_c+I1), s		10.5	11.7	32.2		16.2	2.4	18.4				
Green Ext Time (p_c), s		1.8	0.0	0.0		0.4	0.0	11.9				
Intersection Summary												
HCM 6th Ctrl Delay			39.2									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	272	2028	207	765	1679	453	260	78	726	136	45
Future Volume (vph)	272	2028	207	765	1679	453	260	78	726	136	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	14.8	40.0	40.0	21.0	46.2	46.2	9.6	46.4	21.0	12.6	49.4
Total Split (%)	12.3%	33.3%	33.3%	17.5%	38.5%	38.5%	8.0%	38.7%	17.5%	10.5%	41.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.3	34.3	34.3	16.6	40.5	40.5	6.9	11.1	26.4	14.5	15.2
Actuated g/C Ratio	0.11	0.36	0.36	0.18	0.43	0.43	0.07	0.12	0.28	0.15	0.16
v/c Ratio	0.73	1.09	0.29	1.27	0.76	0.55	1.04	0.39	0.72	0.26	0.25
Control Delay	53.7	78.9	9.3	167.7	27.1	7.5	109.6	46.4	22.0	37.4	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	78.9	9.3	167.7	27.1	7.5	109.6	46.4	22.0	37.4	13.1
LOS	D	E	A	F	C	A	F	D	C	D	B
Approach Delay		70.4			61.2			45.2			25.2
Approach LOS		E			E			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 60.6	Intersection LOS: E
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	2028	207	765	1679	453	260	78	726	136	45	92
Future Volume (veh/h)	272	2028	207	765	1679	453	260	78	726	136	45	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	296	2204	151	832	1825	313	283	85	747	148	49	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	366	1992	563	614	2382	663	506	354	1146	217	192	171
Arrive On Green	0.10	0.35	0.35	0.17	0.42	0.42	0.14	0.19	0.19	0.06	0.11	0.11
Sat Flow, veh/h	3563	5611	1585	3563	5611	1562	3563	1870	3170	3563	1777	1576
Grp Volume(v), veh/h	296	2204	151	832	1825	313	283	85	747	148	49	60
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1562	1781	1870	1585	1781	1777	1576
Q Serve(g_s), s	7.7	33.8	3.9	16.4	26.4	9.6	7.1	3.7	12.3	3.9	2.4	3.4
Cycle Q Clear(g_c), s	7.7	33.8	3.9	16.4	26.4	9.6	7.1	3.7	12.3	3.9	2.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	366	1992	563	614	2382	663	506	354	1146	217	192	171
V/C Ratio(X)	0.81	1.11	0.27	1.36	0.77	0.47	0.56	0.24	0.65	0.68	0.25	0.35
Avail Cap(c_a), veh/h	382	1992	563	614	2382	663	506	797	1898	299	814	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	30.7	8.0	39.4	23.4	9.6	38.1	32.8	11.7	43.8	38.9	39.4
Incr Delay (d2), s/veh	10.9	56.0	0.3	170.7	1.5	0.5	0.9	0.3	0.6	1.4	0.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	24.0	2.1	21.3	10.6	4.2	3.0	1.6	3.7	1.7	1.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	86.7	8.2	210.1	24.9	10.1	38.9	33.1	12.4	45.2	39.6	40.6
LnGrp LOS	D	F	A	F	C	B	D	C	B	D	D	D
Approach Vol, veh/h		2651			2970			1115			257	
Approach Delay, s/veh		78.5			75.2			20.7			43.1	
Approach LOS		E			E			C			D	

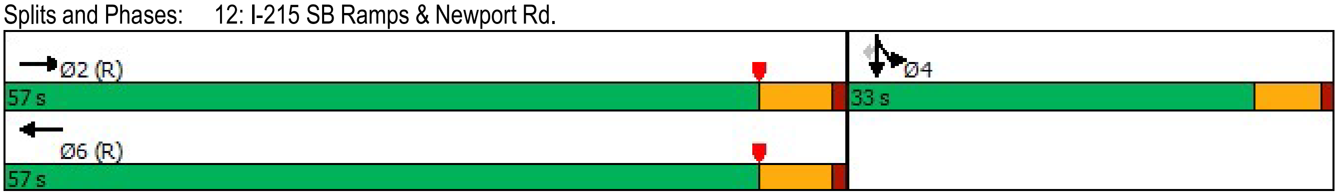
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	23.8	21.0	40.0	18.1	16.1	14.4	46.6
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	8.0	40.6	16.4	33.8	5.0	43.6	10.2	40.0
Max Q Clear Time (g_c+I1), s	5.9	14.3	18.4	35.8	9.1	5.4	9.7	28.4
Green Ext Time (p_c), s	0.0	3.7	0.0	0.0	0.0	0.6	0.0	8.8

Intersection Summary			
HCM 6th Ctrl Delay			66.6
HCM 6th LOS			E

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	2121	811	2139	889	440	0	807
Future Volume (vph)	2121	811	2139	889	440	0	807
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	57.0		57.0		33.0	33.0	33.0
Total Split (%)	63.3%		63.3%		36.7%	36.7%	36.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	53.5	90.0	53.5	90.0	25.0	25.0	25.0
Actuated g/C Ratio	0.59	1.00	0.59	1.00	0.28	0.28	0.28
v/c Ratio	0.51	0.46	0.66	0.59	0.84	0.86	0.84
Control Delay	11.5	0.8	8.4	5.5	46.2	45.3	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	0.8	8.4	5.5	46.2	45.3	42.7
LOS	B	A	A	A	D	D	D
Approach Delay	8.5		7.5			44.7	
Approach LOS	A		A			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 84.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2121	811	0	2139	889	0	0	0	440	0	807
Future Volume (veh/h)	0	2121	811	0	2139	889	0	0	0	440	0	807
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	2209	0	0	2228	0				305	0	859
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	4220		0	3242					512	0	918
Arrive On Green	0.00	0.57	0.00	0.00	1.00	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	7363	1572	0	5656	1610				1711	0	3070
Grp Volume(v), veh/h	0	2209	0	0	2228	0				305	0	859
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	16.5	0.0	0.0	0.0	0.0				13.7	0.0	24.5
Cycle Q Clear(g_c), s	0.0	16.5	0.0	0.0	0.0	0.0				13.7	0.0	24.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4220		0	3242					512	0	918
V/C Ratio(X)	0.00	0.52		0.00	0.69					0.60	0.00	0.94
Avail Cap(c_a), veh/h	0	4220		0	3242					523	0	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.19	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.7	0.0	0.0	0.0	0.0				26.9	0.0	30.7
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.2	0.0				1.2	0.0	15.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.5	0.0	0.0	0.4	0.0				5.4	0.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.8	0.0	0.0	1.2	0.0				28.1	0.0	46.4
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		2209	A		2228	A					1164	
Approach Delay, s/veh		11.8			1.2						41.6	
Approach LOS		B			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		57.6		32.4		57.6						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		51.0		27.5		51.0						
Max Q Clear Time (g_c+I1), s		18.5		26.5		2.0						
Green Ext Time (p_c), s		21.1		0.4		27.1						

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

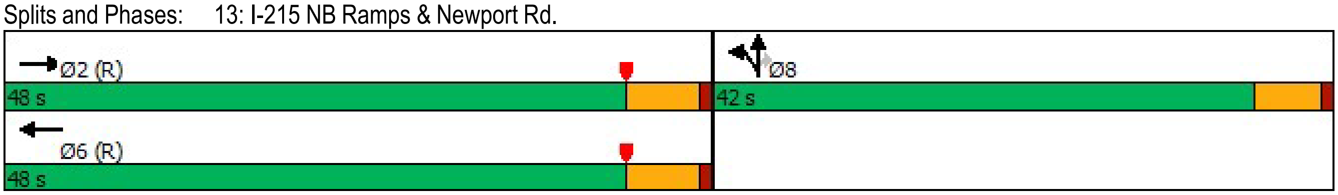
Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1820	686	2579	584	457	0	648
Future Volume (vph)	1820	686	2579	584	457	0	648
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	48.0		48.0		42.0	42.0	42.0
Total Split (%)	53.3%		53.3%		46.7%	46.7%	46.7%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	51.0	90.0	51.0	90.0	27.5	27.5	27.5
Actuated g/C Ratio	0.57	1.00	0.57	1.00	0.31	0.31	0.31
v/c Ratio	0.62	0.46	0.64	0.40	0.70	0.81	0.64
Control Delay	9.0	2.3	15.4	0.8	33.6	39.1	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	2.3	15.4	0.8	33.6	39.1	28.2
LOS	A	A	B	A	C	D	C
Approach Delay	7.2		12.7			33.7	
Approach LOS	A		B			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Ye low, Master Inters ction	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 14.1	Intersection LOS: B
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1820	686	0	2579	584	457	0	648	0	0	0
Future Volume (veh/h)	0	1820	686	0	2579	584	457	0	648	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	1916	0	0	2715	0	633	0	323			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	3503		0	4746		854	0	374			
Arrive On Green	0.00	1.00	0.00	0.00	0.63	0.00	0.24	0.00	0.24			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	3591	0	1572			
Grp Volume(v), veh/h	0	1916	0	0	2715	0	633	0	323			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	18.7	0.0	14.7	0.0	17.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	18.7	0.0	14.7	0.0	17.7			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3503		0	4746		854	0	374			
V/C Ratio(X)	0.00	0.55		0.00	0.57		0.74	0.00	0.86			
Avail Cap(c_a), veh/h	0	3503		0	4746		1456	0	638			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	9.4	0.0	31.7	0.0	32.9			
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.5	0.0	0.5	0.0	2.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	5.9	0.0	6.0	0.0	6.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.0	0.0	9.9	0.0	32.2	0.0	35.6			
LnGrp LOS	A	A		A	A		C	A	D			
Approach Vol, veh/h		1916	A		2715	A		956				
Approach Delay, s/veh		0.6			9.9			33.4				
Approach LOS		A			A			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		63.1				63.1		26.9				
Change Period (Y+Rc), s		6.0				6.0		5.5				
Max Green Setting (Gmax), s		42.0				42.0		36.5				
Max Q Clear Time (g_c+I1), s		2.0				20.7		19.7				
Green Ext Time (p_c), s		19.4				18.4		1.7				
Intersection Summary												
HCM 6th Ctrl Delay			10.8									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	24	12	0	15	41	208	19	21	235	14
Future Vol, veh/h	8	0	24	12	0	15	41	208	19	21	235	14
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	28	14	0	17	47	239	22	24	270	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	679	681	278	684	678	250	286	0	0	261	0	0
Stage 1	326	326	-	344	344	-	-	-	-	-	-	-
Stage 2	353	355	-	340	334	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	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	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	366	373	761	363	374	789	1276	-	-	1303	-	-
Stage 1	687	648	-	671	637	-	-	-	-	-	-	-
Stage 2	664	630	-	675	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	340	349	761	333	350	789	1276	-	-	1303	-	-
Mov Cap-2 Maneuver	340	349	-	333	350	-	-	-	-	-	-	-
Stage 1	657	634	-	642	610	-	-	-	-	-	-	-
Stage 2	622	603	-	636	629	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	12.8	1.2	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1276	-	-	581	490	1303	-	-
HCM Lane V/C Ratio	0.037	-	-	0.063	0.063	0.019	-	-
HCM Control Delay (s)	7.9	0	-	11.6	12.8	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0.1	-	-

Intersection						
Int Delay, s/veh	0.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	19	32	266	266	5
Future Vol, veh/h	3	19	32	266	266	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	21	35	289	289	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	651	292	294	0	-	0
Stage 1	292	-	-	-	-	-
Stage 2	359	-	-	-	-	-
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	433	747	1268	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	419	747	1268	-	-	-
Mov Cap-2 Maneuver	419	-	-	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	707	-	-	-	-	-

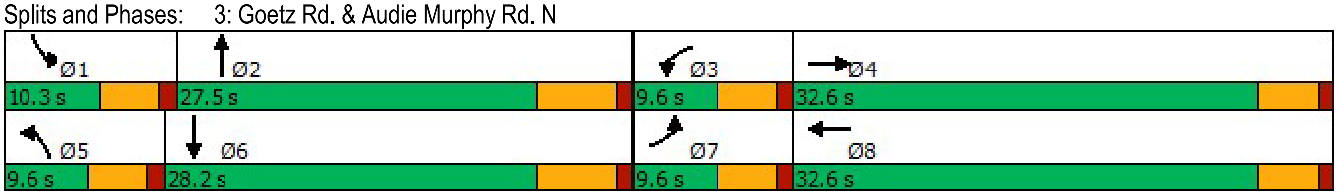
Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1268	-	675	-	-
HCM Lane V/C Ratio	0.027	-	0.035	-	-
HCM Control Delay (s)	7.9	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	0	25	1	66	603	34	479
Future Volume (vph)	2	0	25	1	66	603	34	479
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.6	9.6	32.6	9.6	26.8	9.6	26.8
Total Split (s)	9.6	32.6	9.6	32.6	9.6	27.5	10.3	28.2
Total Split (%)	12.0%	40.8%	12.0%	40.8%	12.0%	34.4%	12.9%	35.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.5	17.0	7.5	18.3	7.5	26.8	7.8	24.9
Actuated g/C Ratio	0.17	0.40	0.17	0.43	0.17	0.62	0.18	0.58
v/c Ratio	0.01	0.04	0.09	0.12	0.24	0.33	0.12	0.26
Control Delay	30.5	0.1	29.7	5.1	31.4	13.7	28.7	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	0.1	29.7	5.1	31.4	13.7	28.7	14.3
LOS	C	A	C	A	C	B	C	B
Approach Delay		2.0		11.1		15.3		15.3
Approach LOS		A		B		B		B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 43	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.33	
Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 43.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Goetz Rd. & Audie Murphy Rd. N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	27	25	1	78	66	603	46	34	479	1
Future Volume (veh/h)	2	0	27	25	1	78	66	603	46	34	479	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	0	28	28	1	24	73	670	51	38	532	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	0	107	60	6	151	128	1063	81	78	1056	2
Arrive On Green	0.00	0.00	0.07	0.03	0.10	0.10	0.07	0.32	0.32	0.04	0.29	0.29
Sat Flow, veh/h	1781	0	1585	1781	64	1531	1781	3341	254	1781	3639	7
Grp Volume(v), veh/h	2	0	28	28	0	25	73	356	365	38	260	273
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1595	1781	1777	1818	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	0.6	0.6	0.0	0.5	1.4	6.2	6.3	0.8	4.4	4.4
Cycle Q Clear(g_c), s	0.0	0.0	0.6	0.6	0.0	0.5	1.4	6.2	6.3	0.8	4.4	4.4
Prop In Lane	1.00		1.00	1.00		0.96	1.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	5	0	107	60	0	158	128	565	578	78	516	543
V/C Ratio(X)	0.41	0.00	0.26	0.46	0.00	0.16	0.57	0.63	0.63	0.49	0.50	0.50
Avail Cap(c_a), veh/h	244	0	1215	244	0	1222	244	1055	1080	278	1089	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	16.2	17.3	0.0	15.1	16.4	10.6	10.6	17.1	10.8	10.8
Incr Delay (d2), s/veh	19.0	0.0	1.3	2.1	0.0	0.5	1.5	1.2	1.1	1.7	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.2	0.0	0.2	0.5	1.7	1.7	0.3	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	0.0	17.4	19.4	0.0	15.5	17.9	11.8	11.8	18.8	11.5	11.5
LnGrp LOS	D	A	B	B	A	B	B	B	B	B	B	B
Approach Vol, veh/h		30			53			794			571	
Approach Delay, s/veh		18.8			17.6			12.3			12.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	17.4	5.8	7.1	7.2	16.4	4.7	8.2
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6
Max Green Setting (Gmax), s	5.7	21.7	5.0	28.0	5.0	22.4	5.0	28.0
Max Q Clear Time (g_c+I1), s	2.8	8.3	2.6	2.6	3.4	6.4	2.0	2.5
Green Ext Time (p_c), s	0.0	3.4	0.0	0.1	0.0	2.5	0.0	0.1

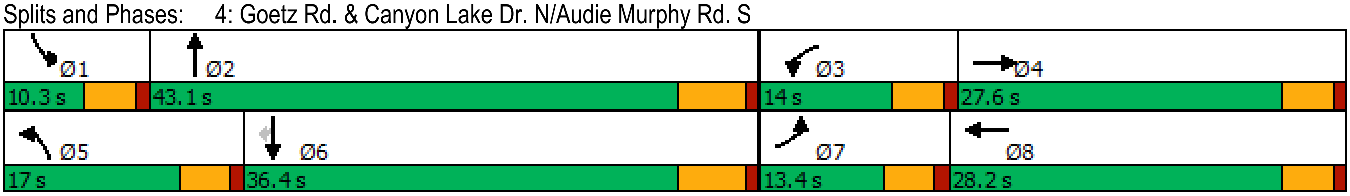
Intersection Summary		
HCM 6th Ctrl Delay		12.5
HCM 6th LOS		B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	54	30	182	57	262	627	23	477	47
Future Volume (vph)	54	30	182	57	262	627	23	477	47
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	27.6	9.6	27.6	9.6	35.8	9.6	35.8	35.8
Total Split (s)	13.4	27.6	14.0	28.2	17.0	43.1	10.3	36.4	36.4
Total Split (%)	14.1%	29.1%	14.7%	29.7%	17.9%	45.4%	10.8%	38.3%	38.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.8	12.2	9.6	16.3	12.7	31.8	5.4	18.1	18.1
Actuated g/C Ratio	0.09	0.17	0.13	0.22	0.17	0.44	0.07	0.25	0.25
v/c Ratio	0.36	0.52	0.86	0.18	0.94	0.63	0.20	0.60	0.10
Control Delay	40.4	11.9	68.5	24.0	73.3	18.2	39.9	27.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	11.9	68.5	24.0	73.3	18.2	39.9	27.0	0.4
LOS	D	B	E	C	E	B	D	C	A
Approach Delay		18.0		56.4		31.1		25.3	
Approach LOS		B		E		C		C	

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 72.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 31.0 | Intersection LOS: C
Intersection Capacity Utilization 67.6% | ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Goetz Rd. & Canyon Lake Dr. N/Audie Murphy Rd. S



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	30	167	182	57	11	262	627	233	23	477	47
Future Volume (veh/h)	54	30	167	182	57	11	262	627	233	23	477	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	33	95	202	63	6	291	697	195	26	530	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	61	175	246	386	37	337	1040	291	52	785	350
Arrive On Green	0.05	0.14	0.14	0.14	0.23	0.23	0.19	0.38	0.38	0.03	0.22	0.22
Sat Flow, veh/h	1781	425	1223	1781	1681	160	1781	2728	763	1781	3554	1583
Grp Volume(v), veh/h	60	0	128	202	0	69	291	454	438	26	530	40
Grp Sat Flow(s),veh/h/ln	1781	0	1648	1781	0	1841	1781	1777	1714	1781	1777	1583
Q Serve(g_s), s	2.1	0.0	4.6	7.0	0.0	1.9	10.0	13.5	13.5	0.9	8.7	1.3
Cycle Q Clear(g_c), s	2.1	0.0	4.6	7.0	0.0	1.9	10.0	13.5	13.5	0.9	8.7	1.3
Prop In Lane	1.00		0.74	1.00		0.09	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	92	0	236	246	0	423	337	677	653	52	785	350
V/C Ratio(X)	0.65	0.00	0.54	0.82	0.00	0.16	0.86	0.67	0.67	0.50	0.67	0.11
Avail Cap(c_a), veh/h	247	0	597	264	0	685	348	1045	1007	160	1714	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	0.0	25.3	26.6	0.0	19.6	24.9	16.3	16.3	30.4	22.6	19.8
Incr Delay (d2), s/veh	2.9	0.0	1.9	16.0	0.0	0.2	18.3	1.2	1.2	2.8	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.9	3.9	0.0	0.8	5.4	4.7	4.5	0.4	3.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	27.2	42.6	0.0	19.7	43.2	17.5	17.5	33.2	23.6	19.9
LnGrp LOS	C	A	C	D	A	B	D	B	B	C	C	B
Approach Vol, veh/h		188			271			1183			596	
Approach Delay, s/veh		28.9			36.8			23.8			23.8	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	30.0	13.4	13.7	16.6	19.8	7.9	19.2				
Change Period (Y+Rc), s	4.6	5.8	4.6	4.6	4.6	5.8	4.6	4.6				
Max Green Setting (Gmax), s	5.7	37.3	9.4	23.0	12.4	30.6	8.8	23.6				
Max Q Clear Time (g_c+I1), s	2.9	15.5	9.0	6.6	12.0	10.7	4.1	3.9				
Green Ext Time (p_c), s	0.0	5.4	0.0	0.6	0.0	3.2	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			25.8									
HCM 6th LOS			C									

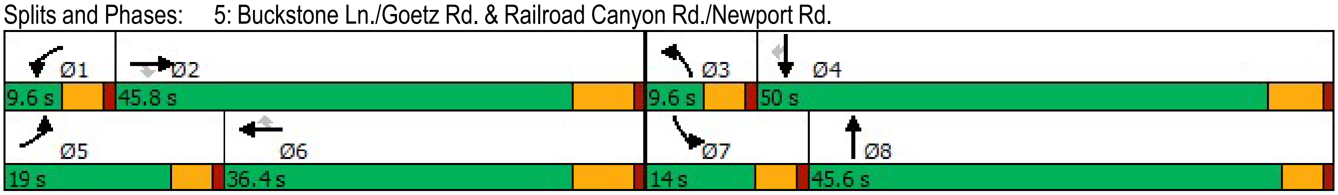
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	624	1014	6	13	708	497	1	8	406	12	423
Future Volume (vph)	624	1014	6	13	708	497	1	8	406	12	423
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	35.2	9.6	45.6	9.6	46.8	46.8
Total Split (s)	19.0	45.8	45.8	9.6	36.4	36.4	9.6	45.6	14.0	50.0	50.0
Total Split (%)	16.5%	39.8%	39.8%	8.3%	31.7%	31.7%	8.3%	39.7%	12.2%	43.5%	43.5%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	15.6	38.5	38.5	5.4	19.1	19.1	5.4	14.7	11.6	17.5	17.5
Actuated g/C Ratio	0.22	0.54	0.54	0.08	0.27	0.27	0.08	0.21	0.16	0.25	0.25
v/c Ratio	0.86	0.38	0.01	0.10	0.54	0.64	0.01	0.05	0.75	0.42	0.41
Control Delay	43.7	13.8	0.0	43.4	25.5	7.1	44.0	17.8	43.3	6.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	13.8	0.0	43.4	25.5	7.1	44.0	17.8	43.3	6.6	5.7
LOS	D	B	A	D	C	A	D	B	D	A	A
Approach Delay		25.1			18.2			19.2		24.1	
Approach LOS		C			B			B		C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 71.4	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 22.6	Intersection LOS: C
Intersection Capacity Utilization 69.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Buckstone Ln./Goetz Rd. & Railroad Canyon Rd./Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	624	1014	6	13	708	497	1	8	10	406	12	423
Future Volume (veh/h)	624	1014	6	13	708	497	1	8	10	406	12	423
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	643	1045	5	13	730	374	1	8	5	419	0	275
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	725	2581	801	28	1591	494	3	34	21	489	0	532
Arrive On Green	0.21	0.51	0.51	0.02	0.31	0.31	0.00	0.03	0.03	0.14	0.00	0.17
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	1070	668	3563	0	3170
Grp Volume(v), veh/h	643	1045	5	13	730	374	1	0	13	419	0	275
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	0	1738	1781	0	1585
Q Serve(g_s), s	12.4	8.7	0.1	0.5	7.9	14.6	0.0	0.0	0.5	7.9	0.0	5.4
Cycle Q Clear(g_c), s	12.4	8.7	0.1	0.5	7.9	14.6	0.0	0.0	0.5	7.9	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	725	2581	801	28	1591	494	3	0	56	489	0	532
V/C Ratio(X)	0.89	0.40	0.01	0.46	0.46	0.76	0.38	0.00	0.23	0.86	0.00	0.52
Avail Cap(c_a), veh/h	726	2951	916	130	2250	699	130	0	1040	489	0	2045
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.3	10.5	8.4	33.4	18.9	21.3	34.2	0.0	32.3	28.9	0.0	26.0
Incr Delay (d2), s/veh	12.3	0.1	0.0	4.2	0.2	3.0	31.2	0.0	2.1	13.5	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	2.4	0.0	0.2	2.6	5.5	0.0	0.0	0.2	4.0	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.6	10.6	8.4	37.6	19.2	24.3	65.4	0.0	34.5	42.4	0.0	26.8
LnGrp LOS	D	B	A	D	B	C	E	A	C	D	A	C
Approach Vol, veh/h		1693			1117			14			694	
Approach Delay, s/veh		21.3			21.1			36.7			36.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	40.8	4.7	17.3	19.0	27.6	14.0	8.0
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	39.6	5.0	44.2	14.4	30.2	9.4	* 41
Max Q Clear Time (g_c+I1), s	2.5	10.7	2.0	7.4	14.4	16.6	9.9	2.5
Green Ext Time (p_c), s	0.0	7.2	0.0	1.1	0.0	4.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

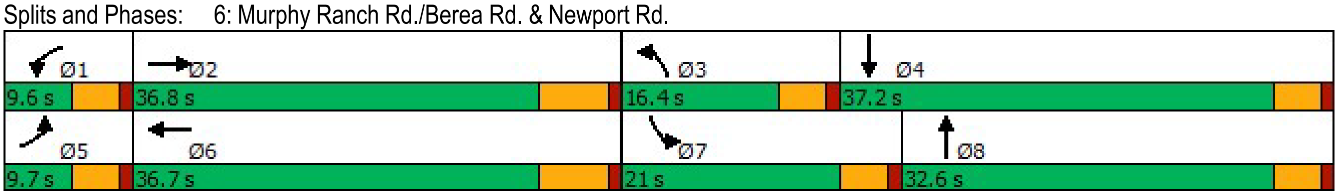
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	44	1454	15	1171	101	70	272	55
Future Volume (vph)	44	1454	15	1171	101	70	272	55
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	27.2	9.6	27.2	9.6	32.6	9.6	32.6
Total Split (s)	9.7	36.8	9.6	36.7	16.4	32.6	21.0	37.2
Total Split (%)	9.7%	36.8%	9.6%	36.7%	16.4%	32.6%	21.0%	37.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	35.5	5.2	31.7	8.7	13.2	16.4	18.4
Actuated g/C Ratio	0.07	0.45	0.07	0.40	0.11	0.17	0.21	0.23
v/c Ratio	0.38	0.70	0.13	0.75	0.53	0.26	0.76	0.21
Control Delay	50.4	22.2	43.7	25.1	47.0	30.7	47.7	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	22.2	43.7	25.1	47.0	30.7	47.7	18.9
LOS	D	C	D	C	D	C	D	B
Approach Delay		23.0		25.3		39.9		40.5
Approach LOS		C		C		D		D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 78.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 26.5 Intersection LOS: C
Intersection Capacity Utilization 67.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: Murphy Ranch Rd./Berea Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1454	97	15	1171	308	101	70	9	272	55	35
Future Volume (veh/h)	44	1454	97	15	1171	308	101	70	9	272	55	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	1499	72	15	1207	239	104	72	7	280	57	25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1964	94	32	1582	313	134	190	18	326	273	120
Arrive On Green	0.04	0.39	0.39	0.02	0.37	0.37	0.08	0.11	0.11	0.18	0.22	0.22
Sat Flow, veh/h	1781	4985	239	1781	4275	847	1781	1678	163	1781	1232	541
Grp Volume(v), veh/h	45	1023	548	15	961	485	104	0	79	280	0	82
Grp Sat Flow(s),veh/h/ln	1781	1702	1821	1781	1702	1718	1781	0	1841	1781	0	1773
Q Serve(g_s), s	1.7	17.9	17.9	0.6	17.0	17.0	3.9	0.0	2.7	10.5	0.0	2.6
Cycle Q Clear(g_c), s	1.7	17.9	17.9	0.6	17.0	17.0	3.9	0.0	2.7	10.5	0.0	2.6
Prop In Lane	1.00		0.13	1.00		0.49	1.00		0.09	1.00		0.30
Lane Grp Cap(c), veh/h	75	1341	717	32	1260	636	134	0	209	326	0	392
V/C Ratio(X)	0.60	0.76	0.76	0.46	0.76	0.76	0.78	0.00	0.38	0.86	0.00	0.21
Avail Cap(c_a), veh/h	132	1517	812	130	1513	763	306	0	751	426	0	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.3	18.0	18.0	33.4	19.0	19.0	31.2	0.0	28.2	27.2	0.0	21.8
Incr Delay (d2), s/veh	2.9	2.1	3.8	3.8	1.9	3.8	3.6	0.0	1.1	10.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.9	6.7	0.3	5.7	6.1	1.8	0.0	1.2	5.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	20.1	21.9	37.2	20.9	22.7	34.8	0.0	29.3	37.8	0.0	22.1
LnGrp LOS	D	C	C	D	C	C	C	A	C	D	A	C
Approach Vol, veh/h		1616			1461			183			362	
Approach Delay, s/veh		21.1			21.7			32.4			34.2	
Approach LOS		C			C			C			C	

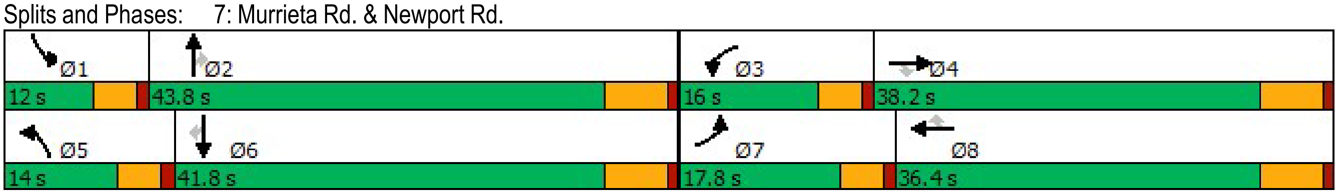
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	33.2	9.8	19.8	7.5	31.6	17.2	12.4
Change Period (Y+Rc), s	4.6	6.2	4.6	4.6	4.6	6.2	4.6	4.6
Max Green Setting (Gmax), s	5.0	30.6	11.8	32.6	5.1	30.5	16.4	28.0
Max Q Clear Time (g_c+I1), s	2.6	19.9	5.9	4.6	3.7	19.0	12.5	4.7
Green Ext Time (p_c), s	0.0	6.5	0.1	0.4	0.0	6.4	0.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	1268	119	345	1250	353	207	278	197	298	141	49
Future Volume (vph)	219	1268	119	345	1250	353	207	278	197	298	141	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2	40.2
Total Split (s)	17.8	38.2	38.2	16.0	36.4	36.4	14.0	43.8	43.8	12.0	41.8	41.8
Total Split (%)	16.2%	34.7%	34.7%	14.5%	33.1%	33.1%	12.7%	39.8%	39.8%	10.9%	38.0%	38.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.4	31.4	31.4	11.5	29.6	29.6	9.5	16.5	16.5	7.5	14.5	14.5
Actuated g/C Ratio	0.15	0.35	0.35	0.13	0.33	0.33	0.11	0.19	0.19	0.08	0.16	0.16
v/c Ratio	0.84	0.72	0.19	1.53	0.75	0.47	1.12	0.43	0.44	2.04	0.25	0.14
Control Delay	65.9	28.8	5.5	290.9	30.9	5.3	139.5	33.4	7.4	516.6	32.6	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	28.8	5.5	290.9	30.9	5.3	139.5	33.4	7.4	516.6	32.6	0.8
LOS	E	C	A	F	C	A	F	C	A	F	C	A
Approach Delay		32.1			72.3			58.0			324.8	
Approach LOS		C			E			E			F	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 88.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.04	
Intersection Signal Delay: 82.7	Intersection LOS: F
Intersection Capacity Utilization 86.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	1268	119	345	1250	353	207	278	197	298	141	49
Future Volume (veh/h)	219	1268	119	345	1250	353	207	278	197	298	141	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	1294	70	352	1276	266	211	284	136	304	144	15
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	1704	521	260	1697	520	214	531	233	169	440	196
Arrive On Green	0.15	0.33	0.33	0.15	0.33	0.33	0.12	0.15	0.15	0.09	0.12	0.12
Sat Flow, veh/h	1781	5106	1563	1781	5106	1565	1781	3554	1559	1781	3554	1585
Grp Volume(v), veh/h	223	1294	70	352	1276	266	211	284	136	304	144	15
Grp Sat Flow(s),veh/h/ln	1781	1702	1563	1781	1702	1565	1781	1777	1559	1781	1777	1585
Q Serve(g_s), s	9.5	17.7	2.4	11.4	17.4	10.7	9.2	5.8	6.4	7.4	2.9	0.7
Cycle Q Clear(g_c), s	9.5	17.7	2.4	11.4	17.4	10.7	9.2	5.8	6.4	7.4	2.9	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	262	1704	521	260	1697	520	214	531	233	169	440	196
V/C Ratio(X)	0.85	0.76	0.13	1.35	0.75	0.51	0.98	0.53	0.58	1.80	0.33	0.08
Avail Cap(c_a), veh/h	301	2090	640	260	1973	605	214	1710	750	169	1619	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	23.2	18.2	33.4	23.2	21.0	34.3	30.7	31.0	35.4	31.3	30.3
Incr Delay (d2), s/veh	16.5	1.3	0.1	182.8	1.4	0.8	56.9	0.8	2.3	383.7	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	6.2	0.8	17.7	6.3	3.5	7.0	2.3	2.3	20.9	1.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	24.6	18.3	216.2	24.6	21.8	91.2	31.6	33.3	419.1	31.7	30.4
LnGrp LOS	D	C	B	F	C	C	F	C	C	F	C	C
Approach Vol, veh/h		1587			1894			631			463	
Approach Delay, s/veh		27.7			59.8			51.9			286.0	
Approach LOS		C			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	17.9	16.0	32.3	14.0	15.9	16.1	32.2
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	7.4	37.6	11.4	32.0	9.4	35.6	13.2	30.2
Max Q Clear Time (g_c+I1), s	9.4	8.4	13.4	19.7	11.2	4.9	11.5	19.4
Green Ext Time (p_c), s	0.0	2.1	0.0	6.4	0.0	0.8	0.1	6.4

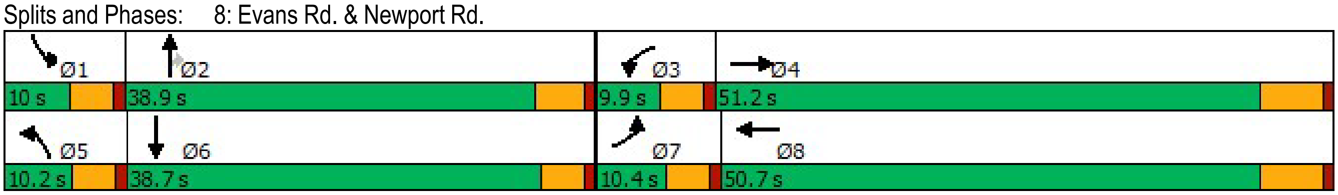
Intersection Summary	
HCM 6th Ctrl Delay	70.5
HCM 6th LOS	E

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	37	1789	64	2046	37	22	53	93	22
Future Volume (vph)	37	1789	64	2046	37	22	53	93	22
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.4	51.2	9.9	50.7	10.2	38.9	38.9	10.0	38.7
Total Split (%)	9.5%	46.5%	9.0%	46.1%	9.3%	35.4%	35.4%	9.1%	35.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.7	46.6	5.5	48.3	5.6	14.0	14.0	5.6	16.2
Actuated g/C Ratio	0.07	0.54	0.06	0.56	0.07	0.16	0.16	0.07	0.19
v/c Ratio	0.33	1.00	0.60	0.80	0.34	0.08	0.16	0.85	0.17
Control Delay	51.4	45.1	66.6	21.5	52.1	31.6	0.9	98.4	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	45.1	66.6	21.5	52.1	31.6	0.9	98.4	16.9
LOS	D	D	E	C	D	C	A	F	B
Approach Delay		45.2		22.8		23.8			67.5
Approach LOS		D		C		C			E

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 85.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 34.0 — Intersection LOS: C
Intersection Capacity Utilization 77.3% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1789	34	64	2046	100	37	22	53	93	22	35
Future Volume (veh/h)	37	1789	34	64	2046	100	37	22	53	93	22	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	1883	31	67	2154	100	39	23	29	98	23	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1964	32	86	2805	130	64	159	135	118	92	104
Arrive On Green	0.04	0.55	0.55	0.05	0.56	0.56	0.04	0.08	0.08	0.07	0.12	0.12
Sat Flow, veh/h	1781	3576	59	1781	4996	231	1781	1870	1585	1781	799	903
Grp Volume(v), veh/h	39	933	981	67	1464	790	39	23	29	98	0	49
Grp Sat Flow(s),veh/h/ln	1781	1777	1858	1781	1702	1823	1781	1870	1585	1781	0	1703
Q Serve(g_s), s	1.8	40.6	41.1	3.0	27.0	27.3	1.8	0.9	1.4	4.4	0.0	2.1
Cycle Q Clear(g_c), s	1.8	40.6	41.1	3.0	27.0	27.3	1.8	0.9	1.4	4.4	0.0	2.1
Prop In Lane	1.00		0.03	1.00		0.13	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	64	976	1021	86	1911	1024	64	159	135	118	0	196
V/C Ratio(X)	0.61	0.96	0.96	0.78	0.77	0.77	0.61	0.14	0.22	0.83	0.00	0.25
Avail Cap(c_a), veh/h	127	981	1026	116	1911	1024	122	775	657	118	0	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.7	17.4	17.6	38.4	13.8	13.8	38.7	34.6	34.8	37.6	0.0	32.9
Incr Delay (d2), s/veh	3.4	18.9	19.4	14.6	1.9	3.7	3.4	0.4	0.8	35.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	17.7	18.9	1.6	8.4	9.6	0.8	0.4	0.5	3.1	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	36.3	36.9	53.0	15.7	17.5	42.2	35.0	35.6	72.8	0.0	33.5
LnGrp LOS	D	D	D	D	B	B	D	C	D	E	A	C
Approach Vol, veh/h		1953			2321			91			147	
Approach Delay, s/veh		36.7			17.4			38.2			59.7	
Approach LOS		D			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	12.0	8.5	51.0	7.5	14.5	7.5	52.0
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2
Max Green Setting (Gmax), s	5.4	33.8	5.3	45.0	5.6	* 34	5.8	44.5
Max Q Clear Time (g_c+I1), s	6.4	3.4	5.0	43.1	3.8	4.1	3.8	29.3
Green Ext Time (p_c), s	0.0	0.2	0.0	1.7	0.0	0.2	0.0	11.7

Intersection Summary	
HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Notes

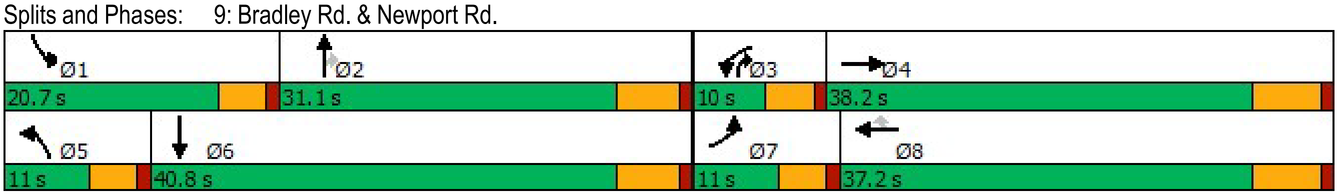
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	305	1682	346	1854	434	136	254	235	490	321
Future Volume (vph)	305	1682	346	1854	434	136	254	235	490	321
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8		5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	31.2	9.6	15.8	9.6	9.6	40.8
Total Split (s)	11.0	38.2	10.0	37.2	37.2	11.0	31.1	10.0	20.7	40.8
Total Split (%)	11.0%	38.2%	10.0%	37.2%	37.2%	11.0%	31.1%	10.0%	20.7%	40.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.4	32.1	5.4	31.1	31.1	6.4	18.4	29.6	16.1	28.1
Actuated g/C Ratio	0.07	0.34	0.06	0.33	0.33	0.07	0.20	0.32	0.17	0.30
v/c Ratio	2.68	1.11	1.85	1.16	0.56	1.20	0.74	0.42	1.70	0.59
Control Delay	796.1	87.8	429.4	111.4	5.6	184.5	47.4	13.3	358.6	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	796.1	87.8	429.4	111.4	5.6	184.5	47.4	13.3	358.6	23.1
LOS	F	F	F	F	A	F	D	B	F	C
Approach Delay		189.9		135.7			64.5			174.0
Approach LOS		F		F			E			F

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 93.3
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.68
Intersection Signal Delay: 153.0 Intersection LOS: F
Intersection Capacity Utilization 110.9% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	1682	126	346	1854	434	136	254	235	490	321	278
Future Volume (veh/h)	305	1682	126	346	1854	434	136	254	235	490	321	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	324	1789	120	368	1972	382	145	270	173	521	341	246
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	1723	115	206	1744	529	126	331	375	316	564	399
Arrive On Green	0.07	0.35	0.35	0.06	0.34	0.34	0.07	0.18	0.18	0.18	0.28	0.28
Sat Flow, veh/h	1781	4888	327	3456	5106	1550	1781	1870	1585	1781	1987	1406
Grp Volume(v), veh/h	324	1245	664	368	1972	382	145	270	173	521	304	283
Grp Sat Flow(s),veh/h/ln	1781	1702	1811	1728	1702	1550	1781	1870	1585	1781	1777	1616
Q Serve(g_s), s	6.4	32.0	32.0	5.4	31.0	19.6	6.4	12.6	8.5	16.1	13.4	13.8
Cycle Q Clear(g_c), s	6.4	32.0	32.0	5.4	31.0	19.6	6.4	12.6	8.5	16.1	13.4	13.8
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		0.87
Lane Grp Cap(c), veh/h	126	1200	638	206	1744	529	126	331	375	316	505	459
V/C Ratio(X)	2.58	1.04	1.04	1.79	1.13	0.72	1.15	0.82	0.46	1.65	0.60	0.62
Avail Cap(c_a), veh/h	126	1200	638	206	1744	529	126	521	536	316	685	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	29.4	29.4	42.7	29.9	26.1	42.2	35.9	29.7	37.3	28.1	28.2
Incr Delay (d2), s/veh	733.6	36.1	46.5	374.4	66.8	4.8	127.8	5.5	0.9	305.9	1.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.2	17.6	20.6	12.9	22.1	7.2	7.1	5.9	3.1	33.4	5.5	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	775.8	65.5	75.9	417.1	96.7	30.9	170.0	41.4	30.6	343.2	29.2	29.6
LnGrp LOS	F	F	F	F	F	C	F	D	C	F	C	C
Approach Vol, veh/h		2233			2722			588			1108	
Approach Delay, s/veh		171.7			130.7			69.9			177.0	
Approach LOS		F			F			E			F	

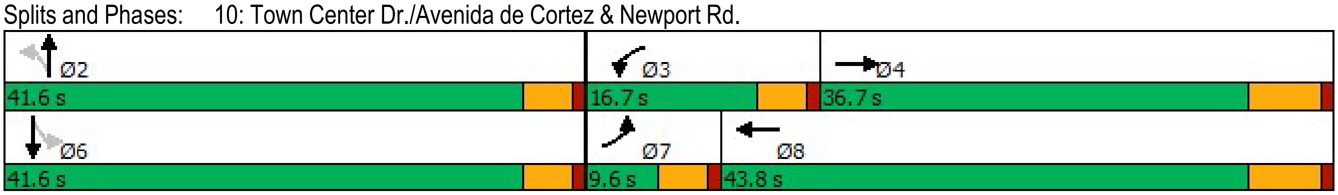
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.7	21.9	10.0	38.2	11.0	31.6	11.0	37.2
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	16.1	25.3	5.4	32.0	6.4	35.0	6.4	31.0
Max Q Clear Time (g_c+I1), s	18.1	14.6	7.4	34.0	8.4	15.8	8.4	33.0
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.0	3.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	146.8
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	2262	211	2496	78	21	80	16
Future Volume (vph)	12	2262	211	2496	78	21	80	16
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	33.2	41.6	41.6	41.6	41.6
Total Split (s)	9.6	36.7	16.7	43.8	41.6	41.6	41.6	41.6
Total Split (%)	10.1%	38.6%	17.6%	46.1%	43.8%	43.8%	43.8%	43.8%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	31.0	12.2	46.4	15.0	15.0	15.0	15.0
Actuated g/C Ratio	0.07	0.42	0.17	0.63	0.20	0.20	0.20	0.20
v/c Ratio	0.10	1.09	0.73	0.78	0.30	0.38	0.44	0.08
Control Delay	38.7	72.4	47.2	15.6	26.4	7.4	31.8	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	72.4	47.2	15.6	26.4	7.4	31.8	15.4
LOS	D	E	D	B	C	A	C	B
Approach Delay		72.2		18.0		13.1		27.5
Approach LOS		E		B		B		C

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 73.9	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 41.4	Intersection LOS: D
Intersection Capacity Utilization 96.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: Town Center Dr./Avenida de Cortez & Newport Rd.

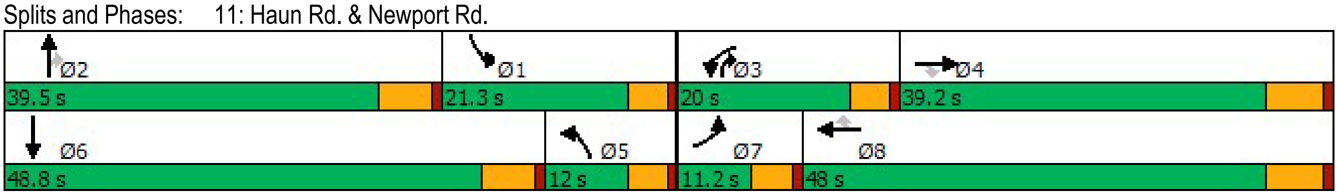


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	2262	133	211	2496	91	78	21	160	80	16	12
Future Volume (veh/h)	12	2262	133	211	2496	91	78	21	160	80	16	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	2406	115	224	2655	83	83	22	123	85	17	8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	2422	115	268	3196	99	317	39	220	206	196	92
Arrive On Green	0.02	0.46	0.46	0.15	0.59	0.59	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	5308	251	1781	5409	167	1386	242	1354	1239	1203	566
Grp Volume(v), veh/h	13	1688	833	224	1828	910	83	0	145	85	0	25
Grp Sat Flow(s),veh/h/ln	1781	1870	1819	1781	1870	1836	1386	0	1596	1239	0	1768
Q Serve(g_s), s	0.5	29.9	30.5	8.2	26.1	26.9	3.6	0.0	5.6	4.5	0.0	0.8
Cycle Q Clear(g_c), s	0.5	29.9	30.5	8.2	26.1	26.9	4.4	0.0	5.6	10.1	0.0	0.8
Prop In Lane	1.00		0.14	1.00		0.09	1.00		0.85	1.00		0.32
Lane Grp Cap(c), veh/h	29	1707	830	268	2210	1085	317	0	260	206	0	288
V/C Ratio(X)	0.45	0.99	1.00	0.83	0.83	0.84	0.26	0.00	0.56	0.41	0.00	0.09
Avail Cap(c_a), veh/h	133	1707	830	322	2210	1085	858	0	883	690	0	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.6	18.0	18.2	27.6	10.9	11.1	25.6	0.0	25.8	30.4	0.0	23.8
Incr Delay (d2), s/veh	4.1	19.2	32.2	12.7	2.7	6.0	0.4	0.0	1.9	1.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	14.3	17.1	4.0	7.6	8.7	1.2	0.0	2.2	1.4	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	37.2	50.4	40.3	13.7	17.1	26.1	0.0	27.6	31.8	0.0	23.9
LnGrp LOS	D	D	F	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		2534			2962			228			110	
Approach Delay, s/veh		41.5			16.7			27.1			30.0	
Approach LOS		D			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.5	14.7	36.7		15.5	5.7	45.7				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		37.0	12.1	30.5		37.0	5.0	37.6				
Max Q Clear Time (g_c+I1), s		7.6	10.2	32.5		12.1	2.5	28.9				
Green Ext Time (p_c), s		1.2	0.1	0.0		0.4	0.0	8.0				
Intersection Summary												
HCM 6th Ctrl Delay			28.2									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	224	1705	382	1195	1945	284	541	91	1275	431	143
Future Volume (vph)	224	1705	382	1195	1945	284	541	91	1275	431	143
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	11.2	39.2	39.2	20.0	48.0	48.0	12.0	39.5	20.0	21.3	48.8
Total Split (%)	9.3%	32.7%	32.7%	16.7%	40.0%	40.0%	10.0%	32.9%	16.7%	17.8%	40.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.7	33.4	33.4	15.6	42.3	42.3	10.3	11.4	25.7	20.7	18.2
Actuated g/C Ratio	0.07	0.34	0.34	0.16	0.43	0.43	0.10	0.12	0.26	0.21	0.18
v/c Ratio	0.92	0.93	0.46	2.10	0.84	0.36	1.44	0.44	1.24	0.57	0.62
Control Delay	87.9	43.0	6.9	526.1	30.7	7.6	245.5	49.5	140.2	39.1	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	43.0	6.9	526.1	30.7	7.6	245.5	49.5	140.2	39.1	27.6
LOS	F	D	A	F	C	A	F	D	F	D	C
Approach Delay		41.4			201.7			165.8			33.4
Approach LOS		D			F			F			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.10	
Intersection Signal Delay: 133.2	Intersection LOS: F
Intersection Capacity Utilization 113.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	1705	382	1195	1945	284	541	91	1275	431	143	277
Future Volume (veh/h)	224	1705	382	1195	1945	284	541	91	1275	431	143	277
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	231	1758	249	1232	2005	190	558	94	1251	444	147	217
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	1586	442	470	2009	567	845	494	1255	499	296	264
Arrive On Green	0.06	0.28	0.28	0.13	0.36	0.36	0.24	0.26	0.26	0.14	0.17	0.17
Sat Flow, veh/h	3563	5611	1565	3563	5611	1585	3563	1870	3170	3563	1777	1585
Grp Volume(v), veh/h	231	1758	249	1232	2005	190	558	94	1251	444	147	217
Grp Sat Flow(s),veh/h/ln	1781	1870	1565	1781	1870	1585	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	6.6	33.0	8.6	15.4	41.7	6.5	16.5	4.5	25.6	14.3	8.8	15.4
Cycle Q Clear(g_c), s	6.6	33.0	8.6	15.4	41.7	6.5	16.5	4.5	25.6	14.3	8.8	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	1586	442	470	2009	567	845	494	1255	499	296	264
V/C Ratio(X)	1.15	1.11	0.56	2.62	1.00	0.33	0.66	0.19	1.00	0.89	0.50	0.82
Avail Cap(c_a), veh/h	201	1586	442	470	2009	567	845	540	1333	510	654	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	41.9	10.4	50.7	37.4	11.1	40.3	33.3	14.0	49.3	44.2	47.0
Incr Delay (d2), s/veh	108.6	58.5	1.6	735.9	19.6	0.3	1.5	0.2	23.5	16.7	1.3	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	22.9	5.5	54.6	21.4	3.5	7.2	2.0	11.4	7.3	3.9	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	163.7	100.4	12.1	786.6	57.0	11.5	41.8	33.5	37.4	66.0	45.5	53.2
LnGrp LOS	F	F	B	F	E	B	D	C	D	E	D	D
Approach Vol, veh/h		2238			3427			1903			808	
Approach Delay, s/veh		97.1			316.8			38.5			58.8	
Approach LOS		F			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.9	36.6	20.0	39.2	32.3	25.3	11.2	48.0
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	16.7	33.7	15.4	33.0	7.4	43.0	6.6	41.8
Max Q Clear Time (g_c+I1), s	16.3	27.6	17.4	35.0	18.5	17.4	8.6	43.7
Green Ext Time (p_c), s	0.1	3.3	0.0	0.0	0.0	2.0	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		170.0
HCM 6th LOS		F

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	2781	639	2494	660	670	0	934
Future Volume (vph)	2781	639	2494	660	670	0	934
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		4	4	
Permitted Phases		Free		Free			4
Detector Phase	2		6		4	4	4
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	30.0		33.0		20.0	20.0	20.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max		C-Max		None	None	None
Act Effct Green (s)	45.4	90.0	45.4	90.0	33.1	33.1	33.1
Actuated g/C Ratio	0.50	1.00	0.50	1.00	0.37	0.37	0.37
v/c Ratio	0.77	0.35	0.89	0.42	0.88	0.79	0.77
Control Delay	20.4	0.5	14.6	0.8	42.8	32.7	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	0.5	14.6	0.8	42.8	32.7	31.4
LOS	C	A	B	A	D	C	C
Approach Delay	16.7		11.7			35.9	
Approach LOS	B		B			D	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

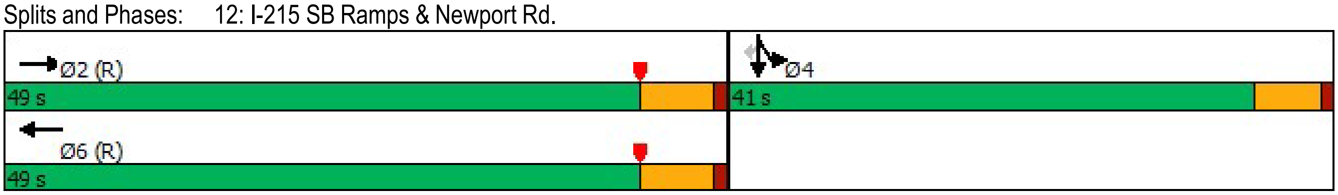
Maximum v/c Ratio: 0.89

Intersection Signal Delay: 18.5 Intersection LOS: B

Intersection Capacity Utilization 96.3% ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 12: I-215 SB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2781	639	0	2494	660	0	0	0	670	0	934
Future Volume (veh/h)	0	2781	639	0	2494	660	0	0	0	670	0	934
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1856	0	1885	1900				1796	1900	1811
Adj Flow Rate, veh/h	0	2838	0	0	2545	0				992	0	558
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	4	3	0	1	0				7	0	6
Cap, veh/h	0	3596		0	2762					1313	0	589
Arrive On Green	0.00	0.49	0.00	0.00	0.98	0.00				0.38	0.00	0.38
Sat Flow, veh/h	0	7363	1572	0	5656	1610				3421	0	1535
Grp Volume(v), veh/h	0	2838	0	0	2545	0				992	0	558
Grp Sat Flow(s),veh/h/ln	0	1841	1572	0	1885	1610				1711	0	1535
Q Serve(g_s), s	0.0	28.9	0.0	0.0	9.4	0.0				22.6	0.0	31.7
Cycle Q Clear(g_c), s	0.0	28.9	0.0	0.0	9.4	0.0				22.6	0.0	31.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3596		0	2762					1313	0	589
V/C Ratio(X)	0.00	0.79		0.00	0.92					0.76	0.00	0.95
Avail Cap(c_a), veh/h	0	3596		0	2762					1350	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.2	0.0	0.0	0.6	0.0				24.1	0.0	26.8
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	6.5	0.0				2.1	0.0	23.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.4	0.0	0.0	2.0	0.0				8.7	0.0	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.3	0.0	0.0	7.1	0.0				26.2	0.0	50.4
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		2838	A		2545	A					1550	
Approach Delay, s/veh		19.3			7.1						34.9	
Approach LOS		B			A						C	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.0		40.0		50.0						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		43.0		35.5		43.0						
Max Q Clear Time (g_c+I1), s		30.9		33.7		11.4						
Green Ext Time (p_c), s		11.2		0.9		24.2						

Intersection Summary

HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

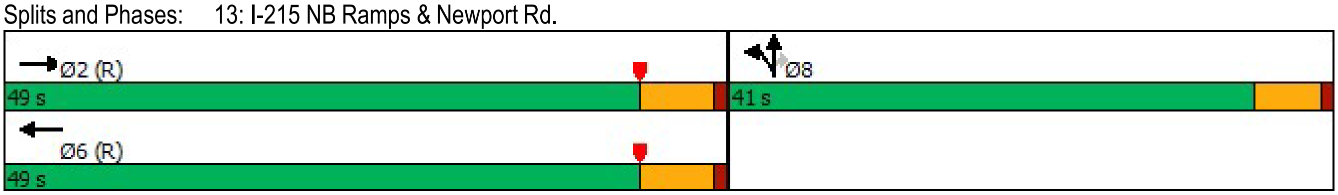
Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	2700	732	2515	503	645	0	897
Future Volume (vph)	2700	732	2515	503	645	0	897
Turn Type	NA	Free	NA	Free	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		Free		Free			8
Detector Phase	2		6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	33.0		33.0		22.0	22.0	22.0
Total Split (s)	49.0		49.0		41.0	41.0	41.0
Total Split (%)	54.4%		54.4%		45.6%	45.6%	45.6%
Yellow Time (s)	5.0		5.0		4.5	4.5	4.5
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0		5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min		C-Min		None	None	None
Act Effct Green (s)	44.7	90.0	44.7	90.0	33.8	33.8	33.8
Actuated g/C Ratio	0.50	1.00	0.50	1.00	0.38	0.38	0.38
v/c Ratio	1.03	0.48	0.71	0.34	0.80	0.92	0.72
Control Delay	39.2	1.3	19.3	0.6	34.6	48.2	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	1.3	19.3	0.6	34.6	48.2	28.5
LOS	D	A	B	A	C	D	C
Approach Delay	31.1		16.2			37.1	
Approach LOS	C		B			D	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Ye low, Master Inters ction
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 98.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 13: I-215 NB Ramps & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2700	732	0	2515	503	645	0	897	0	0	0
Future Volume (veh/h)	0	2700	732	0	2515	503	645	0	897	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1841	1870	0	1870	1870	1885	1870	1856			
Adj Flow Rate, veh/h	0	2812	0	0	2620	0	978	0	552			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	4	2	0	2	2	1	2	3			
Cap, veh/h	0	2747		0	3722		1346	0	589			
Arrive On Green	0.00	0.99	0.00	0.00	0.50	0.00	0.37	0.00	0.37			
Sat Flow, veh/h	0	5522	1585	0	7481	1585	3591	0	1572			
Grp Volume(v), veh/h	0	2812	0	0	2620	0	978	0	552			
Grp Sat Flow(s),veh/h/ln	0	1841	1585	0	1870	1585	1795	0	1572			
Q Serve(g_s), s	0.0	44.8	0.0	0.0	24.4	0.0	21.1	0.0	30.4			
Cycle Q Clear(g_c), s	0.0	44.8	0.0	0.0	24.4	0.0	21.1	0.0	30.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2747		0	3722		1346	0	589			
V/C Ratio(X)	0.00	1.02		0.00	0.70		0.73	0.00	0.94			
Avail Cap(c_a), veh/h	0	2747		0	3722		1416	0	620			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.2	0.0	0.0	17.5	0.0	24.2	0.0	27.1			
Incr Delay (d2), s/veh	0.0	23.5	0.0	0.0	1.1	0.0	1.5	0.0	20.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	6.1	0.0	0.0	9.1	0.0	8.4	0.0	13.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.7	0.0	0.0	18.6	0.0	25.7	0.0	47.9			
LnGrp LOS	A	F		A	B		C	A	D			
Approach Vol, veh/h		2812	A		2620	A		1530				
Approach Delay, s/veh		23.7			18.6			33.7				
Approach LOS		C			B			C				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		50.8				50.8		39.2				
Change Period (Y+Rc), s		6.0				6.0		5.5				
Max Green Setting (Gmax), s		43.0				43.0		35.5				
Max Q Clear Time (g_c+I1), s		46.8				26.4		32.4				
Green Ext Time (p_c), s		0.0				14.4		1.3				

Intersection Summary		
HCM 6th Ctrl Delay		24.0
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 6.3:

OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2025 Without Project Conditions - Weekday AM Peak Hour**

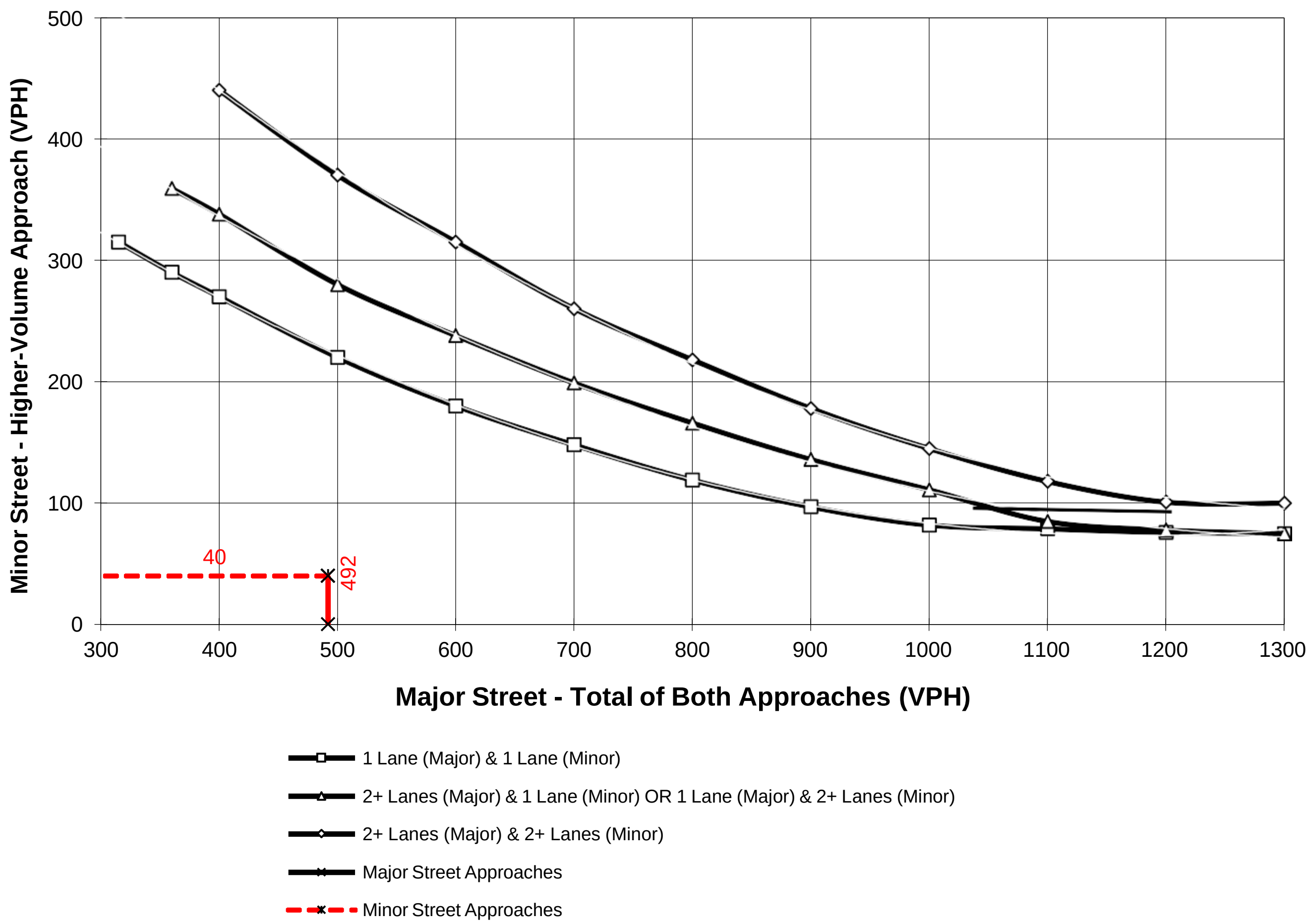
Major Street Name = **Goetz Road**

Total of Both Approaches (VPH) = **492**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Street B/Paseo La Plaza**

High Volume Approach (VPH) = **40**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.4:

OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2025 With Project Conditions - Weekday AM Peak Hour**

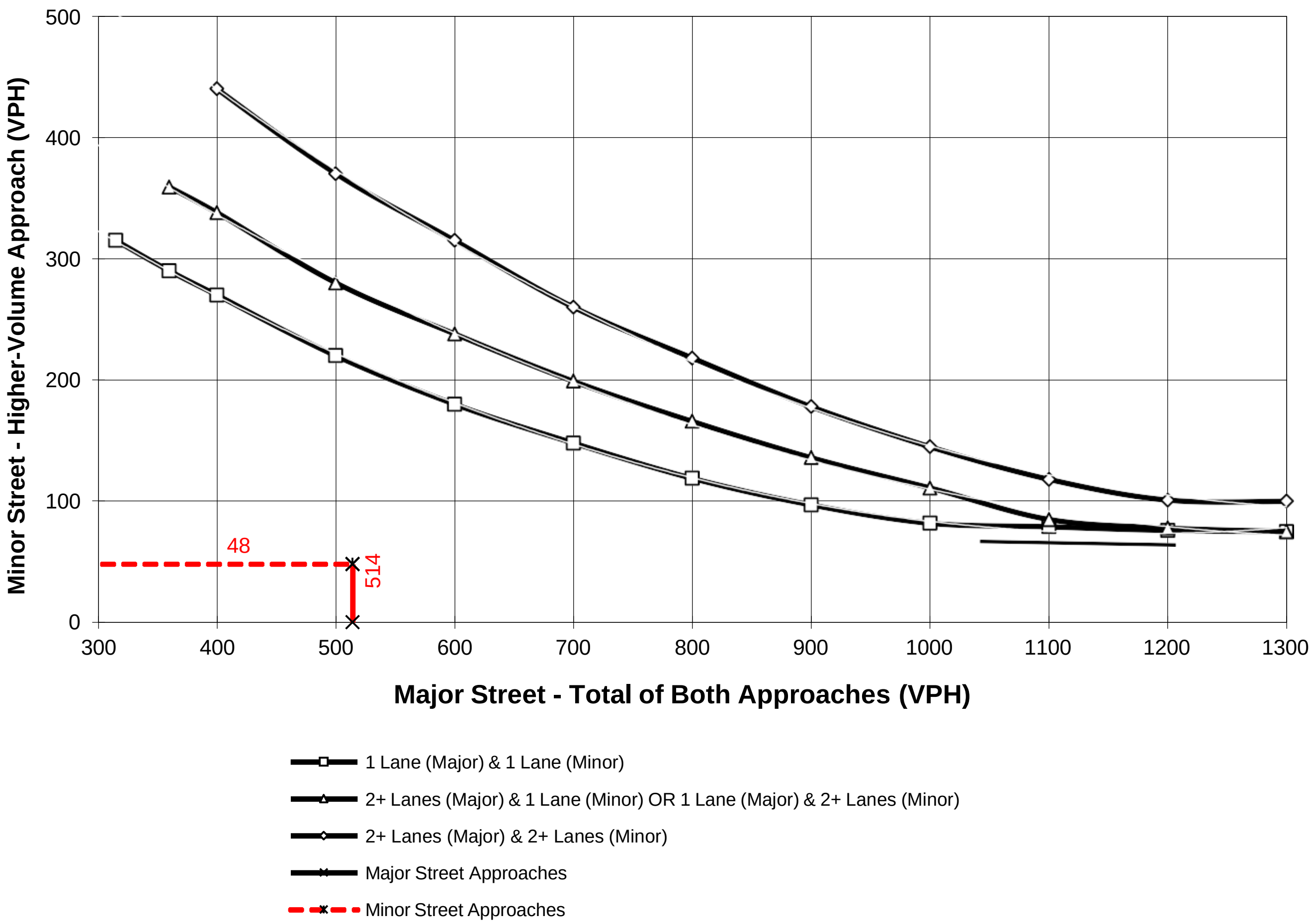
Major Street Name = **Goetz Road**

Total of Both Approaches (VPH) = **514**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Street B/Paseo La Plaza**

High Volume Approach (VPH) = **48**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS **2025 WP**

DIST ___ CO ___ RTE ___ PM ___

CALC CS DATE 10/05/21

CHK CS DATE 10/05/21

Jurisdiction: **City of Menifee**

Major Street: **Goetz Road**

Minor Street: **Street A**

Critical Approach Speed (Major) 45 mph

Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lane **1** lane

Major Street Future ADT = **7,401** vpd

Minor Street Future ADT = **274** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population .... [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **7,401**	1 **274**	8,000	5,600 *	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **7,401**	1 **274**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied XX				
No one condition satisfied, but following conditions fulfilled 80% of more ..... A 16%	B 32%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 6.5:

OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2193	824	2220	926	412	447	435
v/c Ratio	0.50	0.45	0.66	0.59	0.84	0.86	0.83
Control Delay	11.4	0.8	8.3	5.6	46.4	44.9	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	0.8	8.3	5.6	46.4	44.9	42.5
Queue Length 50th (ft)	180	0	128	119	210	213	205
Queue Length 95th (ft)	206	0	187	326	#346	#360	#344
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	4349	1845	3358	1579	542	572	572
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.45	0.66	0.59	0.76	0.78	0.76

Intersection Summary

95th percentile volume e ceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1912	709	2714	615	403	378	375
v/c Ratio	0.61	0.45	0.64	0.40	0.71	0.81	0.64
Control Delay	8.9	2.2	15.2	0.8	34.0	38.9	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	2.2	15.2	0.8	34.0	38.9	28.6
Queue Length 50th (ft)	118	37	248	0	200	194	164
Queue Length 95th (ft)	136	82	352	0	257	271	219
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	3121	1583	4243	1550	762	615	769
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.45	0.64	0.40	0.53	0.61	0.49

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2827	638	2517	673	561	536	526
v/c Ratio	0.76	0.35	0.88	0.42	0.87	0.80	0.78
Control Delay	20.1	0.5	13.9	0.8	41.5	33.1	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	0.5	13.9	0.8	41.5	33.1	32.1
Queue Length 50th (ft)	328	0	170	0	276	239	232
Queue Length 95th (ft)	371	0	#224	m8	#449	364	355
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	3710	1845	2865	1615	700	727	728
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.35	0.88	0.42	0.80	0.74	0.72

Intersection Summary

95th percentile volume e ceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	2809	754	2615	524	551	517	514
v/c Ratio	1.02	0.48	0.70	0.34	0.79	0.91	0.73
Control Delay	36.0	1.2	19.0	0.6	34.1	47.1	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	1.2	19.0	0.6	34.1	47.1	29.0
Queue Length 50th (ft)	~572	0	287	0	262	272	221
Queue Length 95th (ft)	#664	15	325	0	390	#484	337
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	2744	1583	3730	1551	741	600	749
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.48	0.70	0.34	0.74	0.86	0.69

Intersection Summary

~ Volume exceeds capacit , queue is theoretic lly infinit .
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 6.6:

OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2209	845	2228	926	412	450	437
v/c Ratio	0.51	0.46	0.66	0.59	0.84	0.86	0.84
Control Delay	11.5	0.8	8.4	5.5	46.2	45.3	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	0.8	8.4	5.5	46.2	45.3	42.7
Queue Length 50th (ft)	181	0	129	120	210	215	206
Queue Length 95th (ft)	208	0	188	325	#346	#365	#347
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	4344	1845	3355	1579	542	572	572
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.46	0.66	0.59	0.76	0.79	0.76

Intersection Summary

\#   95th percentile volume e ceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1916	722	2715	615	404	384	375
v/c Ratio	0.62	0.46	0.64	0.40	0.70	0.81	0.64
Control Delay	9.0	2.3	15.4	0.8	33.6	39.1	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	2.3	15.4	0.8	33.6	39.1	28.2
Queue Length 50th (ft)	118	41	251	0	199	197	163
Queue Length 95th (ft)	136	90	353	0	258	276	219
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	3105	1583	4222	1550	762	616	769
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.46	0.64	0.40	0.53	0.62	0.49

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2838	652	2545	673	575	538	524
v/c Ratio	0.77	0.35	0.89	0.42	0.88	0.79	0.77
Control Delay	20.4	0.5	14.6	0.8	42.8	32.7	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	0.5	14.6	0.8	42.8	32.7	31.4
Queue Length 50th (ft)	330	0	174	0	287	240	230
Queue Length 95th (ft)	374	0	#236	m6	#468	366	353
Internal Link Dist (ft)	620		509			864	
Turn Bay Length (ft)							425
Base Capacity (vph)	3686	1845	2846	1615	700	727	728
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.35	0.89	0.42	0.82	0.74	0.72

Intersection Summary

95th percentile volume e ceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	2813	763	2620	524	564	528	514
v/c Ratio	1.03	0.48	0.71	0.34	0.80	0.92	0.72
Control Delay	39.2	1.3	19.3	0.6	34.6	48.2	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	1.3	19.3	0.6	34.6	48.2	28.5
Queue Length 50th (ft)	~574	0	287	0	272	281	221
Queue Length 95th (ft)	#667	m16	327	0	402	#498	337
Internal Link Dist (ft)	414		635			1057	
Turn Bay Length (ft)							475
Base Capacity (vph)	2722	1583	3700	1551	741	601	749
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.48	0.71	0.34	0.76	0.88	0.69

Intersection Summary

~ Volume exceeds capacit , queue is theoretic lly infinit .
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX 6.7:

OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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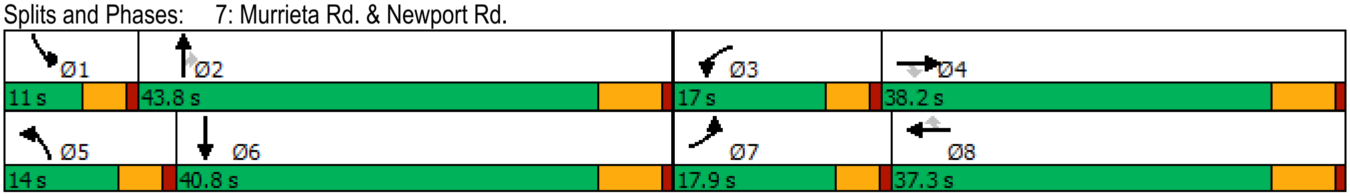
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	147	1296	172	231	986	221	164	291	266	225	90
Future Volume (vph)	147	1296	172	231	986	221	164	291	266	225	90
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2
Total Split (s)	17.9	38.2	38.2	17.0	37.3	37.3	14.0	43.8	43.8	11.0	40.8
Total Split (%)	16.3%	34.7%	34.7%	15.5%	33.9%	33.9%	12.7%	39.8%	39.8%	10.0%	37.1%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	11.4	30.7	30.7	12.6	31.9	31.9	9.5	17.6	17.6	6.5	14.5
Actuated g/C Ratio	0.13	0.34	0.34	0.14	0.36	0.36	0.11	0.20	0.20	0.07	0.16
v/c Ratio	0.69	0.78	0.28	0.98	0.57	0.33	0.92	0.44	0.53	0.95	0.25
Control Delay	55.1	31.0	5.2	93.3	26.1	5.0	90.1	33.0	7.9	90.4	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	31.0	5.2	93.3	26.1	5.0	90.1	33.0	7.9	90.4	21.2
LOS	E	C	A	F	C	A	F	C	A	F	C
Approach Delay		30.5			33.6			36.8			63.7
Approach LOS		C			C			D			E

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 89.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 75.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



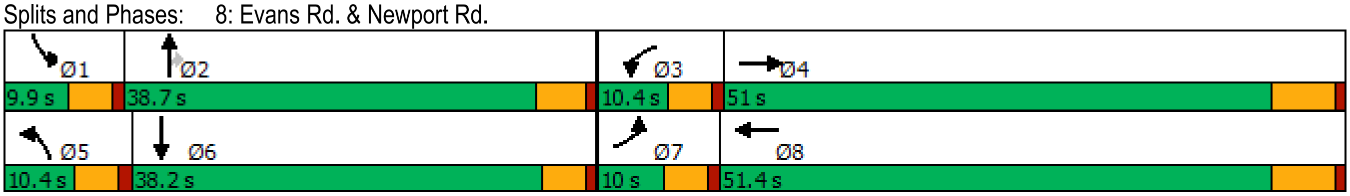
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1296	172	231	986	221	164	291	266	225	90	51
Future Volume (veh/h)	147	1296	172	231	986	221	164	291	266	225	90	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1364	98	243	1038	171	173	306	178	237	95	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	1737	531	271	1965	610	205	586	262	271	355	93
Arrive On Green	0.11	0.34	0.34	0.15	0.38	0.38	0.12	0.17	0.17	0.08	0.13	0.13
Sat Flow, veh/h	1781	5106	1562	1781	5106	1585	1781	3554	1585	3456	2769	728
Grp Volume(v), veh/h	155	1364	98	243	1038	171	173	306	178	237	60	61
Grp Sat Flow(s),veh/h/ln	1781	1702	1562	1781	1702	1585	1781	1777	1585	1728	1777	1719
Q Serve(g_s), s	6.9	19.6	3.6	10.9	12.8	6.1	7.8	6.4	8.6	5.5	2.5	2.6
Cycle Q Clear(g_c), s	6.9	19.6	3.6	10.9	12.8	6.1	7.8	6.4	8.6	5.5	2.5	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.42
Lane Grp Cap(c), veh/h	191	1737	531	271	1965	610	205	586	262	271	228	221
V/C Ratio(X)	0.81	0.79	0.18	0.90	0.53	0.28	0.84	0.52	0.68	0.87	0.26	0.28
Avail Cap(c_a), veh/h	290	2001	612	271	1965	610	205	1637	730	271	753	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	24.3	19.0	34.0	19.4	17.3	35.4	31.1	32.1	37.2	32.1	32.2
Incr Delay (d2), s/veh	5.5	1.9	0.2	29.1	0.3	0.2	24.9	0.7	3.1	24.8	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	7.1	1.2	6.5	4.5	2.0	4.5	2.6	0.2	3.1	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.1	26.1	19.1	63.1	19.7	17.6	60.3	31.9	35.2	62.0	32.7	32.8
LnGrp LOS	D	C	B	E	B	B	E	C	D	E	C	C
Approach Vol, veh/h		1617			1452			657			358	
Approach Delay, s/veh		27.1			26.7			40.2			52.1	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	19.7	17.0	34.0	14.0	16.7	13.3	37.6				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2				
Max Green Setting (Gmax), s	6.4	37.6	12.4	32.0	9.4	34.6	13.3	31.1				
Max Q Clear Time (g_c+I1), s	7.5	10.6	12.9	21.6	9.8	4.6	8.9	14.8				
Green Ext Time (p_c), s	0.0	2.3	0.0	6.0	0.0	0.5	0.1	6.5				
Intersection Summary												
HCM 6th Ctrl Delay			31.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	22	1827	91	1344	77	71	132	108	120
Future Volume (vph)	22	1827	91	1344	77	71	132	108	120
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.0	51.0	10.4	51.4	10.4	38.7	38.7	9.9	38.2
Total Split (%)	9.1%	46.4%	9.5%	46.7%	9.5%	35.2%	35.2%	9.0%	34.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	45.1	5.8	51.9	5.8	16.0	16.0	5.3	16.0
Actuated g/C Ratio	0.06	0.48	0.06	0.56	0.06	0.17	0.17	0.06	0.17
v/c Ratio	0.25	0.87	0.93	0.56	0.79	0.25	0.41	1.22	0.55
Control Delay	51.5	27.2	116.0	16.5	89.9	34.0	12.1	198.8	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	27.2	116.0	16.5	89.9	34.0	12.1	198.8	37.9
LOS	D	C	F	B	F	C	B	F	D
Approach Delay		27.5		22.5		39.1			104.3
Approach LOS		C		C		D			F

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 93
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 31.6 Intersection LOS: C
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 8: Evans Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1827	45	91	1344	55	77	71	132	108	120	34
Future Volume (veh/h)	22	1827	45	91	1344	55	77	71	132	108	120	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	2076	42	103	1527	55	88	81	102	123	136	32
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	2527	51	123	2695	97	113	252	212	112	196	46
Arrive On Green	0.03	0.49	0.49	0.07	0.53	0.53	0.06	0.13	0.13	0.06	0.13	0.13
Sat Flow, veh/h	1781	5149	104	1781	5055	182	1781	1870	1578	1781	1461	344
Grp Volume(v), veh/h	25	1371	747	103	1028	554	88	81	102	123	0	168
Grp Sat Flow(s),veh/h/ln	1781	1702	1849	1781	1702	1833	1781	1870	1578	1781	0	1805
Q Serve(g_s), s	1.2	29.0	29.1	4.8	17.0	17.0	4.1	3.3	5.0	5.3	0.0	7.5
Cycle Q Clear(g_c), s	1.2	29.0	29.1	4.8	17.0	17.0	4.1	3.3	5.0	5.3	0.0	7.5
Prop In Lane	1.00		0.06	1.00		0.10	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	47	1670	907	123	1815	977	113	252	212	112	0	242
V/C Ratio(X)	0.53	0.82	0.82	0.84	0.57	0.57	0.78	0.32	0.48	1.10	0.00	0.69
Avail Cap(c_a), veh/h	114	1809	982	123	1825	982	123	745	629	112	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.5	18.3	18.3	38.8	13.2	13.2	38.9	33.0	33.8	39.5	0.0	34.8
Incr Delay (d2), s/veh	3.5	3.0	5.4	36.3	0.4	0.8	22.5	0.7	1.7	114.0	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	10.0	11.6	3.2	5.4	5.9	2.4	1.5	1.9	5.9	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	21.3	23.7	75.1	13.6	13.9	61.4	33.7	35.4	153.5	0.0	38.4
LnGrp LOS	D	C	C	E	B	B	E	C	D	F	A	D
Approach Vol, veh/h		2143			1685			271			291	
Approach Delay, s/veh		22.4			17.4			43.4			87.1	
Approach LOS		C			B			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	16.4	10.4	47.6	9.9	16.4	6.8	51.2
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2
Max Green Setting (Gmax), s	5.3	33.6	5.8	44.8	5.8	* 34	5.4	45.2
Max Q Clear Time (g_c+I1), s	7.3	7.0	6.8	31.1	6.1	9.5	3.2	19.0
Green Ext Time (p_c), s	0.0	0.7	0.0	10.3	0.0	1.0	0.0	11.4

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

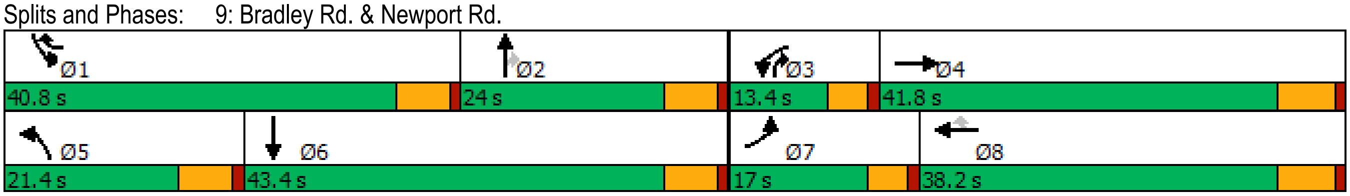
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	349	1624	248	1291	310	219	285	333	327	293
Future Volume (vph)	349	1624	248	1291	310	219	285	333	327	293
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	1	5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	1	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	40.8	15.8	15.8	9.6	40.8	40.8
Total Split (s)	17.0	41.8	13.4	38.2	40.8	21.4	24.0	13.4	40.8	43.4
Total Split (%)	14.2%	34.8%	11.2%	31.8%	34.0%	17.8%	20.0%	11.2%	34.0%	36.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	4.8	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	5.8	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	12.3	35.8	8.9	32.4	49.9	15.4	18.3	33.0	17.2	20.1
Actuated g/C Ratio	0.12	0.35	0.09	0.32	0.49	0.15	0.18	0.32	0.17	0.20
v/c Ratio	0.80	0.87	0.79	0.72	0.33	0.80	0.85	0.48	0.53	0.63
Control Delay	58.7	37.5	64.7	34.9	10.8	64.6	64.3	20.4	41.5	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	37.5	64.7	34.9	10.8	64.6	64.3	20.4	41.5	27.4
LOS	E	D	E	C	B	E	E	C	D	C
Approach Delay		41.1		34.9			46.9			32.6
Approach LOS		D		C			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.7	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 38.6	Intersection LOS: D
Intersection Capacity Utilization 89.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	1624	95	248	1291	310	219	285	333	327	293	269
Future Volume (veh/h)	349	1624	95	248	1291	310	219	285	333	327	293	269
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	367	1709	77	261	1359	172	231	300	249	344	308	138
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	1991	90	334	1928	738	267	371	463	455	433	189
Arrive On Green	0.12	0.36	0.36	0.09	0.33	0.33	0.14	0.19	0.19	0.12	0.17	0.17
Sat Flow, veh/h	3705	5541	249	3705	5836	1619	1853	1945	1648	3705	2553	1114
Grp Volume(v), veh/h	367	1200	586	261	1359	172	231	300	249	344	233	213
Grp Sat Flow(s),veh/h/ln	1853	1945	1900	1853	1945	1619	1853	1945	1648	1853	1945	1722
Q Serve(g_s), s	9.2	27.0	27.1	6.5	19.2	6.1	11.5	14.0	12.1	8.5	10.7	11.1
Cycle Q Clear(g_c), s	9.2	27.0	27.1	6.5	19.2	6.1	11.5	14.0	12.1	8.5	10.7	11.1
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.65
Lane Grp Cap(c), veh/h	441	1398	683	334	1928	738	267	371	463	455	330	292
V/C Ratio(X)	0.83	0.86	0.86	0.78	0.71	0.23	0.87	0.81	0.54	0.76	0.70	0.73
Avail Cap(c_a), veh/h	485	1463	715	345	1973	750	305	374	466	1370	773	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	28.1	28.1	42.1	27.7	15.8	39.6	36.6	28.8	40.1	37.1	37.2
Incr Delay (d2), s/veh	9.8	5.2	10.0	9.7	1.1	0.2	20.1	12.3	1.2	2.6	2.8	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	12.3	13.0	3.3	8.4	2.1	6.5	7.5	4.6	3.9	5.1	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	33.3	38.1	51.9	28.8	16.0	59.7	48.9	30.0	42.7	39.8	40.7
LnGrp LOS	D	C	D	D	C	B	E	D	C	D	D	D
Approach Vol, veh/h		2153			1792			780			790	
Approach Delay, s/veh		37.5			30.9			46.1			41.3	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.4	23.9	13.1	40.2	19.4	21.9	15.9	37.5
Change Period (Y+Rc), s	5.8	5.8	4.6	6.2	5.8	5.8	4.6	6.2
Max Green Setting (Gmax), s	35.0	18.2	8.8	35.6	15.6	37.6	12.4	32.0
Max Q Clear Time (g_c+I1), s	10.5	16.0	8.5	29.1	13.5	13.1	11.2	21.2
Green Ext Time (p_c), s	1.1	0.6	0.0	4.9	0.1	2.4	0.1	6.5

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

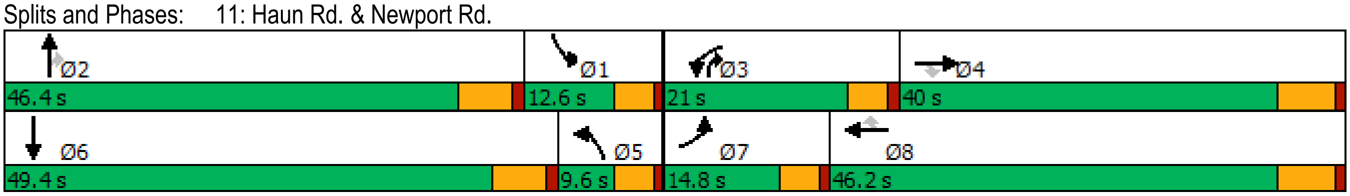
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	272	1992	203	765	1666	453	259	78	726	136	45
Future Volume (vph)	272	1992	203	765	1666	453	259	78	726	136	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	14.8	40.0	40.0	21.0	46.2	46.2	9.6	46.4	21.0	12.6	49.4
Total Split (%)	12.3%	33.3%	33.3%	17.5%	38.5%	38.5%	8.0%	38.7%	17.5%	10.5%	41.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.2	34.3	34.3	16.6	40.7	40.7	6.8	10.9	26.3	14.6	15.2
Actuated g/C Ratio	0.11	0.36	0.36	0.18	0.43	0.43	0.07	0.12	0.28	0.15	0.16
v/c Ratio	0.71	1.00	0.27	1.15	0.70	0.46	1.02	0.37	0.66	0.25	0.21
Control Delay	52.7	50.8	8.8	120.9	25.4	6.2	104.4	45.9	20.3	37.0	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	50.8	8.8	120.9	25.4	6.2	104.4	45.9	20.3	37.0	12.6
LOS	D	D	A	F	C	A	F	D	C	D	B
Approach Delay		47.6			47.7			42.7			24.8
Approach LOS		D			D			D			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 94.4
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 45.9   Intersection LOS: D
Intersection Capacity Utilization 95.4%   ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	1992	203	765	1666	453	259	78	726	136	45	92
Future Volume (veh/h)	272	1992	203	765	1666	453	259	78	726	136	45	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	296	2165	147	832	1811	313	282	85	747	148	49	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	370	2088	590	643	2519	701	500	359	1181	221	212	179
Arrive On Green	0.10	0.36	0.36	0.17	0.43	0.43	0.14	0.18	0.18	0.06	0.11	0.11
Sat Flow, veh/h	3705	5836	1648	3705	5836	1625	3705	1945	3297	3705	1945	1639
Grp Volume(v), veh/h	296	2165	147	832	1811	313	282	85	747	148	49	60
Grp Sat Flow(s),veh/h/ln	1853	1945	1648	1853	1945	1625	1853	1945	1648	1853	1945	1639
Q Serve(g_s), s	7.4	33.8	3.6	16.4	24.2	8.9	6.7	3.5	11.7	3.7	2.2	3.2
Cycle Q Clear(g_c), s	7.4	33.8	3.6	16.4	24.2	8.9	6.7	3.5	11.7	3.7	2.2	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	2088	590	643	2519	701	500	359	1181	221	212	179
V/C Ratio(X)	0.80	1.04	0.25	1.29	0.72	0.45	0.56	0.24	0.63	0.67	0.23	0.34
Avail Cap(c_a), veh/h	400	2088	590	643	2519	701	500	836	1990	314	898	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	30.3	8.0	39.0	22.1	9.1	38.2	32.8	11.7	43.5	38.5	38.9
Incr Delay (d2), s/veh	9.2	29.9	0.2	143.3	1.0	0.4	0.9	0.3	0.6	1.3	0.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	19.9	2.0	19.8	10.0	4.1	3.0	1.6	3.6	1.7	1.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	60.3	8.2	182.3	23.1	9.5	39.1	33.2	12.2	44.8	39.0	40.0
LnGrp LOS	D	F	A	F	C	A	D	C	B	D	D	D
Approach Vol, veh/h		2608			2956			1114			257	
Approach Delay, s/veh		56.2			66.5			20.6			42.6	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	23.2	21.0	40.0	17.4	16.1	14.0	47.0
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	8.0	40.6	16.4	33.8	5.0	43.6	10.2	40.0
Max Q Clear Time (g_c+I1), s	5.7	13.7	18.4	35.8	8.7	5.2	9.4	26.2
Green Ext Time (p_c), s	0.1	3.7	0.0	0.0	0.0	0.6	0.1	10.1

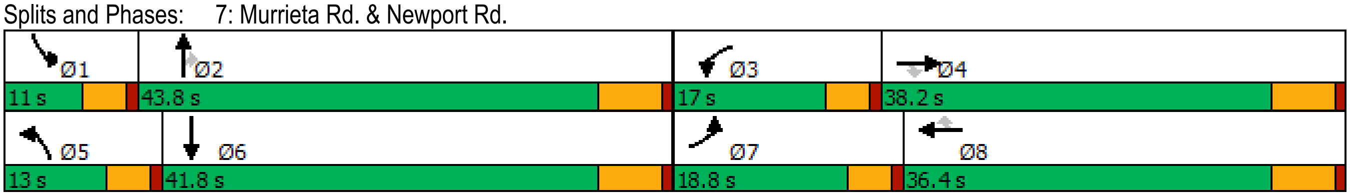
Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	219	1241	119	345	1205	353	207	278	197	298	141
Future Volume (vph)	219	1241	119	345	1205	353	207	278	197	298	141
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2
Total Split (s)	18.8	38.2	38.2	17.0	36.4	36.4	13.0	43.8	43.8	11.0	41.8
Total Split (%)	17.1%	34.7%	34.7%	15.5%	33.1%	33.1%	11.8%	39.8%	39.8%	10.0%	38.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	14.4	30.5	30.5	12.6	28.6	28.6	8.5	16.5	16.5	6.5	14.5
Actuated g/C Ratio	0.16	0.35	0.35	0.14	0.33	0.33	0.10	0.19	0.19	0.07	0.16
v/c Ratio	0.77	0.72	0.19	1.39	0.74	0.48	1.23	0.43	0.44	1.20	0.32
Control Delay	56.4	28.8	5.6	231.5	30.6	5.4	182.4	33.1	7.4	160.8	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	28.8	5.6	231.5	30.6	5.4	182.4	33.1	7.4	160.8	25.1
LOS	E	C	A	F	C	A	F	C	A	F	C
Approach Delay		30.8			62.4			70.9			107.9
Approach LOS		C			E			E			F

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 87.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.39
Intersection Signal Delay: 57.7 Intersection LOS: E
Intersection Capacity Utilization 80.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	1241	119	345	1205	353	207	278	197	298	141	49
Future Volume (veh/h)	219	1241	119	345	1205	353	207	278	197	298	141	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	1266	70	352	1230	266	211	284	136	304	144	15
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	1683	515	284	1744	535	193	534	234	285	405	42
Arrive On Green	0.15	0.33	0.33	0.16	0.34	0.34	0.11	0.15	0.15	0.08	0.12	0.12
Sat Flow, veh/h	1781	5106	1563	1781	5106	1565	1781	3554	1559	3456	3252	335
Grp Volume(v), veh/h	223	1266	70	352	1230	266	211	284	136	304	78	81
Grp Sat Flow(s),veh/h/ln	1781	1702	1563	1781	1702	1565	1781	1777	1559	1728	1777	1810
Q Serve(g_s), s	9.5	17.2	2.4	12.4	16.2	10.5	8.4	5.7	6.3	6.4	3.1	3.2
Cycle Q Clear(g_c), s	9.5	17.2	2.4	12.4	16.2	10.5	8.4	5.7	6.3	6.4	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	263	1683	515	284	1744	535	193	534	234	285	221	225
V/C Ratio(X)	0.85	0.75	0.14	1.24	0.71	0.50	1.10	0.53	0.58	1.07	0.35	0.36
Avail Cap(c_a), veh/h	326	2104	644	284	1985	608	193	1720	755	285	814	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	23.2	18.3	32.6	22.2	20.3	34.6	30.5	30.7	35.6	31.1	31.2
Incr Delay (d2), s/veh	13.4	1.2	0.1	133.5	1.0	0.7	92.6	0.8	2.3	72.4	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	6.0	0.8	15.4	5.8	3.4	8.3	2.3	2.3	5.3	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	24.4	18.4	166.1	23.2	21.0	127.3	31.3	33.0	108.0	32.1	32.1
LnGrp LOS	D	C	B	F	C	C	F	C	C	F	C	C
Approach Vol, veh/h		1559			1848			631			463	
Approach Delay, s/veh		27.2			50.1			63.8			82.0	
Approach LOS		C			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	17.9	17.0	31.8	13.0	15.9	16.1	32.7
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	6.4	37.6	12.4	32.0	8.4	35.6	14.2	30.2
Max Q Clear Time (g_c+I1), s	8.4	8.3	14.4	19.2	10.4	5.2	11.5	18.2
Green Ext Time (p_c), s	0.0	2.1	0.0	6.4	0.0	0.7	0.1	6.6

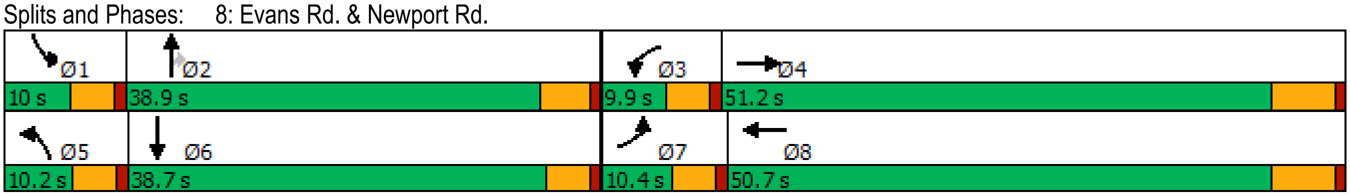
Intersection Summary	
HCM 6th Ctrl Delay	47.3
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	37	1762	64	2001	37	22	53	93	22
Future Volume (vph)	37	1762	64	2001	37	22	53	93	22
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.4	51.2	9.9	50.7	10.2	38.9	38.9	10.0	38.7
Total Split (%)	9.5%	46.5%	9.0%	46.1%	9.3%	35.4%	35.4%	9.1%	35.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.7	45.6	5.5	47.4	5.6	13.9	13.9	5.6	16.3
Actuated g/C Ratio	0.07	0.54	0.06	0.56	0.07	0.16	0.16	0.07	0.19
v/c Ratio	0.33	0.69	0.59	0.78	0.34	0.08	0.15	0.84	0.17
Control Delay	51.1	19.6	65.5	21.2	51.7	31.5	0.9	95.9	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	19.6	65.5	21.2	51.7	31.5	0.9	95.9	16.9
LOS	D	B	E	C	D	C	A	F	B
Approach Delay		20.2		22.5		23.6			65.9
Approach LOS		C		C		C			E

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 84.9
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 23.1 — Intersection LOS: C
Intersection Capacity Utilization 70.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Evans Rd. & Newport Rd.



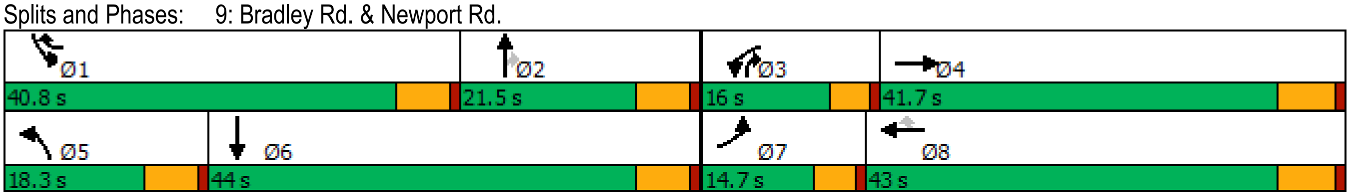
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1762	34	64	2001	100	37	22	53	93	22	35
Future Volume (veh/h)	37	1762	34	64	2001	100	37	22	53	93	22	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	1855	31	67	2106	100	39	23	29	98	23	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	2692	45	89	2663	126	66	164	139	125	97	110
Arrive On Green	0.04	0.52	0.52	0.05	0.53	0.53	0.04	0.09	0.09	0.07	0.12	0.12
Sat Flow, veh/h	1781	5170	86	1781	4990	236	1781	1870	1585	1781	799	904
Grp Volume(v), veh/h	39	1221	665	67	1433	773	39	23	29	98	0	49
Grp Sat Flow(s),veh/h/ln	1781	1702	1853	1781	1702	1822	1781	1870	1585	1781	0	1703
Q Serve(g_s), s	1.6	20.3	20.3	2.8	25.6	25.9	1.6	0.9	1.3	4.1	0.0	2.0
Cycle Q Clear(g_c), s	1.6	20.3	20.3	2.8	25.6	25.9	1.6	0.9	1.3	4.1	0.0	2.0
Prop In Lane	1.00		0.05	1.00		0.13	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	66	1772	964	89	1816	972	66	164	139	125	0	206
V/C Ratio(X)	0.59	0.69	0.69	0.75	0.79	0.79	0.59	0.14	0.21	0.78	0.00	0.24
Avail Cap(c_a), veh/h	137	2027	1103	125	2005	1073	132	837	709	127	0	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	13.5	13.5	35.4	14.2	14.3	35.8	31.8	32.0	34.6	0.0	30.0
Incr Delay (d2), s/veh	3.1	0.8	1.5	8.4	2.0	3.9	3.1	0.4	0.7	24.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.2	6.9	1.3	7.9	9.1	0.7	0.4	0.5	2.6	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	14.4	15.1	43.9	16.2	18.1	39.0	32.2	32.8	58.5	0.0	30.6
LnGrp LOS	D	B	B	D	B	B	D	C	C	E	A	C
Approach Vol, veh/h		1925			2273			91			147	
Approach Delay, s/veh		15.1			17.7			35.3			49.2	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	11.7	8.4	45.5	7.4	14.3	7.4	46.5				
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2				
Max Green Setting (Gmax), s	5.4	33.8	5.3	45.0	5.6	* 34	5.8	44.5				
Max Q Clear Time (g_c+I1), s	6.1	3.3	4.8	22.3	3.6	4.0	3.6	27.9				
Green Ext Time (p_c), s	0.0	0.2	0.0	13.2	0.0	0.2	0.0	12.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	305	1655	346	1809	434	136	254	235	490	321
Future Volume (vph)	305	1655	346	1809	434	136	254	235	490	321
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	1	5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	1	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	40.8	15.8	15.8	9.6	40.8	40.8
Total Split (s)	14.7	41.7	16.0	43.0	40.8	18.3	21.5	16.0	40.8	44.0
Total Split (%)	12.3%	34.8%	13.3%	35.8%	34.0%	15.3%	17.9%	13.3%	34.0%	36.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	4.8	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	5.8	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.1	35.6	11.4	36.9	59.2	11.8	15.8	33.0	21.9	25.8
Actuated g/C Ratio	0.09	0.33	0.11	0.34	0.55	0.11	0.15	0.31	0.20	0.24
v/c Ratio	0.89	0.95	0.90	0.94	0.41	0.68	0.92	0.35	0.66	0.58
Control Delay	75.7	47.5	73.3	44.6	10.2	64.3	83.6	15.5	43.2	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.7	47.5	73.3	44.6	10.2	64.3	83.6	15.5	43.2	26.5
LOS	E	D	E	D	B	E	F	B	D	C
Approach Delay		51.6		42.6			53.8			34.0
Approach LOS		D		D			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.2	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 45.2	Intersection LOS: D
Intersection Capacity Utilization 90.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



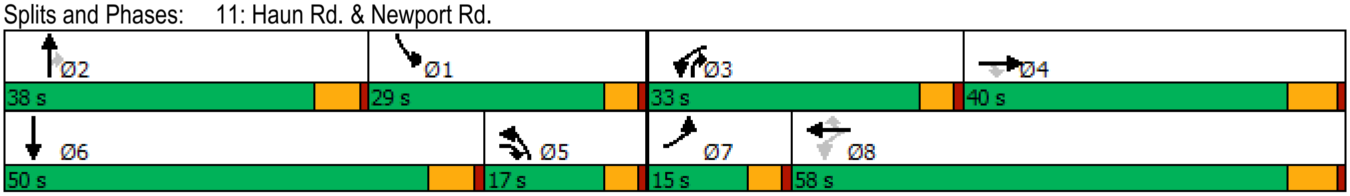
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	1655	126	346	1809	434	136	254	235	490	321	278
Future Volume (veh/h)	305	1655	126	346	1809	434	136	254	235	490	321	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	324	1761	120	368	1924	276	145	270	173	521	341	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1864	127	412	2088	866	178	298	436	637	604	243
Arrive On Green	0.10	0.35	0.35	0.11	0.36	0.36	0.10	0.15	0.15	0.17	0.23	0.23
Sat Flow, veh/h	3705	5402	367	3705	5836	1627	1853	1945	1648	3705	2636	1062
Grp Volume(v), veh/h	324	1267	614	368	1924	276	145	270	173	521	250	231
Grp Sat Flow(s),veh/h/ln	1853	1945	1879	1853	1945	1627	1853	1945	1648	1853	1945	1752
Q Serve(g_s), s	8.9	32.4	32.6	10.0	32.4	9.8	7.9	14.0	8.8	13.9	11.7	12.0
Cycle Q Clear(g_c), s	8.9	32.4	32.6	10.0	32.4	9.8	7.9	14.0	8.8	13.9	11.7	12.0
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		0.61
Lane Grp Cap(c), veh/h	365	1343	648	412	2088	866	178	298	436	637	446	402
V/C Ratio(X)	0.89	0.94	0.95	0.89	0.92	0.32	0.82	0.91	0.40	0.82	0.56	0.58
Avail Cap(c_a), veh/h	365	1347	651	412	2095	867	226	298	436	1265	725	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	32.6	32.6	45.0	31.5	13.6	45.4	42.7	31.0	40.9	34.9	35.1
Incr Delay (d2), s/veh	21.6	13.4	22.9	20.5	7.3	0.2	16.4	29.4	0.6	2.7	1.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	16.4	17.7	5.6	15.3	3.2	4.3	8.9	3.4	6.3	5.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	46.0	55.6	65.5	38.8	13.9	61.8	72.1	31.6	43.5	36.1	36.4
LnGrp LOS	E	D	E	E	D	B	E	E	C	D	D	D
Approach Vol, veh/h		2205			2568			588			1002	
Approach Delay, s/veh		51.8			40.0			57.6			40.0	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.4	21.5	16.0	41.6	15.6	29.3	14.7	42.9				
Change Period (Y+Rc), s	5.8	5.8	4.6	6.2	5.8	5.8	4.6	6.2				
Max Green Setting (Gmax), s	35.0	15.7	11.4	35.5	12.5	38.2	10.1	36.8				
Max Q Clear Time (g_c+I1), s	15.9	16.0	12.0	34.6	9.9	14.0	10.9	34.4				
Green Ext Time (p_c), s	1.7	0.0	0.0	0.8	0.1	2.6	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			45.7									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	224	1681	379	1195	1904	284	536	91	1275	431	143
Future Volume (vph)	224	1681	379	1195	1904	284	536	91	1275	431	143
Turn Type	Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	5	3	8		5	2	3	1	6
Permitted Phases			4	8		8			2		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	9.6	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	15.0	40.0	17.0	33.0	58.0	58.0	17.0	38.0	33.0	29.0	50.0
Total Split (%)	10.7%	28.6%	12.1%	23.6%	41.4%	41.4%	12.1%	27.1%	23.6%	20.7%	35.7%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.1	34.1	49.7	69.0	52.7	52.7	14.0	11.8	41.6	19.8	17.6
Actuated g/C Ratio	0.09	0.29	0.43	0.60	0.46	0.46	0.12	0.10	0.36	0.17	0.15
v/c Ratio	0.69	0.99	0.38	1.06	0.72	0.29	1.19	0.47	0.85	0.67	0.58
Control Delay	64.1	59.7	3.6	77.3	29.1	8.3	147.8	58.8	28.2	49.8	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	59.7	3.6	77.3	29.5	8.3	147.8	58.8	28.2	49.8	30.4
LOS	E	E	A	E	C	A	F	E	C	D	C
Approach Delay		50.8			44.6			63.4			40.2
Approach LOS		D			D			E			D

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 115.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 50.1 Intersection LOS: D
Intersection Capacity Utilization 112.4% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	1681	379	1195	1904	284	536	91	1275	431	143	277
Future Volume (veh/h)	224	1681	379	1195	1904	284	536	91	1275	431	143	277
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	231	1733	236	1232	1963	87	553	94	736	444	147	217
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	1692	674	1026	2653	749	455	282	1282	517	315	267
Arrive On Green	0.08	0.29	0.29	0.24	0.45	0.45	0.12	0.15	0.15	0.14	0.16	0.16
Sat Flow, veh/h	3705	5836	1627	3705	5836	1648	3705	1945	3297	3705	1945	1648
Grp Volume(v), veh/h	231	1733	236	1232	1963	87	553	94	736	444	147	217
Grp Sat Flow(s),veh/h/ln	1853	1945	1627	1853	1945	1648	1853	1945	1648	1853	1945	1648
Q Serve(g_s), s	7.1	33.8	5.6	28.4	32.2	2.0	14.3	5.1	11.5	13.7	8.0	14.8
Cycle Q Clear(g_c), s	7.1	33.8	5.6	28.4	32.2	2.0	14.3	5.1	11.5	13.7	8.0	14.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	292	1692	674	1026	2653	749	455	282	1282	517	315	267
V/C Ratio(X)	0.79	1.02	0.35	1.20	0.74	0.12	1.22	0.33	0.57	0.86	0.47	0.81
Avail Cap(c_a), veh/h	330	1692	674	1026	2653	749	455	537	1714	775	737	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	41.4	8.5	36.1	26.1	6.0	51.1	44.8	11.2	49.0	44.3	47.2
Incr Delay (d2), s/veh	9.4	28.3	0.3	99.8	1.1	0.1	115.8	0.7	0.4	4.3	1.1	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	19.7	2.2	28.1	14.0	1.2	13.8	2.4	3.5	6.4	3.8	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.2	69.7	8.8	135.9	27.3	6.1	167.0	45.4	11.6	53.3	45.4	53.1
LnGrp LOS	E	F	A	F	C	A	F	D	B	D	D	D
Approach Vol, veh/h		2200			3282			1383			808	
Approach Delay, s/veh		62.4			67.5			76.0			51.8	
Approach LOS		E			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.9	22.7	33.0	40.0	18.9	24.7	13.8	59.2
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	24.4	32.2	28.4	33.8	12.4	44.2	10.4	51.8
Max Q Clear Time (g_c+I1), s	15.7	13.5	30.4	35.8	16.3	16.8	9.1	34.2
Green Ext Time (p_c), s	0.6	3.4	0.0	0.0	0.0	2.1	0.1	12.3

Intersection Summary	
HCM 6th Ctrl Delay	65.9
HCM 6th LOS	E

APPENDIX 6.8:

OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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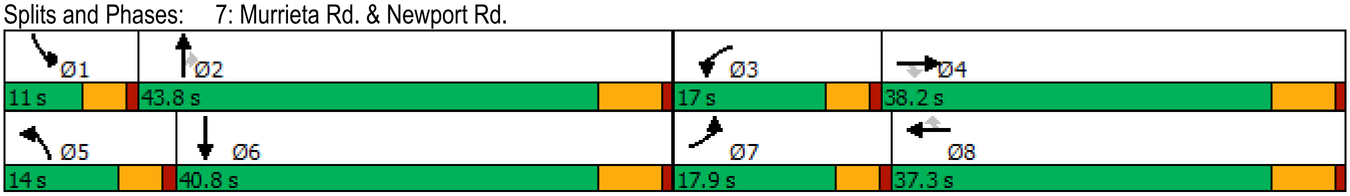
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	147	1336	172	231	1000	221	164	291	266	225	90
Future Volume (vph)	147	1336	172	231	1000	221	164	291	266	225	90
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2
Total Split (s)	17.9	38.2	38.2	17.0	37.3	37.3	14.0	43.8	43.8	11.0	40.8
Total Split (%)	16.3%	34.7%	34.7%	15.5%	33.9%	33.9%	12.7%	39.8%	39.8%	10.0%	37.1%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	11.4	31.4	31.4	12.5	32.5	32.5	9.5	17.6	17.6	6.5	14.5
Actuated g/C Ratio	0.13	0.35	0.35	0.14	0.36	0.36	0.11	0.20	0.20	0.07	0.16
v/c Ratio	0.69	0.79	0.27	0.98	0.57	0.32	0.93	0.44	0.53	0.96	0.26
Control Delay	55.7	31.3	5.2	95.6	26.1	5.0	92.6	33.3	8.0	92.6	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	31.3	5.2	95.6	26.1	5.0	92.6	33.3	8.0	92.6	21.2
LOS	E	C	A	F	C	A	F	C	A	F	C
Approach Delay		30.8			33.9			37.4			65.1
Approach LOS		C			C			D			E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 89.8	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 36.0	Intersection LOS: D
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Murrieta Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1336	172	231	1000	221	164	291	266	225	90	51
Future Volume (veh/h)	147	1336	172	231	1000	221	164	291	266	225	90	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1406	98	243	1053	171	173	306	178	237	95	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	1761	539	268	1984	616	204	583	260	269	353	93
Arrive On Green	0.11	0.34	0.34	0.15	0.39	0.39	0.11	0.16	0.16	0.08	0.13	0.13
Sat Flow, veh/h	1781	5106	1562	1781	5106	1585	1781	3554	1585	3456	2769	728
Grp Volume(v), veh/h	155	1406	98	243	1053	171	173	306	178	237	60	61
Grp Sat Flow(s),veh/h/ln	1781	1702	1562	1781	1702	1585	1781	1777	1585	1728	1777	1719
Q Serve(g_s), s	7.0	20.5	3.6	11.0	13.1	6.1	7.8	6.5	8.7	5.6	2.5	2.7
Cycle Q Clear(g_c), s	7.0	20.5	3.6	11.0	13.1	6.1	7.8	6.5	8.7	5.6	2.5	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.42
Lane Grp Cap(c), veh/h	191	1761	539	268	1984	616	204	583	260	269	227	219
V/C Ratio(X)	0.81	0.80	0.18	0.91	0.53	0.28	0.85	0.53	0.68	0.88	0.26	0.28
Avail Cap(c_a), veh/h	288	1986	608	268	1984	616	204	1624	724	269	747	723
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	24.4	18.8	34.4	19.4	17.2	35.7	31.5	32.4	37.6	32.4	32.5
Incr Delay (d2), s/veh	5.8	2.1	0.2	30.7	0.3	0.2	26.2	0.7	3.2	26.2	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	7.4	1.2	6.7	4.5	2.0	4.6	2.6	3.3	3.2	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	26.5	19.0	65.1	19.6	17.5	61.9	32.2	35.6	63.7	33.0	33.2
LnGrp LOS	D	C	B	E	B	B	E	C	D	E	C	C
Approach Vol, veh/h		1659			1467			657			358	
Approach Delay, s/veh		27.5			26.9			40.9			53.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	19.7	17.0	34.6	14.0	16.7	13.4	38.2
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	6.4	37.6	12.4	32.0	9.4	34.6	13.3	31.1
Max Q Clear Time (g_c+I1), s	7.6	10.7	13.0	22.5	9.8	4.7	9.0	15.1
Green Ext Time (p_c), s	0.0	2.3	0.0	5.8	0.0	0.5	0.1	6.5

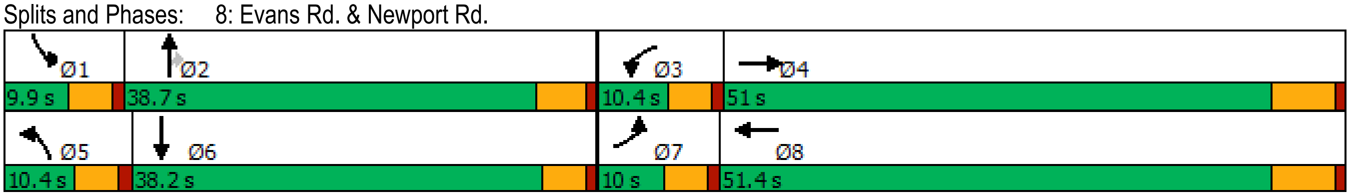
Intersection Summary			
HCM 6th Ctrl Delay			31.7
HCM 6th LOS			C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	22	1867	91	1358	77	71	132	108	120
Future Volume (vph)	22	1867	91	1358	77	71	132	108	120
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.0	51.0	10.4	51.4	10.4	38.7	38.7	9.9	38.2
Total Split (%)	9.1%	46.4%	9.5%	46.7%	9.5%	35.2%	35.2%	9.0%	34.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	45.1	5.8	51.9	5.8	16.0	16.0	5.3	16.0
Actuated g/C Ratio	0.06	0.48	0.06	0.56	0.06	0.17	0.17	0.06	0.17
v/c Ratio	0.25	0.88	0.93	0.57	0.79	0.25	0.41	1.22	0.55
Control Delay	51.5	28.2	116.0	16.6	89.9	34.0	12.1	198.8	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	28.2	116.0	16.6	89.9	34.0	12.1	198.8	37.9
LOS	D	C	F	B	F	C	B	F	D
Approach Delay		28.5		22.6		39.1			104.3
Approach LOS		C		C		D			F

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 93
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 32.0 Intersection LOS: C
Intersection Capacity Utilization 74.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 8: Evans Rd. & Newport Rd.



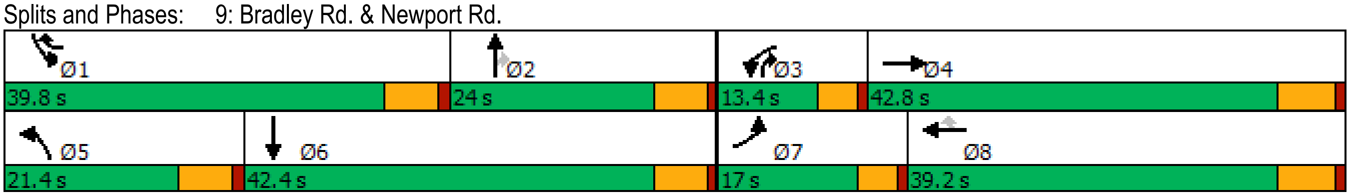
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1867	45	91	1358	55	77	71	132	108	120	34
Future Volume (veh/h)	22	1867	45	91	1358	55	77	71	132	108	120	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	2122	42	103	1543	55	88	81	102	123	136	32
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	2543	50	121	2709	97	113	252	213	111	196	46
Arrive On Green	0.03	0.49	0.49	0.07	0.54	0.54	0.06	0.13	0.13	0.06	0.13	0.13
Sat Flow, veh/h	1781	5152	102	1781	5057	180	1781	1870	1578	1781	1461	344
Grp Volume(v), veh/h	25	1401	763	103	1039	559	88	81	102	123	0	168
Grp Sat Flow(s),veh/h/ln	1781	1702	1849	1781	1702	1833	1781	1870	1578	1781	0	1805
Q Serve(g_s), s	1.2	30.1	30.2	4.9	17.3	17.3	4.1	3.3	5.1	5.3	0.0	7.6
Cycle Q Clear(g_c), s	1.2	30.1	30.2	4.9	17.3	17.3	4.1	3.3	5.1	5.3	0.0	7.6
Prop In Lane	1.00		0.06	1.00		0.10	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	47	1680	913	121	1823	982	113	252	213	111	0	242
V/C Ratio(X)	0.54	0.83	0.84	0.85	0.57	0.57	0.78	0.32	0.48	1.11	0.00	0.70
Avail Cap(c_a), veh/h	113	1793	974	121	1823	982	121	739	623	111	0	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	18.5	18.6	39.2	13.2	13.2	39.3	33.3	34.0	39.9	0.0	35.2
Incr Delay (d2), s/veh	3.5	3.4	6.1	38.2	0.4	0.8	22.9	0.7	1.7	117.4	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	10.5	12.2	3.3	5.5	6.0	2.5	1.5	1.9	5.9	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	21.9	24.7	77.4	13.6	14.0	62.2	34.0	35.7	157.3	0.0	38.7
LnGrp LOS	D	C	C	E	B	B	E	C	D	F	A	D
Approach Vol, veh/h		2189			1701			271			291	
Approach Delay, s/veh		23.1			17.6			43.8			88.9	
Approach LOS		C			B			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	16.6	10.4	48.2	10.0	16.5	6.8	51.8				
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2				
Max Green Setting (Gmax), s	5.3	33.6	5.8	44.8	5.8	* 34	5.4	45.2				
Max Q Clear Time (g_c+I1), s	7.3	7.1	6.9	32.2	6.1	9.6	3.2	19.3				
Green Ext Time (p_c), s	0.0	0.7	0.0	9.7	0.0	1.0	0.0	11.5				
Intersection Summary												
HCM 6th Ctrl Delay			26.6									
HCM 6th LOS			C									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	349	1664	248	1305	310	219	285	333	327	293
Future Volume (vph)	349	1664	248	1305	310	219	285	333	327	293
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	1	5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	1	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	39.8	15.8	15.8	9.6	39.8	39.8
Total Split (s)	17.0	42.8	13.4	39.2	39.8	21.4	24.0	13.4	39.8	42.4
Total Split (%)	14.2%	35.7%	11.2%	32.7%	33.2%	17.8%	20.0%	11.2%	33.2%	35.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	4.8	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	5.8	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	12.3	36.8	8.9	33.3	50.9	15.4	18.8	33.5	17.2	20.6
Actuated g/C Ratio	0.12	0.35	0.09	0.32	0.49	0.15	0.18	0.32	0.17	0.20
v/c Ratio	0.81	0.88	0.80	0.72	0.33	0.81	0.84	0.48	0.54	0.70
Control Delay	60.4	38.1	66.6	34.9	10.9	66.8	63.3	20.6	42.5	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	38.1	66.6	34.9	10.9	66.8	63.3	20.6	42.5	29.9
LOS	E	D	E	C	B	E	E	C	D	C
Approach Delay		41.8		35.1			47.2			34.5
Approach LOS		D		D			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 104.2	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 39.3	Intersection LOS: D
Intersection Capacity Utilization 89.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	1664	95	248	1305	310	219	285	333	327	293	269
Future Volume (veh/h)	349	1664	95	248	1305	310	219	285	333	327	293	269
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	367	1752	77	261	1374	172	231	300	249	344	308	138
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	439	2019	89	332	1956	744	266	374	465	453	426	186
Arrive On Green	0.12	0.36	0.36	0.09	0.34	0.34	0.14	0.19	0.19	0.12	0.17	0.17
Sat Flow, veh/h	3705	5548	244	3705	5836	1620	1853	1945	1648	3705	2488	1088
Grp Volume(v), veh/h	367	1228	601	261	1374	172	231	300	249	344	227	219
Grp Sat Flow(s),veh/h/ln	1853	1945	1901	1853	1945	1620	1853	1945	1648	1853	1848	1728
Q Serve(g_s), s	9.4	28.4	28.4	6.7	19.8	6.2	11.8	14.2	12.4	8.7	11.2	11.6
Cycle Q Clear(g_c), s	9.4	28.4	28.4	6.7	19.8	6.2	11.8	14.2	12.4	8.7	11.2	11.6
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.63
Lane Grp Cap(c), veh/h	439	1416	692	332	1956	744	266	374	465	453	316	296
V/C Ratio(X)	0.84	0.87	0.87	0.79	0.70	0.23	0.87	0.80	0.54	0.76	0.72	0.74
Avail Cap(c_a), veh/h	475	1472	719	337	1991	754	299	374	465	1303	699	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	28.6	28.6	43.1	28.0	15.9	40.5	37.3	29.3	41.1	37.9	38.0
Incr Delay (d2), s/veh	10.6	5.6	10.8	10.5	1.1	0.2	21.2	11.8	1.2	2.7	3.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	13.1	13.8	3.4	8.6	2.1	6.7	7.7	4.7	4.0	5.1	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	34.2	39.4	53.6	29.1	16.1	61.7	49.0	30.5	43.7	40.9	41.7
LnGrp LOS	D	C	D	D	C	B	E	D	C	D	D	D
Approach Vol, veh/h		2196			1807			780			790	
Approach Delay, s/veh		38.6			31.4			46.9			42.4	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	24.4	13.3	41.4	19.7	22.3	16.1	38.6
Change Period (Y+Rc), s	5.8	5.8	4.6	6.2	5.8	5.8	4.6	6.2
Max Green Setting (Gmax), s	34.0	18.2	8.8	36.6	15.6	36.6	12.4	33.0
Max Q Clear Time (g_c+I1), s	10.7	16.2	8.7	30.4	13.8	13.6	11.4	21.8
Green Ext Time (p_c), s	1.1	0.5	0.0	4.8	0.1	2.4	0.1	6.7

Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

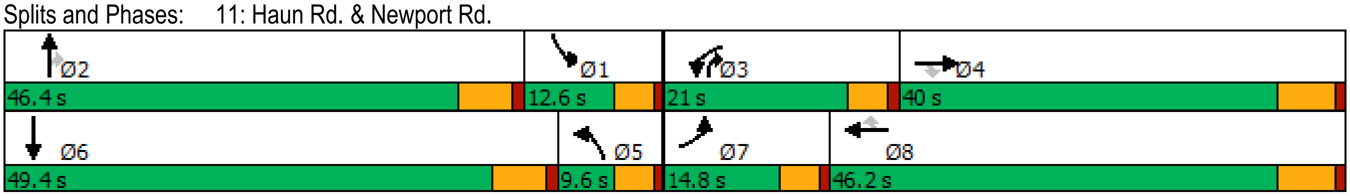
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	272	2028	207	765	1679	453	260	78	726	136	45
Future Volume (vph)	272	2028	207	765	1679	453	260	78	726	136	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	14.8	40.0	40.0	21.0	46.2	46.2	9.6	46.4	21.0	12.6	49.4
Total Split (%)	12.3%	33.3%	33.3%	17.5%	38.5%	38.5%	8.0%	38.7%	17.5%	10.5%	41.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.2	34.3	34.3	16.6	40.7	40.7	6.8	10.9	26.3	14.6	15.2
Actuated g/C Ratio	0.11	0.36	0.36	0.18	0.43	0.43	0.07	0.12	0.28	0.15	0.16
v/c Ratio	0.71	1.02	0.27	1.15	0.71	0.46	1.03	0.37	0.66	0.25	0.21
Control Delay	52.7	55.2	9.1	120.9	25.5	6.2	105.2	45.9	20.3	37.0	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	55.2	9.1	120.9	25.5	6.2	105.2	45.9	20.3	37.0	12.6
LOS	D	E	A	F	C	A	F	D	C	D	B
Approach Delay		51.1			47.7			42.9			24.8
Approach LOS		D			D			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.4	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 47.3	Intersection LOS: D
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	2028	207	765	1679	453	260	78	726	136	45	92
Future Volume (veh/h)	272	2028	207	765	1679	453	260	78	726	136	45	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	296	2204	151	832	1825	313	283	85	747	148	49	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	370	2088	590	643	2519	701	500	359	1181	221	212	179
Arrive On Green	0.10	0.36	0.36	0.17	0.43	0.43	0.14	0.18	0.18	0.06	0.11	0.11
Sat Flow, veh/h	3705	5836	1648	3705	5836	1625	3705	1945	3297	3705	1945	1639
Grp Volume(v), veh/h	296	2204	151	832	1825	313	283	85	747	148	49	60
Grp Sat Flow(s),veh/h/ln	1853	1945	1648	1853	1945	1625	1853	1945	1648	1853	1945	1639
Q Serve(g_s), s	7.4	33.8	3.7	16.4	24.4	8.9	6.8	3.5	11.7	3.7	2.2	3.2
Cycle Q Clear(g_c), s	7.4	33.8	3.7	16.4	24.4	8.9	6.8	3.5	11.7	3.7	2.2	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	2088	590	643	2519	701	500	359	1181	221	212	179
V/C Ratio(X)	0.80	1.06	0.26	1.29	0.72	0.45	0.57	0.24	0.63	0.67	0.23	0.34
Avail Cap(c_a), veh/h	400	2088	590	643	2519	701	500	836	1990	314	898	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	30.3	8.0	39.0	22.2	9.1	38.2	32.8	11.7	43.5	38.5	38.9
Incr Delay (d2), s/veh	9.2	36.2	0.2	143.3	1.1	0.4	0.9	0.3	0.6	1.3	0.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	21.2	2.1	19.8	10.1	4.1	3.0	1.6	3.6	1.7	1.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	66.5	8.2	182.3	23.3	9.5	39.2	33.2	12.2	44.8	39.0	40.0
LnGrp LOS	D	F	A	F	C	A	D	C	B	D	D	D
Approach Vol, veh/h		2651			2970			1115			257	
Approach Delay, s/veh		61.5			66.4			20.7			42.6	
Approach LOS		E			E			C			D	

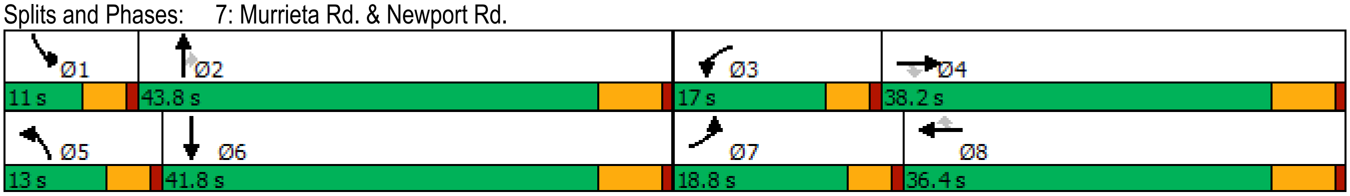
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	23.2	21.0	40.0	17.4	16.1	14.0	47.0
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	8.0	40.6	16.4	33.8	5.0	43.6	10.2	40.0
Max Q Clear Time (g_c+I1), s	5.7	13.7	18.4	35.8	8.8	5.2	9.4	26.4
Green Ext Time (p_c), s	0.1	3.7	0.0	0.0	0.0	0.6	0.1	10.0

Intersection Summary	
HCM 6th Ctrl Delay	56.3
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	219	1268	119	345	1250	353	207	278	197	298	141
Future Volume (vph)	219	1268	119	345	1250	353	207	278	197	298	141
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.2	38.2	9.6	36.2	36.2	9.6	42.2	42.2	9.6	40.2
Total Split (s)	18.8	38.2	38.2	17.0	36.4	36.4	13.0	43.8	43.8	11.0	41.8
Total Split (%)	17.1%	34.7%	34.7%	15.5%	33.1%	33.1%	11.8%	39.8%	39.8%	10.0%	38.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	14.4	31.4	31.4	12.5	29.6	29.6	8.5	16.5	16.5	6.5	14.5
Actuated g/C Ratio	0.16	0.35	0.35	0.14	0.33	0.33	0.10	0.19	0.19	0.07	0.16
v/c Ratio	0.78	0.72	0.19	1.41	0.75	0.47	1.25	0.43	0.44	1.22	0.33
Control Delay	57.6	28.8	5.5	238.2	30.9	5.3	187.5	33.4	7.4	166.0	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	28.8	5.5	238.2	30.9	5.3	187.5	33.4	7.4	166.0	25.3
LOS	E	C	A	F	C	A	F	C	A	F	C
Approach Delay		31.0			63.0			72.6			111.2
Approach LOS		C			E			E			F

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 88.8
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.41
Intersection Signal Delay: 58.5 Intersection LOS: E
Intersection Capacity Utilization 81.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Murrieta Rd. & Newport Rd.

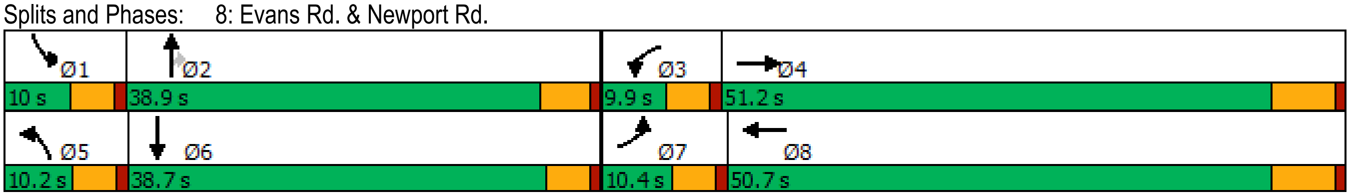


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	1268	119	345	1250	353	207	278	197	298	141	49
Future Volume (veh/h)	219	1268	119	345	1250	353	207	278	197	298	141	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	1294	70	352	1276	266	211	284	136	304	144	15
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	1704	521	283	1761	540	191	531	233	283	403	41
Arrive On Green	0.15	0.33	0.33	0.16	0.34	0.34	0.11	0.15	0.15	0.08	0.12	0.12
Sat Flow, veh/h	1781	5106	1563	1781	5106	1565	1781	3554	1559	3456	3252	335
Grp Volume(v), veh/h	223	1294	70	352	1276	266	211	284	136	304	78	81
Grp Sat Flow(s),veh/h/ln	1781	1702	1563	1781	1702	1565	1781	1777	1559	1728	1777	1810
Q Serve(g_s), s	9.5	17.7	2.4	12.4	17.1	10.5	8.4	5.8	6.4	6.4	3.1	3.2
Cycle Q Clear(g_c), s	9.5	17.7	2.4	12.4	17.1	10.5	8.4	5.8	6.4	6.4	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	263	1704	521	283	1761	540	191	531	233	283	220	224
V/C Ratio(X)	0.85	0.76	0.13	1.25	0.72	0.49	1.10	0.53	0.58	1.07	0.35	0.36
Avail Cap(c_a), veh/h	324	2090	640	283	1973	605	191	1710	750	283	809	824
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	23.2	18.2	32.9	22.4	20.2	34.9	30.7	31.0	35.9	31.4	31.4
Incr Delay (d2), s/veh	13.7	1.3	0.1	136.7	1.2	0.7	95.1	0.8	2.3	74.7	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	6.2	0.8	15.6	6.1	3.4	8.4	2.3	2.3	5.4	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	24.6	18.3	169.5	23.6	20.9	129.9	31.6	33.3	110.5	32.3	32.4
LnGrp LOS	D	C	B	F	C	C	F	C	C	F	C	C
Approach Vol, veh/h		1587			1894			631			463	
Approach Delay, s/veh		27.3			50.3			64.8			83.7	
Approach LOS		C			D			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	17.9	17.0	32.3	13.0	15.9	16.1	33.2				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	6.2	4.6	6.2				
Max Green Setting (Gmax), s	6.4	37.6	12.4	32.0	8.4	35.6	14.2	30.2				
Max Q Clear Time (g_c+I1), s	8.4	8.4	14.4	19.7	10.4	5.2	11.5	19.1				
Green Ext Time (p_c), s	0.0	2.1	0.0	6.4	0.0	0.7	0.1	6.5				
Intersection Summary												
HCM 6th Ctrl Delay			47.7									
HCM 6th LOS			D									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	37	1789	64	2046	37	22	53	93	22
Future Volume (vph)	37	1789	64	2046	37	22	53	93	22
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.2	9.6	24.2	9.6	38.1	38.1	9.6	37.6
Total Split (s)	10.4	51.2	9.9	50.7	10.2	38.9	38.9	10.0	38.7
Total Split (%)	9.5%	46.5%	9.0%	46.1%	9.3%	35.4%	35.4%	9.1%	35.2%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	4.1	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	5.1	5.1	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.7	45.8	5.5	47.6	5.6	13.9	13.9	5.6	16.3
Actuated g/C Ratio	0.07	0.54	0.06	0.56	0.07	0.16	0.16	0.07	0.19
v/c Ratio	0.33	0.70	0.59	0.80	0.34	0.08	0.15	0.84	0.17
Control Delay	51.1	19.8	65.7	21.6	51.8	31.5	0.9	96.3	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	19.8	65.7	21.6	51.8	31.5	0.9	96.3	16.9
LOS	D	B	E	C	D	C	A	F	B
Approach Delay		20.4		22.9		23.7			66.2
Approach LOS		C		C		C			E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 85.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 23.3	Intersection LOS: C
Intersection Capacity Utilization 71.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Evans Rd. & Newport Rd.



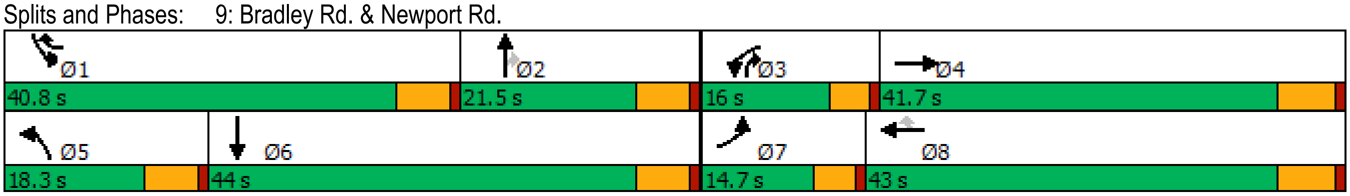
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1789	34	64	2046	100	37	22	53	93	22	35
Future Volume (veh/h)	37	1789	34	64	2046	100	37	22	53	93	22	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	1883	31	67	2154	100	39	23	29	98	23	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	2709	45	89	2682	124	66	164	139	125	97	109
Arrive On Green	0.04	0.52	0.52	0.05	0.54	0.54	0.04	0.09	0.09	0.07	0.12	0.12
Sat Flow, veh/h	1781	5172	85	1781	4996	231	1781	1870	1585	1781	799	904
Grp Volume(v), veh/h	39	1239	675	67	1464	790	39	23	29	98	0	49
Grp Sat Flow(s),veh/h/ln	1781	1702	1853	1781	1702	1823	1781	1870	1585	1781	0	1703
Q Serve(g_s), s	1.6	20.8	20.8	2.8	26.7	27.0	1.6	0.9	1.3	4.1	0.0	2.0
Cycle Q Clear(g_c), s	1.6	20.8	20.8	2.8	26.7	27.0	1.6	0.9	1.3	4.1	0.0	2.0
Prop In Lane	1.00		0.05	1.00		0.13	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	66	1783	971	89	1827	978	66	164	139	125	0	206
V/C Ratio(X)	0.59	0.69	0.70	0.76	0.80	0.81	0.59	0.14	0.21	0.78	0.00	0.24
Avail Cap(c_a), veh/h	135	2007	1093	124	1985	1063	131	828	702	126	0	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.2	13.6	13.6	35.8	14.4	14.5	36.2	32.2	32.4	34.9	0.0	30.4
Incr Delay (d2), s/veh	3.2	0.9	1.7	9.2	2.3	4.4	3.2	0.4	0.7	24.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.4	7.1	1.4	8.3	9.6	0.7	0.4	0.5	2.6	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.4	14.5	15.3	45.0	16.6	18.8	39.4	32.6	33.1	59.4	0.0	30.9
LnGrp LOS	D	B	B	D	B	B	D	C	C	E	A	C
Approach Vol, veh/h		1953			2321			91			147	
Approach Delay, s/veh		15.3			18.2			35.6			49.9	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	11.8	8.4	46.2	7.4	14.3	7.4	47.2				
Change Period (Y+Rc), s	4.6	5.1	4.6	6.2	4.6	* 5.1	4.6	6.2				
Max Green Setting (Gmax), s	5.4	33.8	5.3	45.0	5.6	* 34	5.8	44.5				
Max Q Clear Time (g_c+I1), s	6.1	3.3	4.8	22.8	3.6	4.0	3.6	29.0				
Green Ext Time (p_c), s	0.0	0.2	0.0	13.2	0.0	0.2	0.0	11.9				
Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	305	1682	346	1854	434	136	254	235	490	321
Future Volume (vph)	305	1682	346	1854	434	136	254	235	490	321
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	1	5	2	3	1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	1	5	2	3	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.2	9.6	31.2	40.8	15.8	15.8	9.6	40.8	40.8
Total Split (s)	14.7	41.7	16.0	43.0	40.8	18.3	21.5	16.0	40.8	44.0
Total Split (%)	12.3%	34.8%	13.3%	35.8%	34.0%	15.3%	17.9%	13.3%	34.0%	36.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	4.8	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	5.8	5.8	5.8	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.1	35.6	11.4	36.9	59.2	11.8	15.8	33.0	21.9	25.8
Actuated g/C Ratio	0.09	0.33	0.11	0.34	0.55	0.11	0.15	0.31	0.20	0.24
v/c Ratio	0.89	0.97	0.90	0.96	0.41	0.68	0.92	0.35	0.66	0.65
Control Delay	75.7	49.8	73.3	47.7	10.2	64.3	83.6	15.5	43.2	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.7	49.8	73.3	47.7	10.2	64.3	83.6	15.5	43.2	28.1
LOS	E	D	E	D	B	E	F	B	D	C
Approach Delay		53.5		44.9			53.8			34.9
Approach LOS		D		D			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.2	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 46.9	Intersection LOS: D
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Bradley Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	1682	126	346	1854	434	136	254	235	490	321	278
Future Volume (veh/h)	305	1682	126	346	1854	434	136	254	235	490	321	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	324	1789	120	368	1972	276	145	270	173	521	341	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1870	125	412	2091	866	178	298	435	637	588	237
Arrive On Green	0.10	0.35	0.35	0.11	0.36	0.36	0.10	0.15	0.15	0.17	0.23	0.23
Sat Flow, veh/h	3705	5408	362	3705	5836	1627	1853	1945	1648	3705	2569	1036
Grp Volume(v), veh/h	324	1286	623	368	1972	276	145	270	173	521	244	237
Grp Sat Flow(s),veh/h/ln	1853	1945	1880	1853	1945	1627	1853	1945	1648	1853	1848	1757
Q Serve(g_s), s	8.9	33.1	33.3	10.1	33.6	9.8	7.9	14.0	8.9	13.9	12.0	12.4
Cycle Q Clear(g_c), s	8.9	33.1	33.3	10.1	33.6	9.8	7.9	14.0	8.9	13.9	12.0	12.4
Prop In Lane	1.00		0.19	1.00		1.00	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h	365	1345	650	412	2091	866	178	298	435	637	423	402
V/C Ratio(X)	0.89	0.96	0.96	0.89	0.94	0.32	0.82	0.91	0.40	0.82	0.58	0.59
Avail Cap(c_a), veh/h	365	1346	650	412	2093	867	226	298	435	1264	688	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	32.8	32.9	45.0	31.9	13.6	45.5	42.7	31.0	40.9	35.1	35.3
Incr Delay (d2), s/veh	21.8	15.3	25.5	20.7	9.5	0.2	16.5	29.6	0.6	2.7	1.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	17.1	18.4	5.6	16.2	3.2	4.3	8.9	3.4	6.3	5.3	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	48.1	58.3	65.7	41.4	13.8	62.0	72.3	31.6	43.6	36.4	36.6
LnGrp LOS	E	D	E	E	D	B	E	E	C	D	D	D
Approach Vol, veh/h		2233			2616			588			1002	
Approach Delay, s/veh		53.8			41.9			57.8			40.2	
Approach LOS		D			D			E			D	

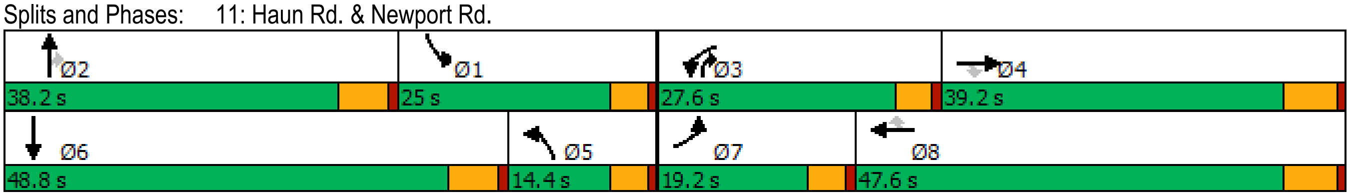
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.4	21.5	16.0	41.7	15.6	29.3	14.7	43.0
Change Period (Y+Rc), s	5.8	5.8	4.6	6.2	5.8	5.8	4.6	6.2
Max Green Setting (Gmax), s	35.0	15.7	11.4	35.5	12.5	38.2	10.1	36.8
Max Q Clear Time (g_c+I1), s	15.9	16.0	12.1	35.3	9.9	14.4	10.9	35.6
Green Ext Time (p_c), s	1.7	0.0	0.0	0.2	0.1	2.6	0.0	1.1

Intersection Summary			
HCM 6th Ctrl Delay			47.2
HCM 6th LOS			D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	224	1705	382	1195	1945	284	541	91	1275	431	143
Future Volume (vph)	224	1705	382	1195	1945	284	541	91	1275	431	143
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	39.2	39.2	9.6	32.2	32.2	9.6	15.8	9.6	9.6	47.8
Total Split (s)	19.2	39.2	39.2	27.6	47.6	47.6	14.4	38.2	27.6	25.0	48.8
Total Split (%)	14.8%	30.2%	30.2%	21.2%	36.6%	36.6%	11.1%	29.4%	21.2%	19.2%	37.5%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	4.8	3.6	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	5.8	4.6	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.8	33.0	33.0	23.2	45.4	45.4	14.4	11.5	35.9	18.8	15.9
Actuated g/C Ratio	0.10	0.31	0.31	0.22	0.42	0.42	0.13	0.11	0.33	0.17	0.15
v/c Ratio	0.60	0.72	0.45	1.40	0.60	0.30	1.09	0.45	0.91	0.66	0.54
Control Delay	54.5	36.5	5.2	219.9	26.8	5.6	109.8	54.1	32.2	46.2	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	36.5	5.2	219.9	26.8	5.6	109.8	54.1	32.2	46.2	18.1
LOS	D	D	A	F	C	A	F	D	C	D	B
Approach Delay		33.1			92.5			55.3			32.4
Approach LOS		C			F			E			C

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 107.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.40	
Intersection Signal Delay: 61.9	Intersection LOS: E
Intersection Capacity Utilization 104.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 11: Haun Rd. & Newport Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	1705	382	1195	1945	284	541	91	1275	431	143	277
Future Volume (veh/h)	224	1705	382	1195	1945	284	541	91	1275	431	143	277
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	231	1758	249	1232	2005	87	558	94	736	444	147	217
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	2264	474	803	3314	702	473	296	1216	521	321	272
Arrive On Green	0.08	0.29	0.29	0.22	0.43	0.43	0.13	0.15	0.15	0.14	0.16	0.16
Sat Flow, veh/h	3705	7781	1627	3705	7781	1648	3705	1945	3297	3705	1945	1648
Grp Volume(v), veh/h	231	1758	249	1232	2005	87	558	94	736	444	147	217
Grp Sat Flow(s),veh/h/ln	1853	1945	1627	1853	1945	1648	1853	1945	1648	1853	1945	1648
Q Serve(g_s), s	6.5	22.0	9.2	23.0	21.2	2.0	13.5	4.6	10.7	12.4	7.2	13.4
Cycle Q Clear(g_c), s	6.5	22.0	9.2	23.0	21.2	2.0	13.5	4.6	10.7	12.4	7.2	13.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	303	2264	474	803	3314	702	473	296	1216	521	321	272
V/C Ratio(X)	0.76	0.78	0.53	1.53	0.61	0.12	1.18	0.32	0.61	0.85	0.46	0.80
Avail Cap(c_a), veh/h	510	2419	506	803	3314	702	473	594	1721	712	788	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	34.5	14.4	41.6	23.6	6.2	46.3	40.1	10.6	44.5	40.0	42.6
Incr Delay (d2), s/veh	1.5	1.6	0.9	246.7	0.3	0.1	100.9	0.6	0.5	5.7	1.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	10.0	4.8	37.4	8.9	1.2	12.6	2.2	4.2	5.9	3.4	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	36.0	15.3	288.3	23.9	6.2	147.2	40.7	11.1	50.2	41.1	48.0
LnGrp LOS	D	D	B	F	C	A	F	D	B	D	D	D
Approach Vol, veh/h		2238			3324			1388			808	
Approach Delay, s/veh		35.1			121.4			67.8			47.9	
Approach LOS		D			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.5	21.9	27.6	37.1	18.1	23.3	13.3	51.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	6.2	4.6	5.8	4.6	6.2				
Max Green Setting (Gmax), s	20.4	32.4	23.0	33.0	9.8	43.0	14.6	41.4				
Max Q Clear Time (g_c+I1), s	14.4	12.7	25.0	24.0	15.5	15.4	8.5	23.2				
Green Ext Time (p_c), s	0.5	3.5	0.0	6.9	0.0	2.1	0.2	12.9				
Intersection Summary												
HCM 6th Ctrl Delay			79.3									
HCM 6th LOS			E									

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Appendix I Utilities Study

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QUAIL HILL

Plan of Service for Tract 37692 - Quail Hill 132

Prepared for:

Eastern Municipal Water District

Prepared by:

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June 2021

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Section 1 – Introduction

1.1 Purpose

The purpose of this report is to analyze and document the sewer and water facilities required to serve the proposed Tract 37692 - Quail Hill Project which consists of 132 residential lots. The water and sewer purveyor is Eastern Municipal Water District (EMWD) and the analysis was conducted based on EMWD design and planning criteria.

1.2 Land Uses

The proposed Tract 37692 - Quail Hill Project is located in the City of Menifee. It is generally bounded by a portion of previously approved TTM 32794 to the north, Goetz Road to the south and east, and Palm Drive to the west. The project is approximately 44.7 acres and consists of 132 single family residential units, tot lot park, basin and open space. See **Figure 1 – Location Map** and included exhibits for reference.

Figure 1: Location Map

Section 2 – Sanitary Sewer Facilities

2.1 Sewer Facilities

Per EMWD's request, two sewer alternatives have been analyzed. Both options are outlined below. See **Exhibit "A" – Sewer Service Area Exhibit**, **Exhibit "B-1" – Sewer System Exhibit - Option 1**, **Exhibit "B-2" – Sewer System Exhibit -Option 2** and **Appendix "A" – Quail Hill Sewer Study** for reference.

Both proposed sewer network options consist of 8-inch PVC sewer lines that will service Tract 37692 - Quail Hill Project 132 and ultimately discharge into the existing 15-inch trunk sewer line at the intersection of Goetz Road and Vista Way.

Option 1 proposes an 8-inch PVC line down Goetz Rd that connects to the existing 8-inch PVC sewer network at the intersection of Rocky Summit Drive and Turtle Rock Court. Approximately 160 linear feet of existing 8" PVC sewer within Rocky Summit Drive will need to be replaced and flattened to properly drain the proposed network into the existing system. See Exhibit "A" and Exhibit "B-1" for reference.

Option 2 proposes an 8-inch PVC line down Goetz Rd to Vista Way, extending the sewer line down Goetz Rd instead of connecting to the existing residential tract. See Exhibit "B-2" for reference.

The service area is consistent for both options and comprised of low-density residential developments, an existing Fire Station, an existing Circle K establishment, a school site, and a landscape area. Per EMWD's request, existing properties along Goetz Rd that currently operate on septic tanks have been included in this capacity study. A list of properties and their area/contribution are provided in Attachment 1.

This report analyzes the demand and capacity of the proposed network from within the proposed project site upstream to the main line connection downstream. Based on both the existing and proposed flow contributions, either proposed network will adequately service its tributary area as outlined by Eastern Municipal Water District (EMWD).

2.2 Sewer Generation Factors

The sewer generation rates utilized for this study are listed below and were obtained directly from the EMWD 2015 Sewer Master Plan supplemental criteria and sewer design criteria.

Proposed Medium-Density Residential	235 gpd/EDU
Fire Station (Public Facilities)	1,200 gpd/AC
Circle K (Commercial Retail)	1,200 gpd/AC
School Site	1,200 gpd/AC
Landscape Area (Part of School Site)	1,200 gpd/AC
Existing Low-Density Residential Properties	310 gpd/EDU

Allowance for infiltration is made by using peaking factors per EMWD Sewer Criteria

Table with Manning's coefficient of 0.015 is used for all pipes.

12-inch and smaller diameter pipes flowing not more than 50 percent full

15-inch and larger diameter pipes flowing not more than 70 percent full

Minimum Velocity is 2 fps

Maximum Velocity is 10 fps

2.3 Sanitary Sewer Capacity Analysis

The Option 1 sewer analysis consists of eight (8) key nodes and eight (8) reaches. Two (2) reaches are proposed 8-inch diameter pipes, three (3) reaches are existing 8-inch pipes, one (1) reach is an existing 10-inch pipe, one (1) reach is an existing 12-inch pipe, and one (1) reach is an existing 15-inch pipe. The final connection is to the existing 15-inch trunk line in Goetz Road. See Exhibit "A" and "B-1" for a graphical representation of the nodes and reaches being analyzed.

The Option 2 sewer analysis consists of six (6) key nodes and reaches. Three (3) reaches are proposed 8-inch diameter pipes, one (1) reach is an existing 10-inch pipe, one (1) reach is an existing 12-inch pipe, and one (1) reach is an existing 15-inch pipe. The final connection is to the existing 15-inch trunk line in Goetz Road. See Exhibit "B-2" for a graphical representation of the nodes and reaches being analyzed.

2.4 Sanitary Sewer System Conclusion

The proposed sewer network has been analyzed and sized adequately for the peak flows generated by the proposed and existing developments. There are no capacity impacts to the downstream facility at the Goetz Road trunk sewer as demonstrated by the flow calculations. See **Table 1 – Option 1 Sewer Study Summary** and **Table 2 – Option 2 Sewer Study Summary** for reference.

NODE	1	2	3	4	5	6	7	8
Diameter (inches)	8	8	8	8	8	10	12	15
Slope	0.0270	0.0040	0.0047	0.0040	0.0211	0.0705	0.0088	0.0047
k'=Qn/(d^2.67)s^0.5	0..0371	0.1131	0.1332	0.2190	0.2224	0.0671	0.1167	0.0880
D/d	0.19	0.34	0.37	0.48	0.49	0.26	0.34	0.30
Velocity=Q/Area (ft/s)	2.95	1.57	1.78	1.87	4.31	6.58	3.07	2.41

Table 1 – Option 1 Sewer Study Summary

NODE	1	2	3	6	7	8
Diameter (inches)	8	8	8	10	12	15
Slope	0.0270	0.0040	0.0180	0.0705	0.0088	0.0047
k'=Qn/(d^2.67)s^0.5	0..0371	0.1131	0.0533	0.0671	0.1167	0.0880
D/d	0.19	0.34	0.23	0.26	0.34	0.30
Velocity=Q/Area (ft/s)	2.95	1.57	2.68	6.58	3.07	2.41

Table 2 – Option 2 Sewer Study Summary

Section 3 – Potable Water Facilities

3.1 Existing Water Facilities

The Quail Hill project is located in EMWD's 1800 Pressure Zone and will be served by an existing 18-inch water facility in Goetz Road. The master plan development to the north (Cimmeran) is expanding the existing reservoir on Goetz Road.

3.2 Potable Water Demands

Potable water demands are taken from the 2015 EMWD Water Facilities Master Plan supplemental criteria and potable water design criteria.

Medium-Density Residential: 440 gpd/DU

Average Daily Demand = 440 gpd/DU x 132 DU = 58,080 gpd

The proposed fire flow requirement for the project is assumed to be 1,500 gpm for two hours in accordance with County of Riverside – Office of the Fire Marshal, Schedule A – Single Family Residential Developments.

3.3 Proposed Potable Water Facilities

The project will have two (2) points of connection to the existing 18-inch pipeline in Goetz Road along project frontage. The water improvements will consist of 8" PVC main lines. As requested by EMWD, a valve will be installed to separate the two POCs.

3.4 Hydraulic Analysis

The proposed water system to serve Tract 37692 - Quail Hill Project 132 was analyzed using WaterCAD modeling software with hydraulic boundary conditions being provided by EMWD. Two (2) nearby existing fire hydrants (see **Appendix "B" – Project Boundary Conditions**) were tested by the district. Based on these boundary conditions, a hydraulic model analysis was performed for the following scenarios:

1. Average Daily Demand
2. Peak Hour Demand
3. Maximum Day Demands Plus Fire Flow

See **Exhibit "C" – Peak Hour Demand** and **Appendix "C" -Water Pressure Analysis** for complete model results.

3.4.1 Average Daily Demand

Average Daily Demand = 440 gpd/DU = 0.31 gpm/DU (used in model)

3.4.2 Peak Hour Demand

The peak hour demand scenario utilizes the following information from the EMWD Water Facilities Master Plan for small pressure zones:

Peak Hour Peaking Factor PHPF=6.0

Peak Hour Demand = Average Daily Demand x PHPK
= 382,800 gpd
Peak Hour Demand per DU = 2,640 gpd/DU
= 1.83 gpm/DU (used in model)

3.4.3 Maximum Day Demands plus Fire Flow Analysis

The maximum day demand plus fire flow scenario utilized the following information from the EMWD Water Facilities Master Plan for small pressure zones:

Max Day Peaking Factor MDPF=3.0
Fire Flow Demand = 1,500 GPM for two hours (demand assigned to most remote hydrant)

Max Day plus Fire Flow Demand = Average Daily Demand x MDPF
+ Fire Flow
= 191,400 gpd + Fire Flow

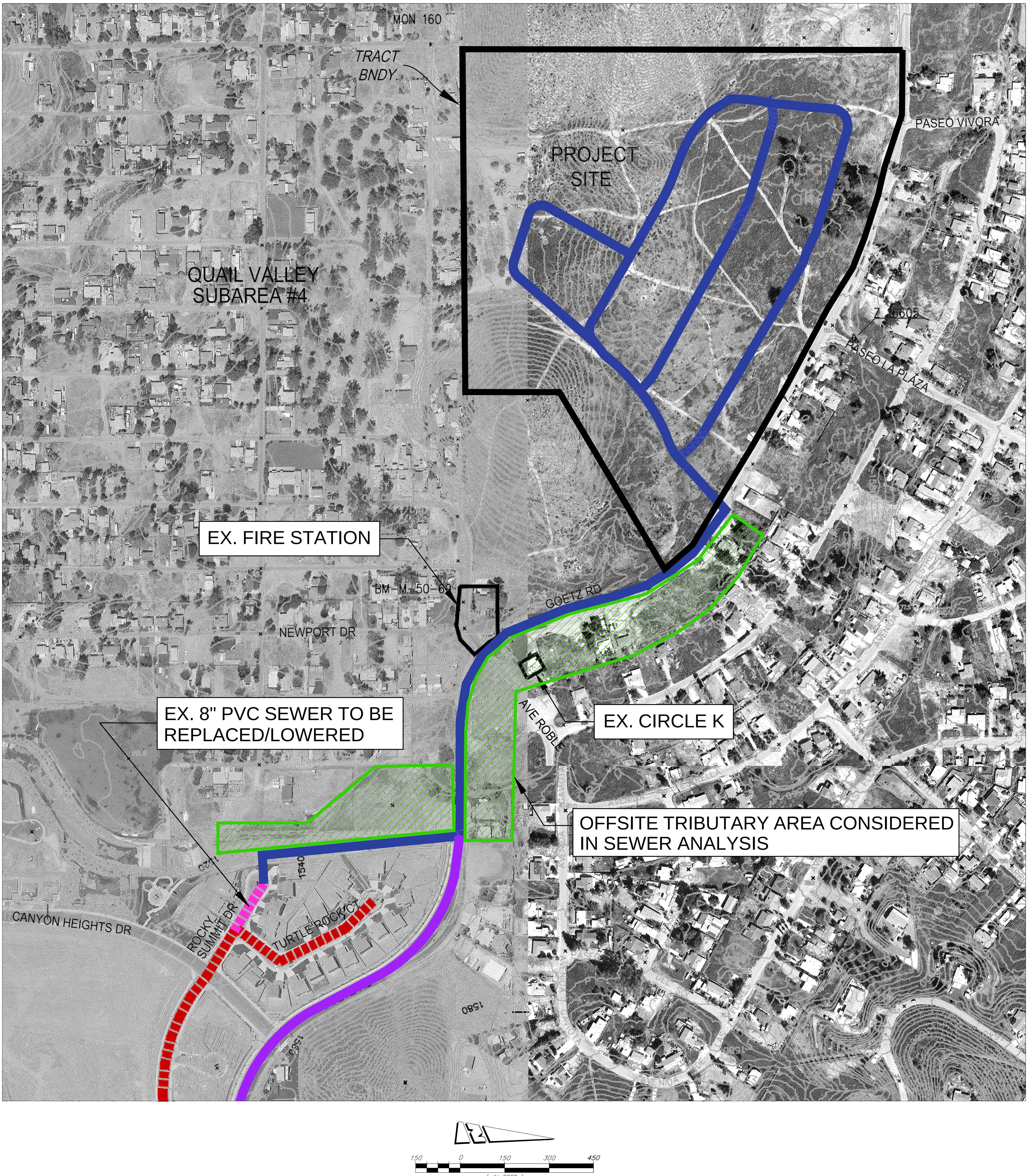
Max Day plus Fire Flow Demand per DU = 1,320 gpd/DU + Fire Flow
= 0.92 gpm/DU (used in model) + 1,500 gpm

3.5 Water System Conclusion

The proposed water system has been designed and sized to adequately serve the water demands of Tract 37692 - Quail Hill Project 132. Per EMWD guidelines, the Average Daily, Peak Hour and Max Day plus Fire Flow scenarios have been analyzed and it is concluded that proper pressure is maintained throughout the proposed network.

EXHIBIT "A"
SEWER SERVICE AREA EXHIBIT

(OFFSITE TRIBUTARY AREAS CONSIDERED IN ANALYSIS)
QUAIL HILL RESIDENTIAL DEVELOPMENT
CITY OF MENIFEE



LEGEND

- PROPOSED 8-INCH SEWER: OPTION - 1
- PROPOSED 8-INCH SEWER: OPTION - 2
- EXISTING 8-INCH SEWER
- EXISTING 8-INCH SEWER TO BE REPLACED/LOWERED
- OFFSITE TRIBUTARY AREA

PREPARED BY:

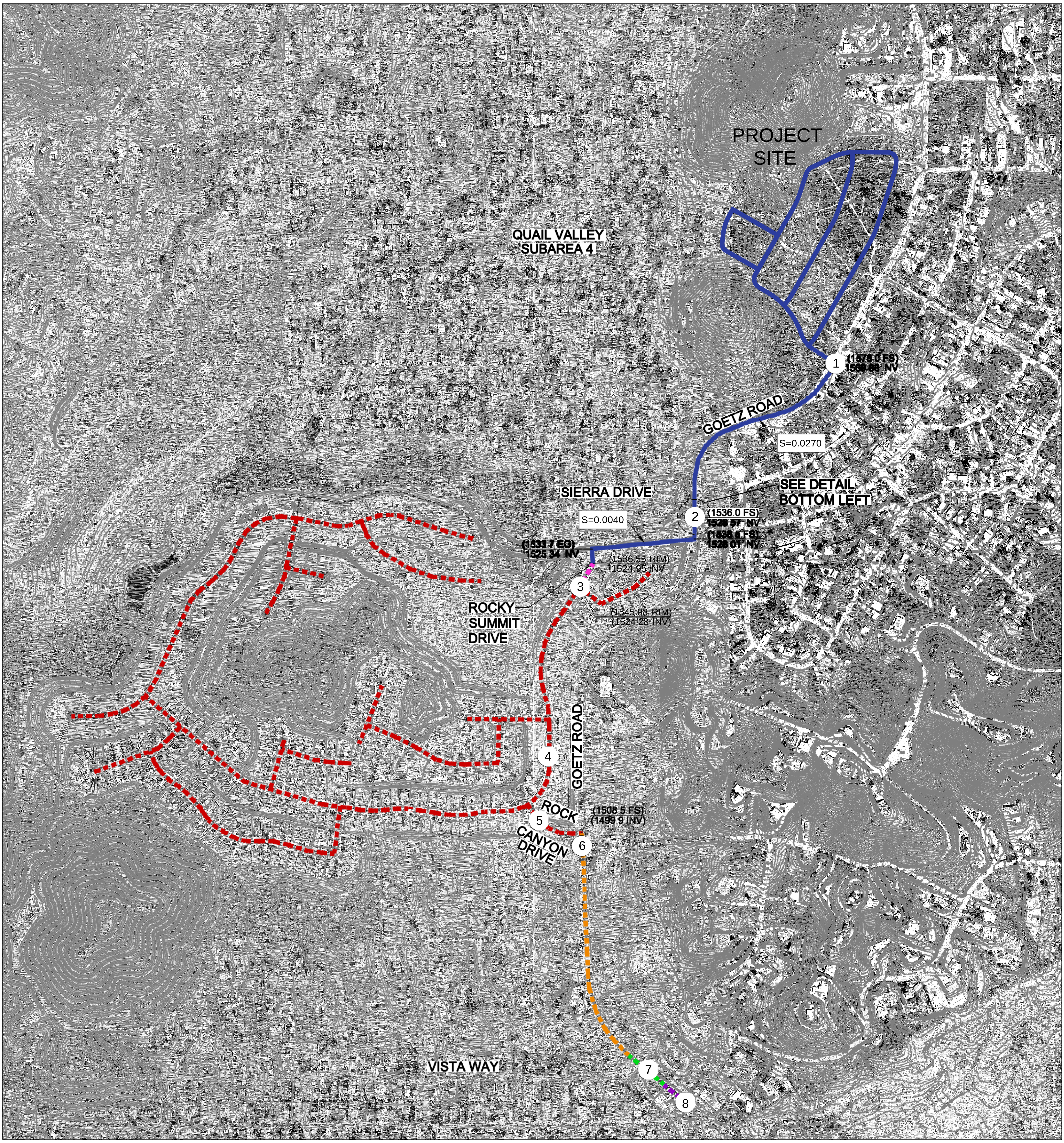
PROACTIVE ENGINEERING CONSULTANTS
WWW.PROACTIVEENGINEERING.NET
200 South Main Street, Corona, CA 92882 Suite 300
951•280•3300

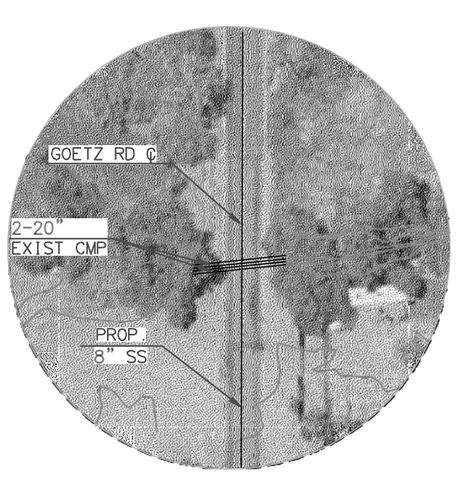
EASTERN MUNICIPAL WATER DISTRICT

PREPARED FOR:

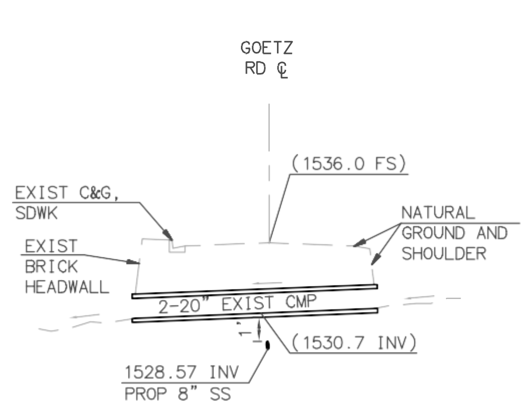
EASTERN MUNICIPAL WATER DISTRICT

EXHIBIT "B-1"
SEWER SYSTEM EXHIBIT - OPTION 1
QUAIL HILL RESIDENTIAL DEVELOPMENT
CITY OF MENIFEE
OPTION 1: CONNECTION ON ROCKY SUMMIT DRIVE





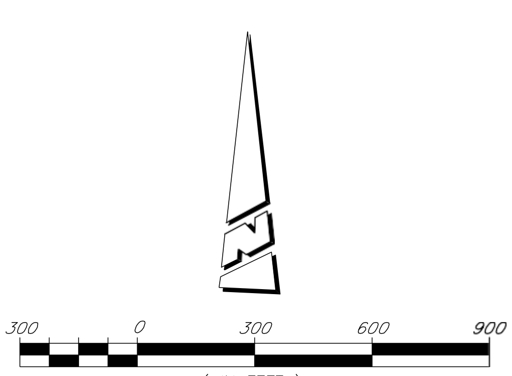
PLAN VIEW



SECTION

EXIST CMP CROSSING DETAIL

NTS



LEGEND

- PROPOSED 8-INCH SEWER
- EXISTING 8-INCH SEWER
- EXISTING 8-INCH SEWER TO BE REPLACED/FLATTENED
- EXISTING 10-INCH SEWER
- EXISTING 12-INCH SEWER
- EXISTING 15-INCH SEWER
- X ← NODE NUMBER

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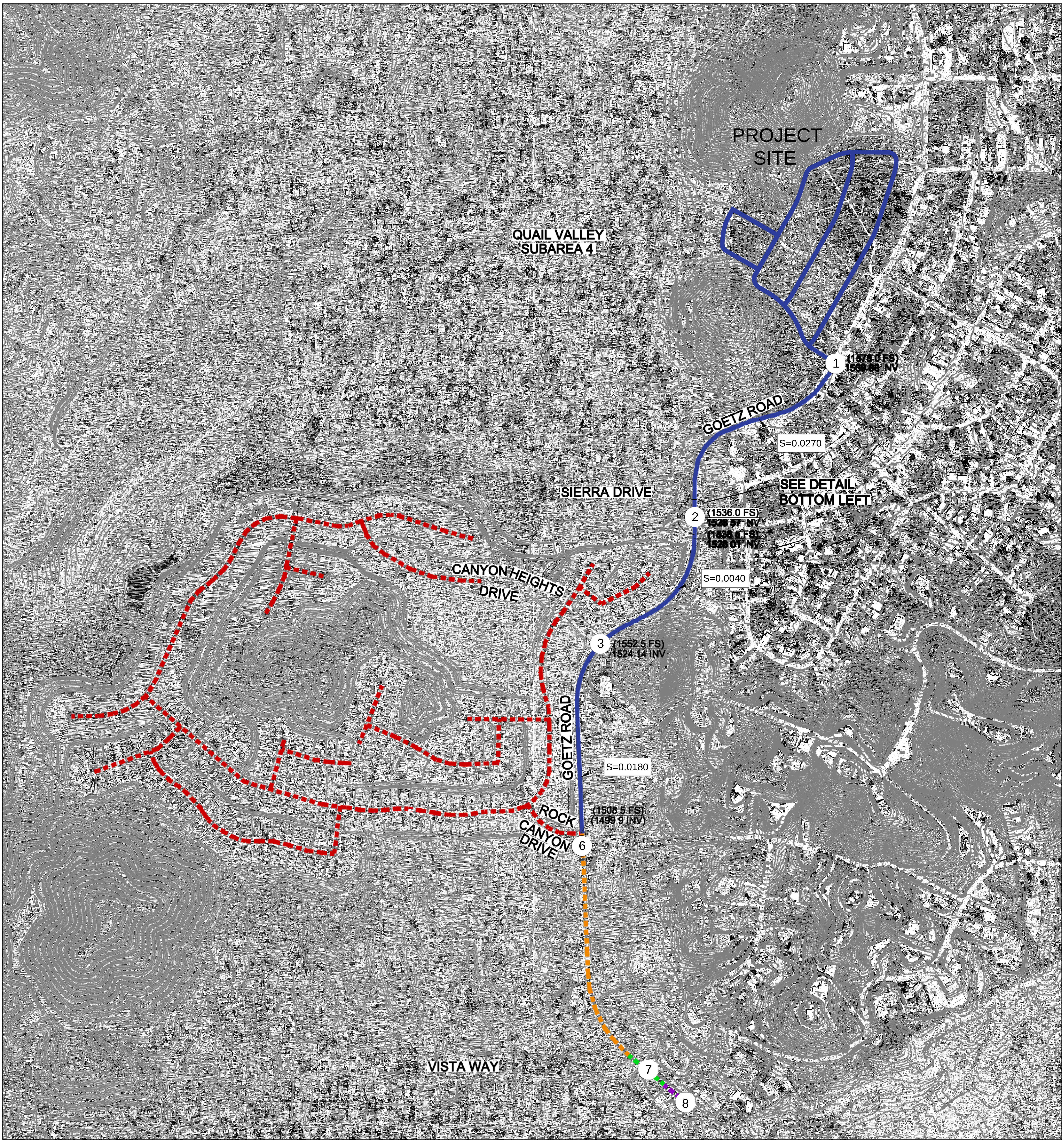
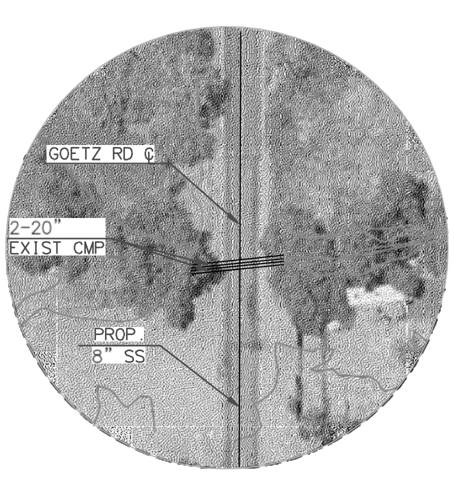
PREPARED FOR:

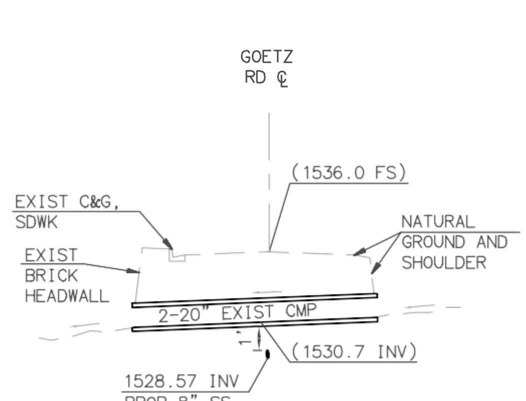
EASTERN MUNICIPAL WATER DISTRICT

EXHIBIT "B-2"
SEWER SYSTEM EXHIBIT - OPTION 2
QUAIL HILL RESIDENTIAL DEVELOPMENT
CITY OF MENIFEE
OPTION 2: CONNECTION ON GOETZ ROAD





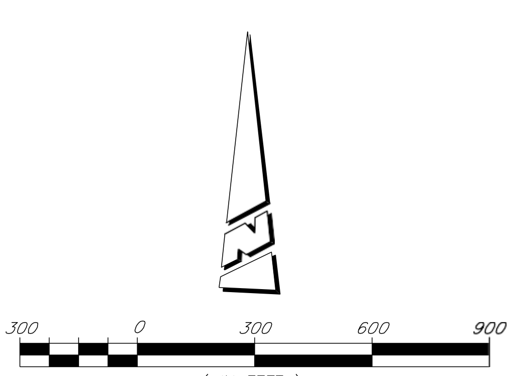
PLAN VIEW



SECTION

EXIST CMP CROSSING DETAIL

NTS



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PREPARED FOR:

EASTERN MUNICIPAL WATER DISTRICT

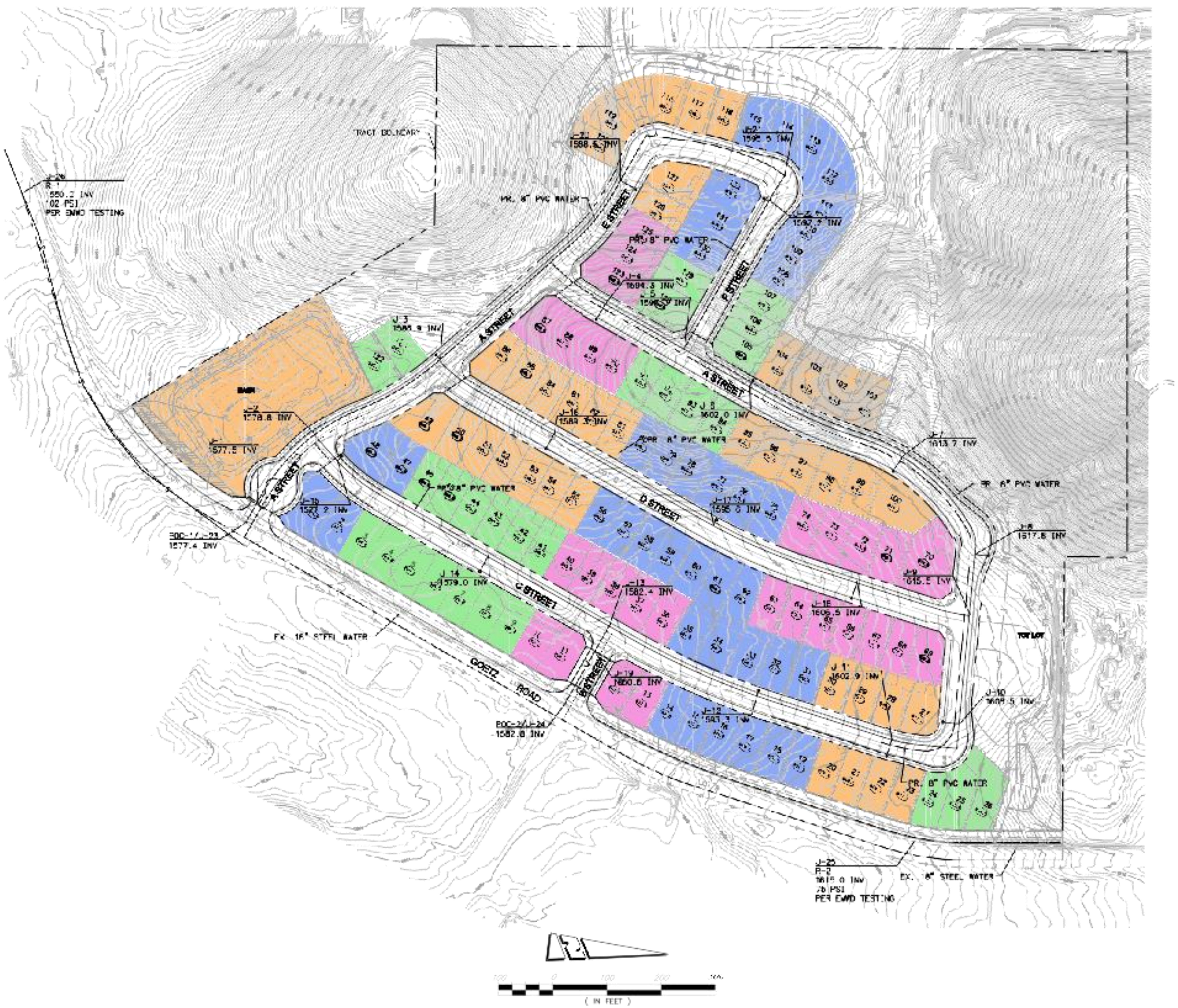
LEGEND

	PROPOSED 8-INCH SEWER
	EXISTING 8-INCH SEWER
	EXISTING 10-INCH SEWER
	EXISTING 12-INCH SEWER
	EXISTING 15-INCH SEWER
X	NODE NUMBER

EXHIBIT "C"
WATER SYSTEM EXHIBIT

QUAIL HILL RESIDENTIAL DEVELOPMENT
CITY OF MENIFEE

CONNECTIONS ON GOETZ ROAD



LEGEND

J-8
1627.8 INV
JUNCTION NUMBER
INVERT OF PIPE

PREPARED BY:

PROACTIVE ENGINEERING CONSULTANTS

200 South Main Street, Corona, CA 92882 Suite 300

PREPARED FOR:

EASTERN MUNICIPAL WATER DISTRICT

APRIL 2021

Appendix A – Quail Hill Sewer Study

Sewer Capacity Study
Quail Hill -
City of Menifee

Prepared for: Tract 37692 - Quail Hill 132

Prepared by: Proactive Engineering

Date: June 2021

Submitted to: Eastern Municipal Water District

200 South Main Street, Suite 300
Corona CA 92882
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Table of Contents

Exhibits and Attachments

A.) Objective

Proactive Engineering has been asked to prepare a Sewer Capacity Study for the developed condition of Tract 37692 - Quail Hill 132. Per EMWD's request, two sewer alternatives have been analyzed. Both options are outlined below. See **Exhibit "A" – Sewer Service Area Exhibit**, **Exhibit "B-1" – Sewer System Exhibit - Option 1**, **Exhibit "B-2" – Sewer System Exhibit - Option 2, Attachment 1 – Offsite Sewer Contribution, and Attachment 2 – Sewer Capacity Calculations** for reference.

1. Sewer Network

Both proposed sewer network options consist of 8-inch PVC sewer lines that will service Tract 37692 - Quail Hill 132 and ultimately discharge into the existing 15-inch trunk sewer line at the intersection of Goetz Road and Vista Way. Option 1 proposes an 8-inch PVC line down Goetz Rd that connects to the existing 8-inch PVC sewer network at the intersection of Rocky Summit Drive and Turtle Rock Court. Approximately 160 linear feet of existing 8" PVC sewer within Rocky Summit Drive will need to be replaced and flattened to properly drain the proposed network into the existing system. Option 2 proposes an 8-inch PVC line down Goetz Rd to Vista Way, extending the sewer line down Goetz Rd instead of connecting to the existing residential tract. See Exhibit "A", Exhibit "B-1", and Exhibit "B-2" for reference.

The service area is consistent for both options and comprised of low-density residential developments, an existing Fire Station, an existing Circle K establishment, a school site, and a landscape area. Per EMWD's request, existing properties along Goetz Rd that currently operate on septic tanks have been included in this capacity study. A list of properties and their area/contribution are provided in Attachment 1.

This report analyzes the demand and capacity of the proposed network from within the proposed project site upstream to the main line connection downstream. Based on both the existing and proposed flow contributions, either proposed network will adequately service its tributary area as outlined by Eastern Municipal Water District (EMWD).

B.) Analysis Criteria

The sewer generation rates utilized for this study are listed below and were obtained directly from the EMWD 2015 Sewer Master Plan supplemental criteria and sewer design criteria.

Proposed Medium-Density Residential	235 gpd/EDU
Fire Station (Public Facility)	1,200 gpd/AC
Circle K (Commercial Retail)	1,200 gpd/AC
School Site	1,200 gpd/AC
Landscape Area (Part of School Site)	1,200 gpd/AC
Existing Low-Density Residential Properties	310 gpd/EDU

Allowance for infiltration is made by using peaking factors per EMWD Sewer Criteria

Table with Manning's coefficient of 0.015 is used for all pipes.

12-inch and smaller diameter pipes flowing not more than 50 percent full

15-inch and larger diameter pipes flowing not more than 70 percent full

Minimum Velocity is 2 fps

Maximum Velocity is 10 fps

C.) Sewer Analysis

The Option 1 sewer analysis consists of eight (8) key nodes and eight (8) reaches. Two (2) reaches are proposed 8-inch diameter pipes, three (3) reaches are existing 8-inch pipes, one (1) reach is an existing 10-inch pipe, one (1) reach is an existing 12-inch pipe, and one (1) reach is an existing 15-inch pipe. The final connection is to the existing 15-inch trunk line in Goetz Road. See Exhibit "A" and "B-1" for a graphical representation of the nodes and reaches being analyzed.

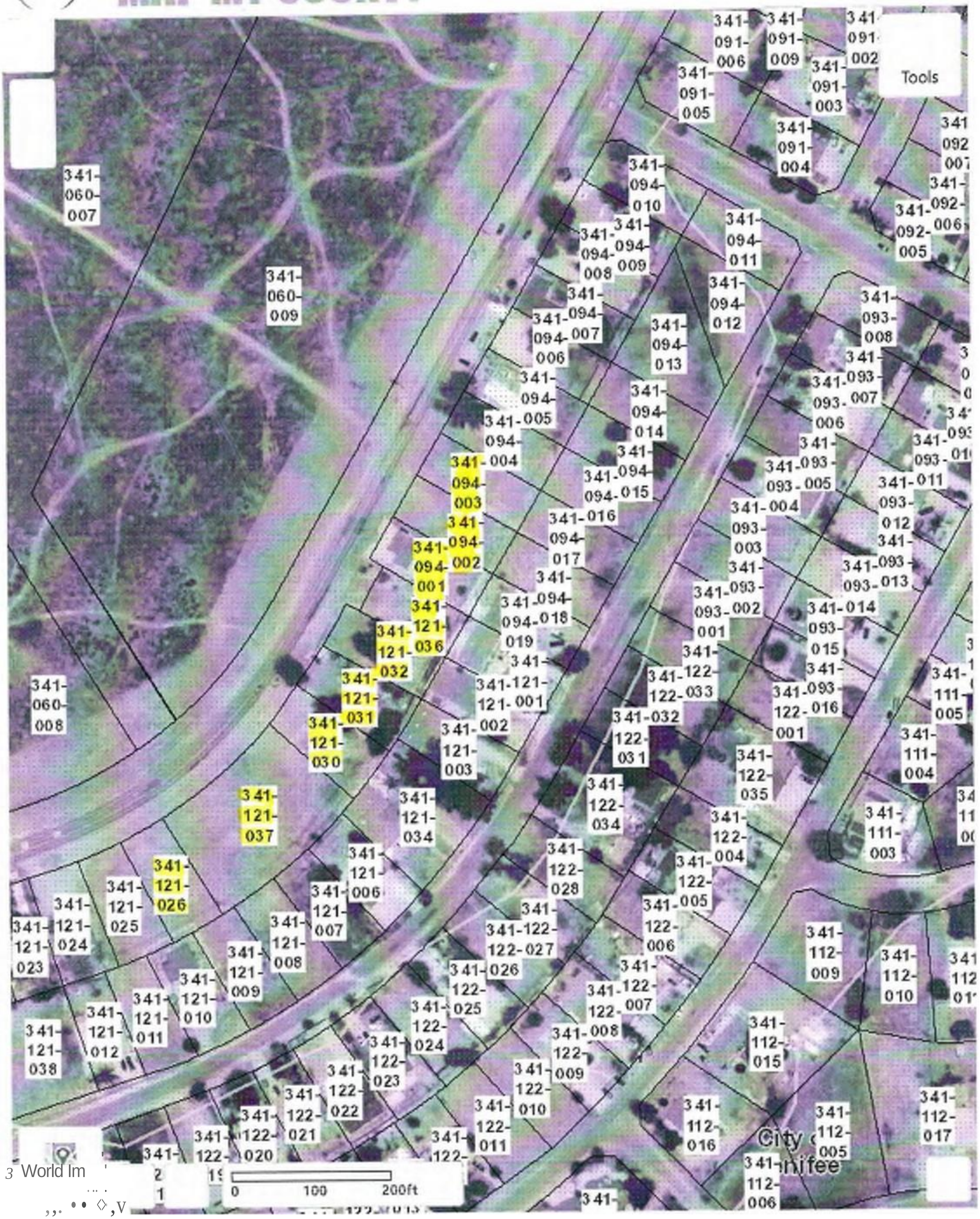
The Option 2 sewer analysis consists of six (6) key nodes and reaches. Three (3) reaches are proposed 8-inch diameter pipes, one (1) reach is an existing 10-inch pipe, one (1) reach is an existing 12-inch pipe, and one (1) reach is an existing 15-inch pipe. The final connection is to the existing 15-inch trunk line in Goetz Road. See Exhibit "A" and Exhibit "B-2" for a graphical representation of the nodes and reaches being analyzed.

D.) Conclusion

The proposed sewer network options have been analyzed and sized adequately for the peak flows generated by the proposed and existing developments. This study consists of current and currently proposed developments. There are no capacity impacts to the downstream facility at the Goetz Road trunk sewer as demonstrated by the flow calculations.

Attachment 1 – Offsite Sewer Contribution

MAP MY COUNTY



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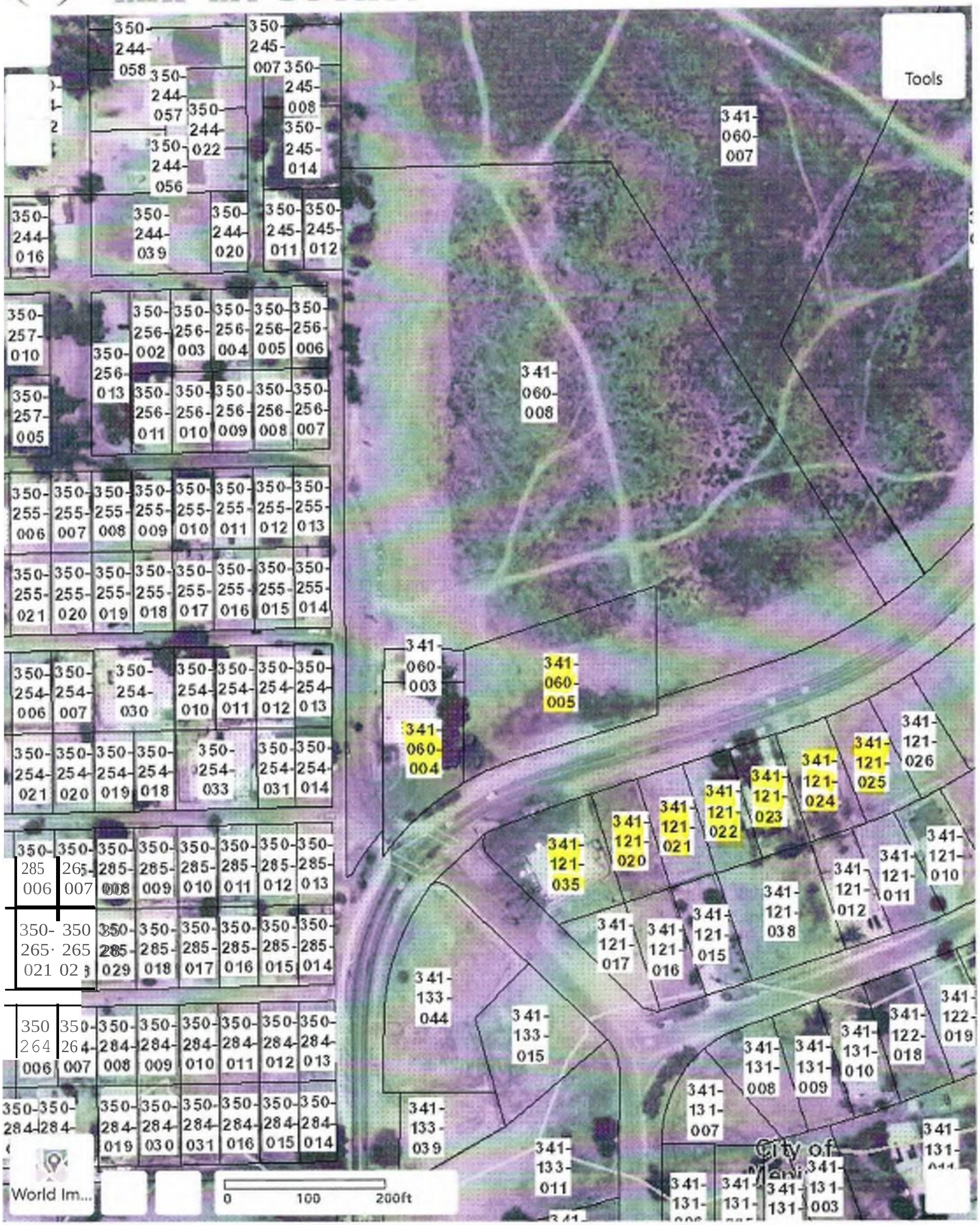
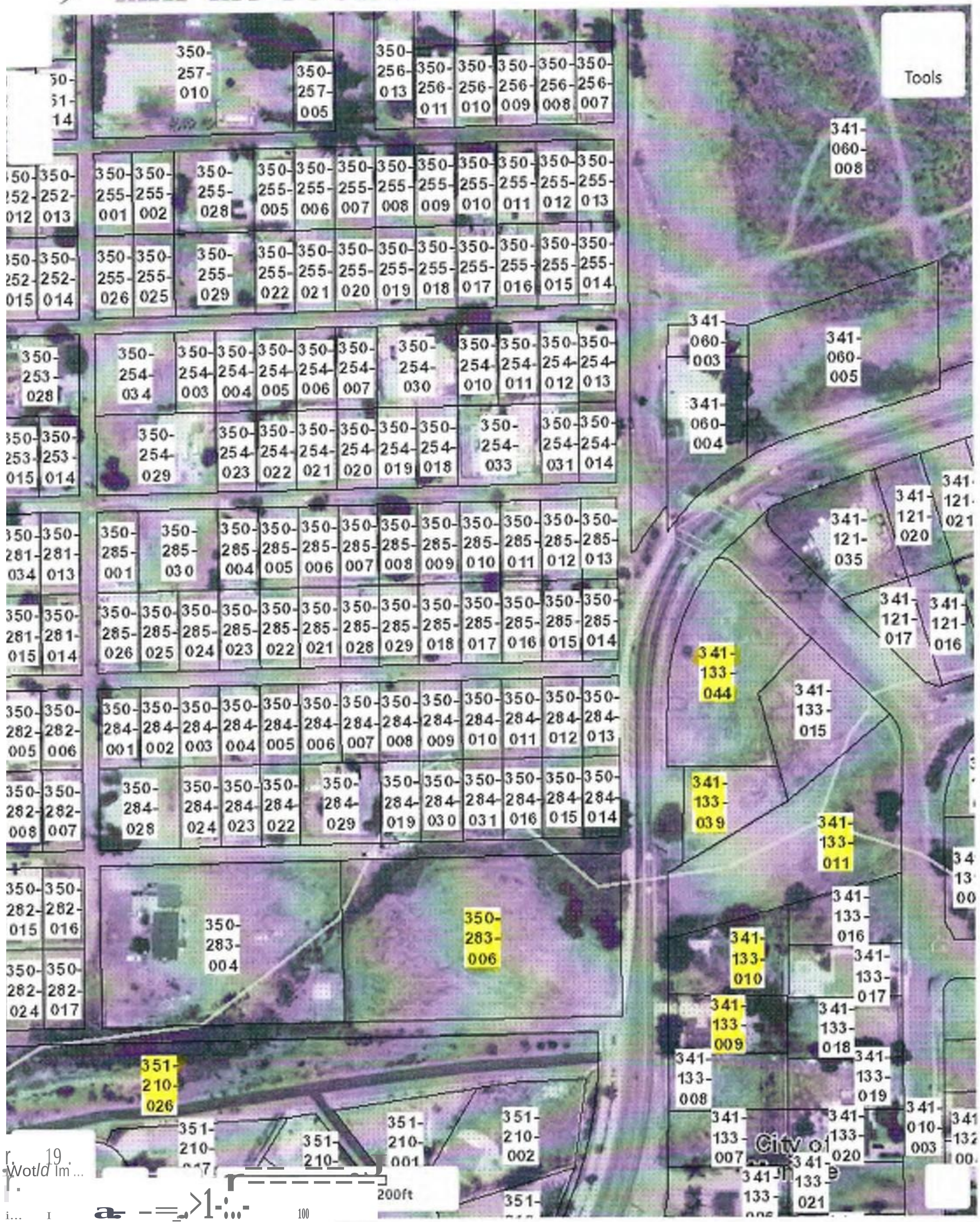
MAP MY COUNTY



MAP MY COUNTY



Quail Hills 132 - Offsite Sewer Contribution List							
	Ownership	**Address**	**Acreage**	**Initial Calculations**	**Total**	**Per EMWD POS comments**	**Total**
Proposed Project	Quail Hills, LP		145	270/GPD/EDU	39150	235/GPD/EDU	34075
Fire Station (341-060-004)	City of Menifee		0.37	2000/GPD/AC	99.9	1200 GPD/AC	444
Circile K (341-121-035)	Circle K Stores Inc	28968 Goetz Rd, Canyon Lake, CA 92879	0.38	200/GPD/AC	102.6	1200/GPD/AC	456
(351-020-044)	Menifee Union School District		10.15	1050 GPD/AC	2740.5	1200/GPD/AC	12180
Landsacpe Area (Part of School Site) (351-020-044)	Menifee Union School District		2	1050 GPD/AC	540	1200/GPD/AC	2400
341-094-003	Gloria Adilia Merino, Rosa Elena Rivas	N/A	0.2		0	1200/GPD/AC	240
341-094-002	Francis A Tarcelo, Maria Jocelyn Tarcelo		0.2		0	1200/GPD/AC	240
341-094-001	Nayeli Pelayo	28782 Goetz Rd, Canyon Lake, CA 92587	0.2		0	1200/GPD/AC	240
341-121-036	Senen Velasco Sararbia		0.17		0	1200/GPD/AC	204
341-121-032	Kelvyn Yamauchi		0.19		0	1200/GPD/AC	228
341-121-031	Edgar k Parks	28840 Goetz Rd, Canyon Lake, CA 92587	0.22		0	1200/GPD/AC	264
341-121-030	Michael Firas Haddadin		0.22		0	1200/GPD/AC	264
341-121-037	Michael Firas Haddadin		0.64		0	1200/GPD/AC	768
341-121-026	Michael Firas Haddadin		0.21		0	1200/GPD/AC	252
341-121-025	Michael Firas Haddadin		0.21		0	1200/GPD/AC	252
341-121-024	Morris Fish, Maria Theresa Fish	28948 Goetz Rd, Canyon Lake CA 92587	0.22		0	1200/GPD/AC	264
341-121-023	Sallie Putt	28964 Goetz Rd, Canyon Lake CA 92587	0.2		0	1200/GPD/AC	240
341-121-022	Jose L Rodriguez, Teodoro Rodriguez, Onofre Bugarin		0.19		0	1200/GPD/AC	228
341-121-021	Jose L Rodriguez, Teodoro Rodriguez, Onofre Bugarin		0.19		0	1200/GPD/AC	228
341-121-020	Guillermo Luevano	28966 Goetz Rd, Canyon Lake Ca 92587	0.19		0	1200/GPD/AC	228
341-121-035					0	1200/GPD/AC	0
341-133-044	Rasag Anthony Hassan		0.68		0	1200/GPD/AC	816
341-133-039	Loretta Savee		0.24		0	1200/GPD/AC	288
341-133-011	Rasag Anthony Hassan		0.9		0	1200/GPD/AC	1080
341-133-010	James A Lathrop		0.31		0	1200/GPD/AC	372
341-133-009	Paul & Brandy Herold	29002 Goetz Rd, Canyon Lake, CA 92592	0.25		0	1200/GPD/AC	300
350-283-006	Dionisios F & Irini Argyros (HOA)		1.6		0	1200/GPD/AC	1920
341-060-005	Tom & Triney Nguyen		0.93		0	1200/GPD/AC	1116
351-210-026	Cayon Heights HOA	open space lot	0		0	0	0
Total					**42633**		**59587**

Attachment 2 – Sewer Capacity Calculations

Quail Hills 132 - Sewer Capacity Calculations
Option 1

REACH **NODE**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Lot No. / PA	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132
Land Use	MDR	MDR	MDR	MDR	MDR	MDR	MDR	MDR
Flow Factor (GPD/EDU)	235	235	235	235	235	235	235	235
Units	132	132	132	132	132	132	132	132
Flow Factor (gpd/ac)								
Acres								
Lot No. / PA		Ex. Fire Station	Ex. Fire Station	Ex. Fire Station	Ex. Fire Station	Ex. Fire Station	Ex. Fire Station	Ex. Fire Station
Land Use		Public Facility	Public Facility	Public Facility	Public Facility	Public Facility	Public Facility	Public Facility
Flow Factor (gpd/unit)								
Units								
Flow Factor (gpd/ac)		1200	1200	1200	1200	1200	1200	1200
Acres		0.37	0.37	0.37	0.37	0.37	0.37	0.37
Lot No. / PA		Ex. Circle K	Ex. Circle K	Ex. Circle K	Ex. Circle K	Ex. Circle K	Ex. Circle K	Ex. Circle K
Land Use		Commercial	Commercial	Commercial	Commercial	Commercial	Commercial	Commercial
Flow Factor (gpd/unit)								
Units								
Flow Factor (gpd/ac)		1200	1200	1200	1200	1200	1200	1200
Acres		0.38	0.38	0.38	0.38	0.38	0.38	0.38
Lot No. / PA		Ex. Residential	Ex. Residential	Ex. Residential	Ex. Residential	Ex. Residential	Ex. Residential	Ex. Residential
Land Use		MDR	MDR	MDR	MDR	MDR	MDR	MDR
Flow Factor (gpd/unit)		235	235	235	235	235	235	235
Units		19	22	22	22	22	22	22
Flow Factor (gpd/ac)			1200	1200	1200	1200	1200	1200
Acres			1.6	1.6	1.6	1.6	1.6	1.6
Lot No. / PA			TR. 30330	TR. 30330	TR. 30330	TR. 30330	TR. 30330	TR. 30330
Land Use			LDR	LDR	LDR	LDR	LDR	LDR
Flow Factor (gpd/unit)			310	310	310	310	310	310
Units			24	101	399	399	399	399
Flow Factor (gpd/ac)								
Acres								
Lot No. / PA				TR.30330	TR.30330	TR.30330	TR.30330	TR.30330
Land Use				School (School open space, potential school expansion in future)	School (School open space, potential school expansion in future)	School (School open space, potential school expansion in future)	School (School open space, potential school expansion in future)	School (School open space, potential school expansion in future)
Flow Factor (gpd/unit)								
Units								
Flow Factor (gpd/ac)				1200	1200	1200	1200	1200
Acres				2.0	2.0	2.0	2.0	2.0
Lot No. / PA					TR.30330	TR.30330	TR.30330	TR.30330
Land Use					School (Institutional)	School (Institutional)	School (Institutional)	School (Institutional)
Flow Factor (gpd/unit)								
Units								
Flow Factor (gpd/ac)					1200	1200	1200	1200
Acres					10.15	10.2	10.2	10.2
Total Flow at Node (gpd)	31020	36385	46450	72720	177280	177280	177280	177280
Peaking Factor	2.87	2.87	2.87	2.78	2.66	2.66	2.66	2.66
Peak Wastewater Flow (mgd)	0.0890	0.1044	0.1333	0.2022	0.4716	0.4716	0.4716	0.4716
Diameter (inches)	8	8	8	8	8	10	12	15
Diameter (inches)	0.67	0.67	0.67	0.67	0.67	0.83	1.00	1.25
Slope	0.0270	0.0040	0.0047	0.0040	0.0211	0.0705	0.0088	0.0047
k'=Qn/(d^2.67)s^0.5	0.0371	0.1131	0.1332	0.2190	0.2224	0.0671	0.1167	0.0880
D/d	**0.19**	**0.34**	**0.37**	**0.48**	**0.49**	**0.26**	**0.34**	**0.30**
Ca	0.1049	0.2323	0.2614	0.3766	0.3810	0.1597	0.2375	0.1939
Area=Ca(d)^2	0.0466	0.1032	0.1162	0.1674	0.1693	0.1109	0.2375	0.3030
Velocity=Q/Area (ft/s)	2.95	1.57	1.78	1.87	4.31	6.58	3.07	2.41

Quail Hills 132 - Sewer Capacity Calculations Option 2						
REACH NODE	**1**	**2**	**3**	**6**	**7**	**8**
Lot No. / PA	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132	Quail Hill 132
Land Use	MDR	MDR	MDR	MDR	MDR	MDR
Flow Factor (GPD/EDU)	235	235	235	235	235	235
Units	132	132	132	132	132	132
Flow Factor (gpd/ac)						
Acres						
Lot No. / PA		Ex. Fire Station	Ex. Fire Station	Ex. Fire Station	Ex. Fire Station	Ex. Fire Station
Land Use		Public Facility	Public Facility	Public Facility	Public Facility	Public Facility
Flow Factor (gpd/unit)						
Units						
Flow Factor (gpd/ac)		1200	1200	1200	1200	1200
Acres		0.37	0.37	0.37	0.37	0.37
Lot No. / PA		Ex. Circle K	Ex. Circle K	Ex. Circle K	Ex. Circle K	Ex. Circle K
Land Use		Commercial	Commercial	Commercial	Commercial	Commercial
Flow Factor (gpd/unit)						
Units						
Flow Factor (gpd/ac)		1200	1200	1200	1200	1200
Acres		0.38	0.38	0.38	0.38	0.38
Lot No. / PA		Ex. Residential	Ex. Residential	Ex. Residential	Ex. Residential	Ex. Residential
Land Use		MDR	MDR	MDR	MDR	MDR
Flow Factor (gpd/unit)		235	235	235	235	235
Units		19	19	22	22	22
Flow Factor (gpd/ac)				1200	1200	1200
Acres				1.6	1.6	1.6
Lot No. / PA				TR. 30330	TR. 30330	TR. 30330
Land Use				LDR	LDR	LDR
Flow Factor (gpd/unit)				310	310	310
Units				399	399	399
Flow Factor (gpd/ac)						
Acres						
Lot No. / PA				TR.30330	TR.30330	TR.30330
Land Use				School (School open space, potential school expansion in future)	School (School open space, potential school expansion in future)	School (School open space, potential school expansion in future)
Flow Factor (gpd/unit)						
Units						
Flow Factor (gpd/ac)				1200	1200	1200
Acres				2.0	2.0	2.0
Lot No. / PA				TR.30330	TR.30330	TR.30330
Land Use				School (Institutional)	School (Institutional)	School (Institutional)
Flow Factor (gpd/unit)						
Units						
Flow Factor (gpd/ac)				1200	1200	1200
Acres				10.2	10.2	10.2
Total Flow at Node (gpd)	31020	36385	36385	177280	177280	177280
Peaking Factor	2.87	2.87	2.87	2.66	2.66	2.66
Peak Wastewater Flow (mgd)	0.0890	0.1044	0.1044	0.4716	0.4716	0.4716
Diameter (inches)	8	8	8	10	12	15
Diameter (inches)	0.67	0.67	0.67	0.83	1.00	1.25
Slope	0.0270	0.0040	0.0180	0.0705	0.0088	0.0047
k'=Qn/(d^2.67)s^0.5	0.0371	0.1131	0.0533	0.0671	0.1167	0.0880
D/d	**0.19**	**0.34**	**0.23**	**0.26**	**0.34**	**0.30**
Ca	0.1049	0.2323	0.1358	0.1597	0.2375	0.1939
Area=Ca(d)^2	0.0466	0.1032	0.0604	0.1109	0.2375	0.3030
Velocity=Q/Area (ft/s)	2.95	1.57	2.68	6.58	3.07	2.41

Table 7-4. For Determining the Area *a* of the Cross Section of a Cfrcular Conduit Flowing Part Full

P.

Lot d. 1Q. e ro e nnne off \v:tcr l • *d* and *Ca.* • tho tabulated value. Then *a* - *Cad*2.

D/d	.00	.01	02	.03	.04	.05	.06	.07	.08	.00
.0	.0000	.0013	.0037	.0069	.0105	.0147	.0192	.0242	.0294	.0350
.1	.0409	.0470	.Oti34	.0600	.0668	.0739	.0811	.0886	.0961	.1039
.2	.1118	.1199	**,1281**	.1365	.1440	,1535	.1623	.1711	.1800	.1890
.3	.1982	.2074	.2167	.2Z60	.23 5	.2450	.2546	.2642	.2739	,2836
.4	.2934	.3032	.3130	.3229	.3328	.3428	.3527	.3627	.3727	.3827
.6	.393	.403	.413	.423	.433	**.443**	***.453***	.462	.472	.482
.6	.492	.602	.512	.621	.531	- 40	.550	.559	.669	.578
.1	***.581***	.596	.605	.614	.623	.6-32	.640	.649	**.667**	.666
.8	.G74	.681	.689	.607	.704	.712	.719	.725	.732	.738
.9	.745	.760	.756	.761	.766	.771	.776	.779	.782	.784

Table7 ..14, Values of *K'* for Circular Channels in tho Formula

$Q =$ *K'* n' *d%s¼* i... q £<Aa/.

D - depth or WaU?? *d* ..., d'1am tor of channel *I* ,',.., J')J.LJ.'|.

D/d	.00	.01	.02	.03	.04	.05	.06	.07	.08	.00
.0		-00007	,00031	.00074	-001.38	.00222	.00328	.00455	.00604	.00775
.1	.009(37	.()!18	.Oi.42	*.0161*	.019:;	.022s	,0257	.0291	.0327	.0366
.2	.0406	.0448	.0192	.0537	.OSSS	.0634	,0686	.013S	,0793	.0849
.3	.0007	.0966	.1027	.1089	.11S3	.1218	.1284	.1352	.1420	-1490
.4	.1661	.1033	.1705	.1779	*.1854*	.1929	*.2005*	.2082	.2160	.2238
.5	.232	,239	*.2-41*	.255	.263	.271	.279	.287	.295	.303
.6	.3ll	.319	.327	.335	.343	.350	.3S$	.366	.373	.380
.'1	.ass	.395	,402	09	.416	.422	.429	A3S	.411	.447
.8	.4.53	.458	463	.468	.473	.477	.481	*.485*	488	.491
.9	,494	.496	497	498	498	98	496	.494	.489	.483
1.0	-463									

Appendix B – Boundary Conditions

COMPUTER MODEL TEST

Grid Number:	29-D & 22-B	Date:	4-16-2019
Customer Name!	QUAIL HILLS, LLP C/0 CECILIA ERIKSSON	Address:	200 S. MAIN ST, SUITE 300
City, State Zip:	CORONA, CA 92882		
Contact Name:	CECILIA ERIKSSON		
Phone:	951-280-3309	Cell:	
Fax:		Email:	CECIlIAERIKSSON@PROACTIV EENGINEERING.NET
Project Record Number:	WS20190000273	WO/ CO:	
Project Name:	QUAIL HILLS	APN:	341-060-002 ETAL
(Approximate) Test & Hydrant Location	(1) 57 feet Northwest of the Intersection of Goetz Rd. & Avenlda Roble. (2) 76 feet Northwest of the intersection of Goetz Rd, & Paseo Vivora. See map		

MODEL	OS_MM_wya20181018			
	EMWD RESULTS		Requested	How Availability for Fire Department
POC Test Location:	Fire Flow (1)	Fir Fl_ow {2)		
Elevation {ft}:	1,550	1,615		
Steady State, Dynamic (psi):	107	79		
Residual Pressure (psi):	102	7S		
Tested FF (gprn):	1,567	1,567		
Combined Total (gpm):	Fire Flaw's Tested Independently with MOD 67		1,500	
Number of Hydrants:	Used 2 Test Nodes		2	
Duration Tested@:	2 Hour		2	
Demand Conditions:	Max Day			

Pressure Zone/ Tank Name{s)/ Level(s): PZ 1800 / Quail Valley II Tank/ Base Elevation 1770 Feet

Pum O eratlng Status: ON Computer Model Setting EPS

Number of Points of Connections (POC):	POC (Circle One		Reason (Circle what Applies}				
	One	TwoorMore	Plan of Service	limited Qipatity (Eic1stmg Systems)	supply Redundancy	Conditions of Approval	Fire Sprinkler Connection(s)

Comments: The water system7s capable at Fire ffow 1 or 2 of providing 1,567 GPM for 2 hours at a minimum of 20 psi, as shown in the attacked map. These Fire Flow test results may need to be complemented by a Design Condition and do not include all facility conditioning that may be required for tkis project. Fire Agency Conditions were not provided, if any Fire Flow changes occur in the Fire Agency Conditions, you may need to submit another Fire Flow test at the requester's expense.

The above results are not a guarantee the District's system will supply water to the project at any specific: flows or pressures. These results were determined from a computer simulation of the District's water system and/or from hydraulic calculations pertaining to distribution pipelines: The capacity of the service laterals, meters, backflow assemblies, on-site fire system, and other appurtenances were not considered in these results. The design and sizing of service laterals and downstream facilities shall be the responsibility of the Project Sponsor.

EMWD's Fire Flow test results are valid for 12 months from the date of testing.

DRAFT - Pending Formal Fire Agency Conditions

Completed By: RUDY ESPARZA

Should you have any questions or need additional information, please contact me at (951) 928-3777, elrt. 4478.

Sincerely,

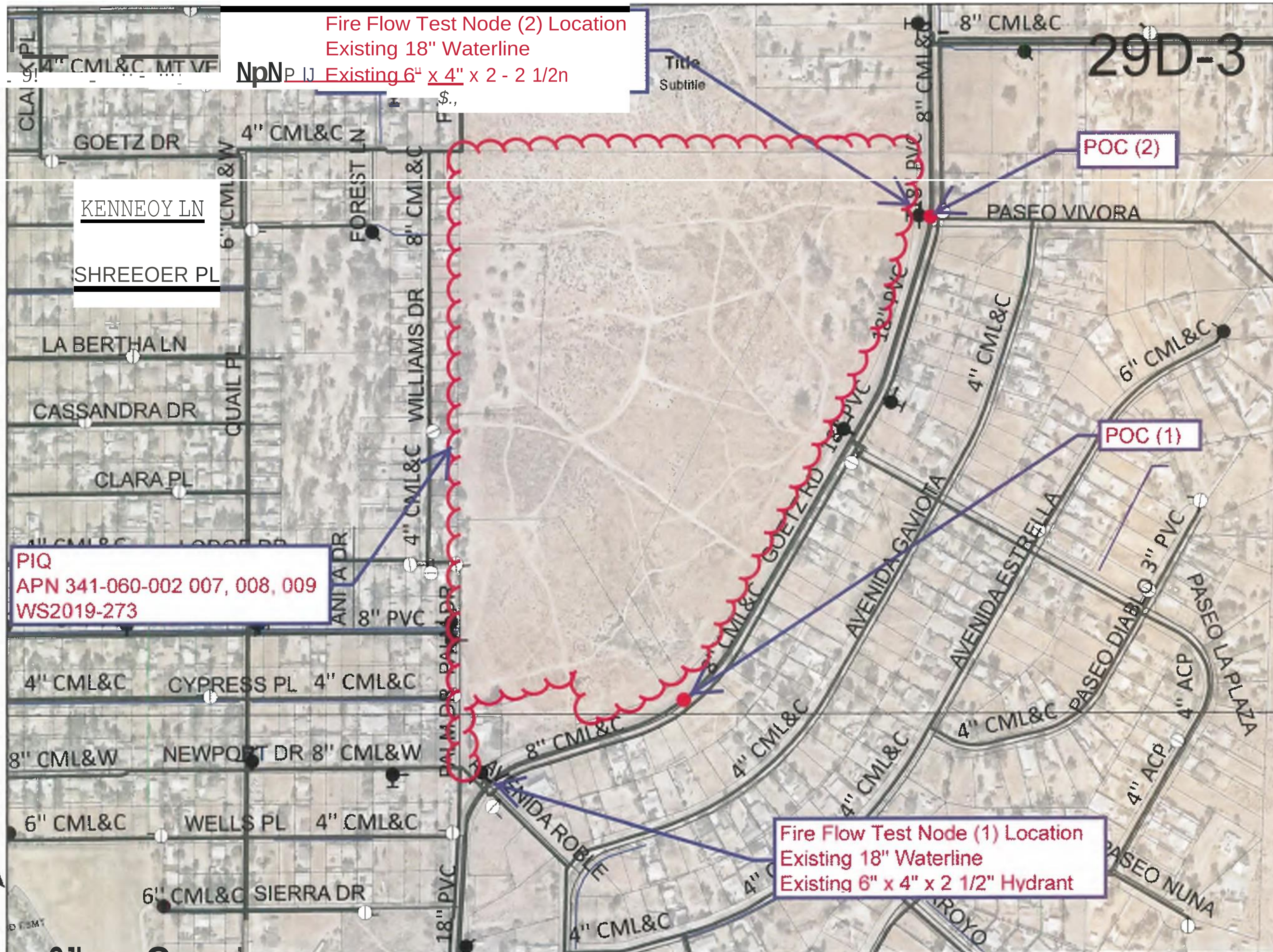
Rudy Esparza

Sr. Engineering Technician
Development Services Department

Date: 4-16-2019

Reviewed By:

Date: 6/14/7dr



0 137.5275 550 825 1,100 Feet

emwa

Created Date: 9/3/2010

rauli c Model Results

roiect Name: Quail Hills	ADD (GPM}:	34	
Pressure Zo ne: PZ 1800 / WS2019-273	FFD (GPM}:	1,500	emWcJ
Model Version (1 2	QurationJHours}:	2	

POC location: POC-1 See Attached map Elevation ift): 1,573.0 Ju n ction N<lme: APN 341-060-002 ETAL See Attached Exhibit		Project De ma nds121U11 {gpm)		Existing system (With No Improvements)		Existing system (With Improvement s)111	
Me1de ling Scenario (12)	Operational Condltloris	Project's Domestic Water oemands11 H 111 (gpm)	Fire Flow Deman d'41 (gpm)	HGL (ft)	Pressure (psi)	HGL (ft }	Pressure (psi)
EPS, MOO, Pumps On (8)	MOD	67	[redacted]	1,795	96		
EPS, MOO, Pumps On (8)	PHO	134	[redacted]	1,788	93		
EPS, ADD, Pumps On (8)	MHD	34	[redacted]	1,798	98		
	fFD-t-MDD						
EPS, MOD, Pumps On (SJ	FFD + MOD	See Computer Model Test Results					

Footnotes {see page 2 for additional footnotes):
{1) If improvements are required, please describe the improvements her e:

Minimum Pressure Crit eria :

50 PSI	...under PHD, MDD, and MHD
20 PSI	...under MDD + FFD

Minimum Crite ria. Velocities in Pipelines:
Equal to or less than 5 fps: ... for MOD
Equal to or less than 10 fps: ...for PHO
Equal to or less than 15 fps: ,..for FF+ MDD

	Adequate?	lcomments:
Available Firm Pumping Capa city:	TBD	(TBD indicates To Be Determined) Capac it y avail abili ty .shall be verified se parately bv the cust omer and reviewe d by Develo pm ent Services En gineers.
Avatlable firm Pumping Capacity, w/ Electrical Outa_1e :	TBD	
Available Storage Capacity:	TBD	

Additional Comments:

Prepared by: Rudv Esparza
Date: 4/15/2019

Reviewed by:
Date:

Fil e: PZ 1800 APN 341-060-002 ETAl POC (1) WS2019·Z73
FORM : NBD-068 (July 25, 2016)--- Date f>rint ed: 4/17/2019, 1:57 PM

Hydraulic Boundary Conditions, In The Main Water Pipeline 611 | Based on Hydraulic Model Results

Proiect Name: Quail Hills	**ADD{GPM):**	34	emwa
Pressure Z PZ umo / WS2019-273	**fFDjGPM):**	1,500	
Model VersiooJ12l	**Duration (Hours):**	2	

Acronyms:

ADO: Average Day Demand, in GPM
EPS: Extended Period Simulation
fF0[131]; Fire Flow Demand, in GPM
FPS:Feet per second
GPM : Gallons Per Minute
HGL: Hydraulic Grade- li ne, in feet
MOO: Maximum Day Demand, in GPM
MHO: Minimum Hour Demand, in GPM
PHD: Peak-Hour De mand, in GPM
POC: Point Of Connection
PSI: Pounds Per Inch
S55: Steady State Simulation

Footnotes (Ct'd):

(2) Projec t Demands include ADD of the proposed project, peaked for each test scenario, in accordance with the latest l:MWD Water Master Plan Design Criteria

(3) Domestic water dem ands from existing services are already included in the Model

(4) This is NOT a Fire Flow Test Report: The customer shall verify with the Fire MarshaH if a separate Fire Flow Test Report/Letter is required for Ju r is dictional Project approval.

(5) All required sto rag e and pumping shall be evaluated in a POS report, per the latest EMWD Master Plan Design Criteria

(6) Applicants, or the ir designees, shalt design service laterals, commencing from the point of connection(s} in EMWO's main pipeline(s), inclu ding main extension(s), lateral(s), meter(s), and all post-meter appu rt enances, taking into consideration resulting head losses, pad elevations, and building height, such that the pressu re delivered to each floor level and service is adequate to meet jurisdictional requirements.

(7) In addition to design requirements, operational minimum and maximum pressures are used to identify and record Service Agreements for Low and High pressure :cond it ion s in Residential use. Commercial, Institutional, and Industrial uses do not require low and high pressure recordation.

(8) Storage tanks: Initial levels set at 75% full in EPS

(9) Storage tanks: Initial levels set at 50% full in SSS. Pumps Off

(10) Storage tanks: Initial levels set at 50% full in SSS, Pumps On

(11) Existing demand s are based on COINS data, calendar-year 2013

{1 2) For Ef>S modeling, use file name: ***NBO_EPS_EMWD_POTABLE_2308_WYA20l5l01.9.mxd***

Hydraulic Boundary Conditions, In The Main Water Pipeline Based on Hydraulic Model Results

Project Name:	Quail Hills	ADO(GPM):	34
Pressure Z	PZ 1800 / WS2019- 273	FFD(GPM):	1,500
Model Version (121		Duration (Hours):	2

POC Location: POC-2
Elevation (ft): 1,615.0
Junction Name: APN 341-060-002 ETAL
See Attached Exhibit

	Modeling Scenario (12)	Operational Conditions:	Project Demands (gpm): Project's Domestic Water Demands (gpm)	Project Demands (gpm): Fire Flow Demand (gpm)	Existing system (With No Improvements): HGl (ft)	Existing system (With No Improvements): Pressure (psi)	Existing system (With Improvements): HGL (ft)	Existing system (With Improvements): Pressure (psi)
ii C "D • t! E Ql ai Q.. 0 0	EPS, MOD, Pumps On (8)	MOD	67	[redacted]	1,795	78		
	EPS, MOO, Pumps On (8)	PHO	134	[redacted]	1,789	75		
	EPS, ADD, Pumps On (8)	MHD	34	[redacted]	1,798	79		
3 "IJ 0 C u. E" u: 0 Ql		FFO+MOO						
	EPS, MOO, Pumps On (8)	FFD + MOO	67	1,500	1,789	?_S		

Footnotes (see page 2 for additional footnotes):
(1) If improvements are required, please describe the improvements here:

Minimum Pressure Criteria:

50 PSI	...under PHD, MDD, and MHD
20 PSI	...under MDD + FFD

Minimum Criteria, Velocities in Pipelines:
Equal to or less than 5 fps: ...for MOD
Equal to or less than 10 fps: ...for PHD
Equal to or less than 15 fps: ...for FF + MOD

	Adequate?	Comments:
Availabte Firm Pumping Capacity:	TSO	(TBD indicates To Be Determined) Capacity availability 5hall be verified separately by the customer and reviewed by Development Services Engineers.
Available Firm Pumping Capacity, w/ Electrical Outage:	TSO	
Avail.ible Storage Capacity:	TBO	

Additional Comments:

Prepared by: Rudy Esparz.a
Date: 4/15/2019

Reviewed by
Date: 4/15/2019

File; Pl 1800 APN 341-060-002 ETAl POC (2) WS2019-273
FORM: NB0--068 (July 25, 2016) --- Date Printed: 4/17/2019, 1:54 PM

Project Name: Quail Hills	**ADD (GPM):**	34	imWcl
Pressure Zone: PZ 1800 / WS2019-273	FFD (GPM):	1,500	
Model Versic,n_(12l	Duration (Hours):	2	

A(:ronyms:

ADD: Average Dav Demand, in GPM
EPS: Extended Period Simulation
FF0[13]: Fire Flow Demand, in GPM
FPS: feet per second
GPM: Gallons Per Minute
HGL: Hydraulic Grade- Line, in feet
MOO: Maximum Day Demand, in GPM
MHD: Minimum Hour Demand, in GPM
PHO: Peak-Hour Demand, in GPM
POC: Point Of Connection
PSI: Pounds Per Inch
SSS: Steady State Simulation

Footnotes (Ct'd):

(2) Project Demands include ADD of the proposed proJect, peaked for each test seen.mo, in accordance with the latest EMWD Water Master Plan Design Criteria

(3) Domestic water demands from existing services are already included in the Model

(4) This is NOT a Fire flow Test Report: The customer shall verify with the Fire Marshal! if a separate Fire Flow Test Report/Letter is required for Jurisdictional Project approv al.

(S) All required storage and pumping shall be evaluated in a POS report, per the latest EMWD Master Plan Design Criteria

(6) Applicants, or their de:si gnees, shall design service laterals, commencing from the point of connection{s} in EMWD's main pipeline{s), including main extension(s), lateral(s), meter(s), and all post· meter appur tenances, taking into consideration resulting head tosses, pad elevations, and building height, such that the pressure delivered to each floor level and service is adequate to meet jurisdictional requirements.

(7) In addi tion to design requireme nts, operational minimum and maximum pressures are used to identify and record Service Agreements for Low and High pressure conditions in Res ld entl al use. Commercial, Institutional, and Industrial uses do not require low and high pressure recordation.

(8) Storage tanks: In itial levels set at 75% full in EPS

(9) Storage tanks: In itial levels set at 50% full in SSS, Pumps Off

(10) St o rage tank s: Initial levels set at 50% full in SSS, Pumps On

(11) Existing demands are based on COINS data, calendar -year 2013

(12) For EPS modeling, use file name: ***NBD_EPS_EMWD_POTABLE_2308_WYA201.51019.mxd***

Appendix C – Water Pressure Analysis

200 South Main Street, Suite 300
Corona CA 92882
T: 951/280-3300
F:951/280-0279

www.proactiveengineering.net

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
192	J-1	1,577.50	1800 PZ	<Collection: 0 items>	0	1,787.61	91
194	J-2	1,578.80	1800 PZ	<Collection: 0 items>	0	1,787.69	90
196	J-3	1,586.90	1800 PZ	<Collection: 1 items>	1	1,787.70	87
198	J-4	1,594.30	1800 PZ	<Collection: 1 items>	2	1,787.71	84
200	J-5	1,597.30	1800 PZ	<Collection: 0 items>	0	1,787.71	82
202	J-6	1,602.00	1800 PZ	<Collection: 1 items>	3	1,787.71	80
204	J-7	1,613.70	1800 PZ	<Collection: 1 items>	3	1,787.72	75
206	J-8	1,617.80	1800 PZ	<Collection: 0 items>	0	1,787.73	74
208	J-9	1,615.50	1800 PZ	<Collection: 0 items>	0	1,787.73	75
210	J-10	1,608.50	1800 PZ	<Collection: 1 items>	1	1,787.76	78
212	J-11	1,602.90	1800 PZ	<Collection: 1 items>	2	1,787.78	80
214	J-12	1,593.30	1800 PZ	<Collection: 1 items>	3	1,787.82	84
216	J-13	1,582.40	1800 PZ	<Collection: 0 items>	0	1,787.86	89
218	J-14	1,579.00	1800 PZ	<Collection: 1 items>	4	1,787.78	90
220	J-15	1,577.20	1800 PZ	<Collection: 1 items>	1	1,787.70	91
223	J-16	1,589.30	1800 PZ	<Collection: 1 items>	4	1,787.71	86
225	J-17	1,595.60	1800 PZ	<Collection: 1 items>	4	1,787.71	83
227	J-18	1,606.50	1800 PZ	<Collection: 1 items>	4	1,787.72	78
230	J-19	1,580.80	1800 PZ	<Collection: 1 items>	3	1,787.90	90
233	J-20	1,588.50	1800 PZ	<Collection: 1 items>	2	1,787.71	86
235	J-21	1,595.50	1800 PZ	<Collection: 0 items>	0	1,787.71	83
237	J-22	1,597.20	1800 PZ	<Collection: 1 items>	3	1,787.71	82
278	J-23	1,577.40	1800 PZ	<Collection: 0 items>	0	1,787.59	91
281	J-24	1,582.80	1800 PZ	<Collection: 0 items>	0	1,787.99	89
286	J-25	1,615.00	1800 PZ	<Collection: 0 items>	0	1,788.02	75
290	J-26	1,550.00	1800 PZ	<Collection: 0 items>	0	1,785.78	102

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Headloss Gradient (ft/ft)
195	P-2	152	J-1	J-2	8.0	PVC	150.0	-167	1.07	0.08	0.001
197	P-3	305	J-2	J-3	8.0	PVC	150.0	-49	0.31	0.02	0.000
199	P-4	330	J-3	J-4	8.0	PVC	150.0	-22	0.14	0.00	0.000
201	P-5	256	J-4	J-5	8.0	PVC	150.0	-18	0.12	0.00	0.000
203	P-6	54	J-5	J-6	8.0	PVC	150.0	-30	0.19	0.00	0.000
205	P-7	328	J-6	J-7	8.0	PVC	150.0	-33	0.21	0.01	0.000
207	P-8	370	J-7	J-8	8.0	PVC	150.0	-36	0.23	0.01	0.000
209	P-9	28	J-8	J-9	8.0	PVC	150.0	-36	0.23	0.00	0.000
211	P-10	244	J-9	J-10	8.0	PVC	150.0	-75	0.48	0.03	0.000
213	P-11	203	J-10	J-11	8.0	PVC	150.0	-76	0.48	0.02	0.000
215	P-12	282	J-11	J-12	8.0	PVC	150.0	-78	0.50	0.04	0.000
217	P-13	304	J-12	J-13	8.0	PVC	150.0	-82	0.52	0.04	0.000
219	P-14	277	J-13	J-14	8.0	PVC	150.0	123	0.79	0.08	0.000
221	P-15	273	J-14	J-15	8.0	PVC	150.0	119	0.76	0.07	0.000
222	P-16	64	J-15	J-2	8.0	PVC	150.0	118	0.75	0.02	0.000
224	P-17	268	J-3	J-16	8.0	PVC	150.0	-27	0.17	0.00	0.000
226	P-18	300	J-16	J-17	8.0	PVC	150.0	-31	0.20	0.01	0.000
228	P-19	287	J-17	J-18	8.0	PVC	150.0	-35	0.22	0.01	0.000
229	P-20	246	J-18	J-9	8.0	PVC	150.0	-39	0.25	0.01	0.000
231	P-21	53	J-13	J-19	8.0	PVC	150.0	-205	1.31	0.04	0.001
234	P-23	226	J-4	J-20	8.0	PVC	150.0	-7	0.04	0.00	0.000
236	P-24	305	J-20	J-21	8.0	PVC	150.0	-9	0.06	0.00	0.000
238	P-25	284	J-5	J-22	8.0	PVC	150.0	12	0.08	0.00	0.000
239	P-26	54	J-22	J-21	8.0	PVC	150.0	9	0.06	0.00	0.000
280	P-1	41	J-23	J-1	8.0	PVC	150.0	-167	1.07	0.02	0.001
282	P-22(1)	126	J-19	J-24	8.0	PVC	150.0	-208	1.33	0.10	0.001
285	P-46	626	J-23	J-24	6.0	Ductile Iron	130.0	-77	0.88	0.41	0.001
287	P-47	726	J-24	J-25	18.0	Ductile Iron	130.0	-285	0.36	0.03	0.000
288	P-48	32	R-2	J-25	6.0	Ductile Iron	130.0	285	3.24	0.23	0.007
291	P-45(1)	30	R-1	J-26	6.0	Ductile Iron	130.0	-244	2.77	0.16	0.005
292	P-45(2)	331	J-26	J-23	6.0	Ductile Iron	130.0	-244	2.77	1.80	0.005

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
192	J-1	1,577.50	1800 PZ	<Collection: 0 items>	0	1,787.00	91
194	J-2	1,578.80	1800 PZ	<Collection: 0 items>	0	1,787.03	90
196	J-3	1,586.90	1800 PZ	<Collection: 1 items>	4	1,787.01	87
198	J-4	1,594.30	1800 PZ	<Collection: 1 items>	13	1,787.01	83
200	J-5	1,597.30	1800 PZ	<Collection: 0 items>	0	1,787.01	82
202	J-6	1,602.00	1800 PZ	<Collection: 1 items>	17	1,787.01	80
204	J-7	1,613.70	1800 PZ	<Collection: 1 items>	18	1,787.01	75
206	J-8	1,617.80	1800 PZ	<Collection: 0 items>	0	1,787.03	73
208	J-9	1,615.50	1800 PZ	<Collection: 0 items>	0	1,787.04	74
210	J-10	1,608.50	1800 PZ	<Collection: 1 items>	6	1,787.09	77
212	J-11	1,602.90	1800 PZ	<Collection: 1 items>	15	1,787.14	80
214	J-12	1,593.30	1800 PZ	<Collection: 1 items>	20	1,787.22	84
216	J-13	1,582.40	1800 PZ	<Collection: 0 items>	0	1,787.34	89
218	J-14	1,579.00	1800 PZ	<Collection: 1 items>	24	1,787.18	90
220	J-15	1,577.20	1800 PZ	<Collection: 1 items>	7	1,787.06	91
223	J-16	1,589.30	1800 PZ	<Collection: 1 items>	24	1,787.01	86
225	J-17	1,595.60	1800 PZ	<Collection: 1 items>	24	1,787.01	83
227	J-18	1,606.50	1800 PZ	<Collection: 1 items>	22	1,787.02	78
230	J-19	1,580.80	1800 PZ	<Collection: 1 items>	17	1,787.43	89
233	J-20	1,588.50	1800 PZ	<Collection: 1 items>	13	1,787.01	86
235	J-21	1,595.50	1800 PZ	<Collection: 0 items>	0	1,787.00	83
237	J-22	1,597.20	1800 PZ	<Collection: 1 items>	20	1,787.00	82
278	J-23	1,577.40	1800 PZ	<Collection: 0 items>	0	1,786.99	91
281	J-24	1,582.80	1800 PZ	<Collection: 0 items>	0	1,787.67	89
286	J-25	1,615.00	1800 PZ	<Collection: 0 items>	0	1,787.73	75
290	J-26	1,550.00	1800 PZ	<Collection: 0 items>	0	1,785.73	102

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Headloss Gradient (ft/ft)
195	P-2	152	J-1	J-2	8.0	PVC	150.0	-99	0.63	0.03	0.000
197	P-3	305	J-2	J-3	8.0	PVC	150.0	49	0.31	0.02	0.000
199	P-4	330	J-3	J-4	8.0	PVC	150.0	31	0.20	0.01	0.000
201	P-5	256	J-4	J-5	8.0	PVC	150.0	1	0.01	0.00	0.000
203	P-6	54	J-5	J-6	8.0	PVC	150.0	-15	0.10	0.00	0.000
205	P-7	328	J-6	J-7	8.0	PVC	150.0	-32	0.20	0.01	0.000
207	P-8	370	J-7	J-8	8.0	PVC	150.0	-50	0.32	0.02	0.000
209	P-9	28	J-8	J-9	8.0	PVC	150.0	-50	0.32	0.00	0.000
211	P-10	244	J-9	J-10	8.0	PVC	150.0	-105	0.67	0.05	0.000
213	P-11	203	J-10	J-11	8.0	PVC	150.0	-110	0.70	0.05	0.000
215	P-12	282	J-11	J-12	8.0	PVC	150.0	-125	0.80	0.08	0.000
217	P-13	304	J-12	J-13	8.0	PVC	150.0	-145	0.93	0.12	0.000
219	P-14	277	J-13	J-14	8.0	PVC	150.0	179	1.15	0.16	0.001
221	P-15	273	J-14	J-15	8.0	PVC	150.0	156	0.99	0.12	0.000
222	P-16	64	J-15	J-2	8.0	PVC	150.0	148	0.95	0.03	0.000
224	P-17	268	J-3	J-16	8.0	PVC	150.0	15	0.09	0.00	0.000
226	P-18	300	J-16	J-17	8.0	PVC	150.0	-9	0.06	0.00	0.000
228	P-19	287	J-17	J-18	8.0	PVC	150.0	-33	0.21	0.01	0.000
229	P-20	246	J-18	J-9	8.0	PVC	150.0	-55	0.35	0.02	0.000
231	P-21	53	J-13	J-19	8.0	PVC	150.0	-325	2.07	0.09	0.002
234	P-23	226	J-4	J-20	8.0	PVC	150.0	17	0.11	0.00	0.000
236	P-24	305	J-20	J-21	8.0	PVC	150.0	4	0.03	0.00	0.000
238	P-25	284	J-5	J-22	8.0	PVC	150.0	16	0.10	0.00	0.000
239	P-26	54	J-22	J-21	8.0	PVC	150.0	-4	0.03	0.00	0.000
280	P-1	41	J-23	J-1	8.0	PVC	150.0	-99	0.63	0.01	0.000
282	P-22(1)	126	J-19	J-24	8.0	PVC	150.0	-341	2.18	0.24	0.002
285	P-46	626	J-23	J-24	6.0	Ductile Iron	130.0	-102	1.16	0.68	0.001
287	P-47	726	J-24	J-25	18.0	Ductile Iron	130.0	-443	0.56	0.06	0.000
288	P-48	32	R-2	J-25	6.0	Ductile Iron	130.0	443	5.03	0.52	0.016
291	P-45(1)	30	R-1	J-26	6.0	Ductile Iron	130.0	-201	2.28	0.11	0.004
292	P-45(2)	331	J-26	J-23	6.0	Ductile Iron	130.0	-201	2.28	1.26	0.004

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
192	J-1	1,577.50	1800 PZ	<Collection: 0 items>	0	1,781.07	88
194	J-2	1,578.80	1800 PZ	<Collection: 0 items>	0	1,780.24	87
196	J-3	1,586.90	1800 PZ	<Collection: 1 items>	2	1,776.10	82
198	J-4	1,594.30	1800 PZ	<Collection: 1 items>	6	1,772.07	77
200	J-5	1,597.30	1800 PZ	<Collection: 0 items>	0	1,771.72	75
202	J-6	1,602.00	1800 PZ	<Collection: 1 items>	8	1,772.01	74
204	J-7	1,613.70	1800 PZ	<Collection: 1 items>	9	1,773.81	69
206	J-8	1,617.80	1800 PZ	<Collection: 0 items>	0	1,775.90	68
208	J-9	1,615.50	1800 PZ	<Collection: 0 items>	0	1,776.06	69
210	J-10	1,608.50	1800 PZ	<Collection: 1 items>	3	1,777.36	73
212	J-11	1,602.90	1800 PZ	<Collection: 1 items>	7	1,778.46	76
214	J-12	1,593.30	1800 PZ	<Collection: 1 items>	10	1,780.01	81
216	J-13	1,582.40	1800 PZ	<Collection: 0 items>	0	1,781.74	86
218	J-14	1,579.00	1800 PZ	<Collection: 1 items>	12	1,781.04	87
220	J-15	1,577.20	1800 PZ	<Collection: 1 items>	4	1,780.39	88
223	J-16	1,589.30	1800 PZ	<Collection: 1 items>	12	1,776.08	81
225	J-17	1,595.60	1800 PZ	<Collection: 1 items>	12	1,776.07	78
227	J-18	1,606.50	1800 PZ	<Collection: 1 items>	11	1,776.06	73
230	J-19	1,580.80	1800 PZ	<Collection: 1 items>	8	1,782.50	87
233	J-20	1,588.50	1800 PZ	<Collection: 1 items>	6	1,770.71	79
235	J-21	1,595.50	1800 PZ	<Collection: 0 items>	0	1,768.90	75
237	J-22	1,597.20	1800 PZ	<Collection: 2 items>	1,510	1,768.57	74
278	J-23	1,577.40	1800 PZ	<Collection: 0 items>	0	1,781.30	88
281	J-24	1,582.80	1800 PZ	<Collection: 0 items>	0	1,784.32	87
286	J-25	1,615.00	1800 PZ	<Collection: 0 items>	0	1,784.71	73
290	J-26	1,550.00	1800 PZ	<Collection: 0 items>	0	1,785.26	102

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Headloss Gradient (ft/ft)
195	P-2	152	J-1	J-2	8.0	PVC	150.0	602	3.84	0.83	0.005
197	P-3	305	J-2	J-3	8.0	PVC	150.0	983	6.28	4.14	0.014
199	P-4	330	J-3	J-4	8.0	PVC	150.0	928	5.92	4.02	0.012
201	P-5	256	J-4	J-5	8.0	PVC	150.0	286	1.83	0.35	0.001
203	P-6	54	J-5	J-6	8.0	PVC	150.0	-595	3.80	0.29	0.005
205	P-7	328	J-6	J-7	8.0	PVC	150.0	-603	3.85	1.80	0.005
207	P-8	370	J-7	J-8	8.0	PVC	150.0	-612	3.91	2.09	0.006
209	P-9	28	J-8	J-9	8.0	PVC	150.0	-612	3.91	0.16	0.006
211	P-10	244	J-9	J-10	8.0	PVC	150.0	-594	3.79	1.30	0.005
213	P-11	203	J-10	J-11	8.0	PVC	150.0	-597	3.81	1.09	0.005
215	P-12	282	J-11	J-12	8.0	PVC	150.0	-604	3.86	1.56	0.006
217	P-13	304	J-12	J-13	8.0	PVC	150.0	-614	3.92	1.73	0.006
219	P-14	277	J-13	J-14	8.0	PVC	150.0	397	2.53	0.70	0.003
221	P-15	273	J-14	J-15	8.0	PVC	150.0	385	2.46	0.65	0.002
222	P-16	64	J-15	J-2	8.0	PVC	150.0	381	2.43	0.15	0.002
224	P-17	268	J-3	J-16	8.0	PVC	150.0	53	0.34	0.02	0.000
226	P-18	300	J-16	J-17	8.0	PVC	150.0	41	0.26	0.01	0.000
228	P-19	287	J-17	J-18	8.0	PVC	150.0	29	0.19	0.01	0.000
229	P-20	246	J-18	J-9	8.0	PVC	150.0	18	0.12	0.00	0.000
231	P-21	53	J-13	J-19	8.0	PVC	150.0	-1,011	6.45	0.76	0.014
234	P-23	226	J-4	J-20	8.0	PVC	150.0	635	4.05	1.37	0.006
236	P-24	305	J-20	J-21	8.0	PVC	150.0	629	4.01	1.81	0.006
238	P-25	284	J-5	J-22	8.0	PVC	150.0	881	5.63	3.15	0.011
239	P-26	54	J-22	J-21	8.0	PVC	150.0	-629	4.01	0.32	0.006
280	P-1	41	J-23	J-1	8.0	PVC	150.0	602	3.84	0.23	0.005
282	P-22(1)	126	J-19	J-24	8.0	PVC	150.0	-1,019	6.50	1.82	0.015
285	P-46	626	J-23	J-24	6.0	Ductile Iron	130.0	-229	2.60	3.02	0.005
287	P-47	726	J-24	J-25	18.0	Ductile Iron	130.0	-1,248	1.57	0.38	0.001
288	P-48	32	R-2	J-25	6.0	Ductile Iron	130.0	1,248	14.16	3.54	0.112
291	P-45(1)	30	R-1	J-26	6.0	Ductile Iron	130.0	374	4.24	0.36	0.012
292	P-45(2)	331	J-26	J-23	6.0	Ductile Iron	130.0	374	4.24	3.96	0.012

Quail Hills 132

ESTIMATED RANGE OF SERVICE PRESSURES, IN THE POTABLE WATER SYSTEM

EMWD's POS Work Order: EMWD's Reference Number: WS _______

Intended use: 1- Issuance of EMWD's Low/High Service Pressure Notices

2- Available pressure (in the Main) for Residential Fire Sprinkler Systems

EMWD's Reference Data:

		Average Day Demand Scenario		Peak Hour Demand Scenario		Maximum Day Demand + Fire Flow Scenario	
	Elevation (ft)	Pressure (psi)	HGL (ft)	Pressure (psi)	HGL (ft)	Pressure (psi)	HGL (ft)
POC-1	1,577.40	91	1,787.59	91	1,786.99	88	1,781.30
POC-2	1,582.80	89	1,878.99	89	1,787.67	87	1,784.32

Location(s): (1) Intersection of 'A' Street & Goetz Rd

(2) Intersection of 'B' Street & Goetz Rd

Pressure Zone HWL: 1800 (nominal)

Date Provided by EMWD: 4/17/2019 Provided By (Name and Initials): Rudy Esparza

NOTE 1: The project's Engineer of Record shall prepare the table below, based on reference data (above) from EMWD's water system computer model, at the referenced Point(s) Of Connection (POC)

Note 2: Prior to EMWD's final plan approval, and prior to evaluating service pressure conditions, the Engineer of Record shall verify that EMWD's reference data (above) is still current, and shall update the table below accordingly, when necessary.

Detailed Water Service Pressures Table
(Note: provide a companion map, identifying lot locations)

Lot Number	Pad Elevation	Average Day Demand Scenario		Peak Hour Demand Scenario		Maximum Day Demand + Fire Flow Scenario	
		Pressure (psi)	HGL (ft)	Pressure (psi)	HGL (ft)	Pressure (psi)	HGL (ft)
1	1,584.4	91	1,787.70	91	1,787.06	88	1,780.39
2	1,584.4	91	1,787.70	91	1,787.06	88	1,780.39
3	1,584.4	90	1,787.78	90	1,787.18	87	1,781.04
4	1,584.8	90	1,787.78	90	1,787.18	87	1,781.04
5	1,585.2	90	1,787.78	90	1,787.18	87	1,781.04
6	1,585.5	90	1,787.78	90	1,787.18	87	1,781.04
7	1,585.9	90	1,787.78	90	1,787.18	87	1,781.04
8	1,586.3	90	1,787.78	90	1,787.18	87	1,781.04
9	1,586.7	90	1,787.78	90	1,787.18	87	1,781.04
10	1,587.2	90	1,787.90	89	1,787.43	87	1,782.50
11	1,588.1	90	1,787.90	89	1,787.43	87	1,782.50
12	1,591.1	90	1,787.90	89	1,787.43	87	1,782.50
13	1,593.0	90	1,787.90	89	1,787.43	87	1,782.50
14	1,594.8	84	1,787.82	84	1,787.22	81	1,780.01
15	1,596.6	84	1,787.82	84	1,787.22	81	1,780.01
16	1,598.3	84	1,787.82	84	1,787.22	81	1,780.01
17	1,600.6	84	1,787.82	84	1,787.22	81	1,780.01
18	1,602.5	84	1,787.82	84	1,787.22	81	1,780.01
19	1,604.3	84	1,787.82	84	1,787.22	81	1,780.01
20	1,606.2	80	1,787.78	80	1,787.14	76	1,778.46
21	1,608.0	80	1,787.78	80	1,787.14	76	1,778.46
22	1,609.7	80	1,787.78	80	1,787.14	76	1,778.46
23	1,611.1	80	1,787.78	80	1,787.14	76	1,778.46
24	1,612.2	78	1,787.76	77	1,787.09	73	1,777.36
25	1,612.9	78	1,787.76	77	1,787.09	73	1,777.36

26	1,614.0	78	1,787.76	77	1,787.09	73	1,777.36
27	1,611.3	80	1,787.78	80	1,787.14	76	1,778.46
28	1,609.2	80	1,787.78	80	1,787.14	76	1,778.46
29	1,607.1	80	1,787.78	80	1,787.14	76	1,778.46
30	1,605.1	80	1,787.78	80	1,787.14	76	1,778.46
31	1,603.1	84	1,787.82	84	1,787.22	81	1,780.01
32	1,601.0	84	1,787.82	84	1,787.22	81	1,780.01
33	1,598.9	84	1,787.82	84	1,787.22	81	1,780.01
34	1,596.8	84	1,787.82	84	1,787.22	81	1,780.01
35	1,594.2	84	1,787.82	84	1,787.22	81	1,780.01
36	1,592.0	90	1,787.90	89	1,787.43	87	1,782.50
37	1,591.1	90	1,787.90	89	1,787.43	87	1,782.50
38	1,589.1	90	1,787.90	89	1,787.43	87	1,782.50
39	1,587.7	90	1,787.90	89	1,787.43	87	1,782.50
40	1,586.9	90	1,787.90	89	1,787.43	87	1,782.50
41	1,586.5	90	1,787.78	90	1,787.18	87	1,781.04
42	1,586.2	90	1,787.78	90	1,787.18	87	1,781.04
43	1,585.8	90	1,787.78	90	1,787.18	87	1,781.04
44	1,585.5	90	1,787.78	90	1,787.18	87	1,781.04
45	1,584.8	90	1,787.78	90	1,787.18	87	1,781.04
46	1,584.8	90	1,787.78	90	1,787.18	87	1,781.04
47	1,584.4	91	1,787.70	91	1,787.06	88	1,780.39
48	1,584.3	91	1,787.70	91	1,787.06	88	1,780.39
49	1,594.1	86	1,787.71	86	1,787.01	81	1,776.08
50	1,594.7	86	1,787.71	86	1,787.01	81	1,776.08
51	1,595.3	86	1,787.71	86	1,787.01	81	1,776.08
52	1,595.9	86	1,787.71	86	1,787.01	81	1,776.08
53	1,596.5	86	1,787.71	86	1,787.01	81	1,776.08
54	1,597.1	86	1,787.71	86	1,787.01	81	1,776.08
55	1,597.7	86	1,787.71	86	1,787.01	81	1,776.08
56	1,598.3	83	1,787.71	83	1,787.01	78	1,776.07
57	1,599.1	83	1,787.71	83	1,787.01	78	1,776.07
58	1,600.3	83	1,787.71	83	1,787.01	78	1,776.07
59	1,600.9	83	1,787.71	83	1,787.01	78	1,776.07
60	1,602.4	83	1,787.71	83	1,787.01	78	1,776.07
61	1,604.4	83	1,787.71	83	1,787.01	78	1,776.07
62	1,606.3	83	1,787.71	83	1,787.01	78	1,776.07
63	1,608.5	78	1,787.72	78	1,787.02	73	1,776.06
64	1,610.7	78	1,787.72	78	1,787.02	73	1,776.06
65	1,612.7	78	1,787.72	78	1,787.02	73	1,776.06
66	1,614.7	78	1,787.72	78	1,787.02	73	1,776.06
67	1,616.7	78	1,787.72	78	1,787.02	73	1,776.06
68	1,618.8	78	1,787.72	78	1,787.02	73	1,776.06
69	1,620.2	78	1,787.72	78	1,787.02	73	1,776.06
70	1,619.6	78	1,787.72	78	1,787.02	73	1,776.06
71	1,616.1	78	1,787.72	78	1,787.02	73	1,776.06
72	1,613.8	78	1,787.72	78	1,787.02	73	1,776.06
73	1,611.5	78	1,787.72	78	1,787.02	73	1,776.06
74	1,609.2	78	1,787.72	78	1,787.02	73	1,776.06
75	1,606.8	83	1,787.71	83	1,787.01	78	1,776.07
76	1,603.8	83	1,787.71	83	1,787.01	78	1,776.07
77	1,602.6	83	1,787.71	83	1,787.01	78	1,776.07
78	1,600.6	83	1,787.71	83	1,787.01	78	1,776.07
79	1,599.1	83	1,787.71	86	1,787.01	78	1,776.07
80	1,598.3	83	1,787.71	83	1,787.01	78	1,776.07
81	1,597.7	86	1,787.71	86	1,787.01	81	1,776.08
82	1,597.1	86	1,787.71	86	1,787.01	81	1,776.08
83	1,596.5	86	1,787.71	86	1,787.01	81	1,776.08
84	1,595.7	86	1,787.71	86	1,787.01	81	1,776.08
85	1,595.1	86	1,787.71	86	1,787.01	81	1,776.08

86	1,594.4	86	1,787.71	86	1,787.01	81	1,776.08
87	1,599.8	84	1,787.71	83	1,787.01	77	1,772.07
88	1,601.2	84	1,787.71	83	1,787.01	77	1,772.07
89	1,601.9	84	1,787.71	83	1,787.01	77	1,772.07
90	1,602.6	84	1,787.71	83	1,787.01	77	1,772.07
91	1,603.6	80	1,787.71	83	1,787.01	74	1,772.01
92	1,605.1	80	1,787.71	83	1,787.01	74	1,772.01
93	1,607.2	80	1,787.71	83	1,787.01	74	1,772.01
94	1,609.5	80	1,787.71	83	1,787.01	74	1,772.01
95	1,610.7	75	1,787.72	75	1,787.01	69	1,773.81
96	1,612.8	75	1,787.72	75	1,787.01	69	1,773.81
97	1,615.0	75	1,787.72	75	1,787.01	69	1,773.81
98	1,617.2	75	1,787.72	75	1,787.01	69	1,773.81
99	1,619.7	75	1,787.72	75	1,787.01	69	1,773.81
100	1,624.1	75	1,787.72	75	1,787.01	69	1,773.81
101	1,617.2	75	1,787.72	75	1,787.01	69	1,773.81
102	1,614.6	75	1,787.72	75	1,787.01	69	1,773.81
103	1,611.8	75	1,787.72	75	1,787.01	69	1,773.81
104	1,609.4	75	1,787.72	75	1,787.01	69	1,773.81
105	1,604.9	80	1,787.71	83	1,787.01	74	1,772.01
106	1,605.4	80	1,787.71	83	1,787.01	74	1,772.01
107	1,605.8	80	1,787.71	83	1,787.01	74	1,772.01
108	1,606.2	82	1,787.71	82	1,787.00	74	1,768.57
109	1,606.2	82	1,787.71	82	1,787.00	74	1,768.57
110	1,605.7	82	1,787.71	82	1,787.00	74	1,768.57
111	1,604.5	82	1,787.71	82	1,787.00	74	1,768.57
112	1,603.6	82	1,787.71	82	1,787.00	74	1,768.57
113	1,602.9	82	1,787.71	82	1,787.00	74	1,768.57
114	1,601.5	82	1,787.71	82	1,787.00	74	1,768.57
115	1,600.6	82	1,787.71	82	1,787.00	74	1,768.57
116	1,599.0	82	1,787.71	86	1,787.01	79	1,770.71
117	1,596.3	82	1,787.71	86	1,787.01	79	1,770.71
118	1,594.0	82	1,787.71	86	1,787.01	79	1,770.71
119	1,594.8	82	1,787.71	86	1,787.01	79	1,770.71
120	1,594.8	82	1,787.71	86	1,787.01	79	1,770.71
121	1,592.7	87	1,787.70	87	1,787.01	82	1,776.10
122	1,590.7	87	1,787.70	87	1,787.01	82	1,776.10
123	1,598.5	84	1,787.71	83	1,787.01	77	1,776.07
124	1,597.8	84	1,787.71	83	1,787.01	77	1,776.07
125	1,596.8	84	1,787.71	83	1,787.01	77	1,776.07
126	1,594.7	82	1,787.71	86	1,787.01	79	1,770.71
127	1,595.8	82	1,787.71	86	1,787.01	79	1,770.71
128	1,605.4	80	1,787.71	83	1,787.01	74	1,772.01
129	1,604.9	80	1,787.71	83	1,787.01	74	1,772.01
130	1,605.9	82	1,787.71	82	1,787.00	74	1,768.57
131	1,606.4	82	1,787.71	82	1,787.00	74	1,768.57
132	1,606.4	82	1,787.71	82	1,787.00	74	1,768.57

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