CITY OF BRAWLEY

Notice of Intent to Adopt a Mitigated Negative Declaration for

66.29-Acre Brawley Gateway Mixed Use Master Plan Development

Zone Change, General Plan Amendment, Gateway Specific Plan Amendment, Tentative Major Subdivision/Tract Map, and Site Plan

(ZC #24-03, GPA #24-02, SPA #26-01, TTM #26-01, SP #26-04)

April 30, 2026

To: All Interested Parties

Subject: NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

Lead Agency:
City of Brawley Development Services Department
205 S. Imperial Avenue
Brawley, CA 92227
Contact: Cristhian Barajas, Development Services Director
(760) 344-8822
cristhian.barajas@brawley-ca.gov

Additional Contact:
Adrian Ople, Planning Technician
205 S. Imperial Avenue
Brawley, CA 92227
(760) 344-8822
planning@brawley-ca.gov

California State law requires the City of Brawley to conduct an environmental review for all projects that require a public hearing. The environmental review examines the nature and extent of any potentially significant adverse effects on the environment that could occur if a project is approved and implemented.

Based on an Initial Study prepared pursuant to the California Environmental Quality Act (CEQA), it has been determined that the proposed project may have potentially significant environmental effects; however, with the incorporation of mitigation measures, those impacts can be reduced to a less-than-significant level. Therefore, the City of Brawley intends to adopt a Mitigated Negative Declaration (MND) for the project.

This Notice of Intent is provided to solicit public and agency comments on the Draft Initial Study/Mitigated Negative Declaration. Written comments, including the specific statutory responsibilities of your agency, if applicable, are encouraged. The comment period runs from **May 1, 2026, through May 30, 2026, at 5:00 p.m. (PDT)**. Written comments must be received by the City prior to the close of the review period.

Please send written comments and the name of a contact person to: City of Brawley, 383 Main Street, Brawley, CA 92227.

Adoption of the Mitigated Negative Declaration and consideration of the related entitlements will be considered by the Brawley Planning Commission tentatively scheduled for **June 3, 2026 at 5:30 PM** at the City Council Chambers, 383 Main Street, Brawley, CA 92227. A public hearing notice will be sent to all property owners within 300 feet of the project site.

Project Title: Brawley Gateway Mixed Use Master Plan Development

Project Location: Lot 16 of Brawley Gateway Unit 1 **-** South of (future) Legion Road, east of Brawley Avenue / State Route 86, and north of the Rockwood Canal, City of Brawley, Imperial County, California.

APN's: 048-440-001

Project Description:

The project proposes a Zone Change, a Site Plan, a Tentative Tract Map, and amendments to the Brawley General Plan and Gateway Specific Plan to allow development of a mixed-use project on an approximately 66-acre site currently used for agricultural purposes. The eastern portion of the site (approximately 29 acres) would allow development of up to 408 multi-family residential units, including on-site amenities such as open space, recreation areas, and parking facilities. The western portion of the site (approximately 37 acres) would be subdivided into 11 commercial lots intended to accommodate a range of commercial uses, including retail and a hotel with approximately 100 rooms. The eastern portion of the site would consist of three (3) multi-family residential lots. Primary site access is planned from (future) Legion Road to the north. Additional circulation includes future roadway connections along the eastern and southern boundary, which would require construction adjacent to the Rockwood Canal, subject to coordination and approvals from the Imperial Irrigation District.

The project requires approval of a Gateway Specific Plan Amendment, a Zone Change, a General Plan Amendment, a Site Plan, and a Tentative Tract Map.

Copies of the Draft Initial Study/Mitigated Negative Declaration and referenced technical studies are available for public review at the following locations:

City of Brawley
383 Main Street
Brawley, CA 92227

Brawley Development Services
205 S. Imperial Avenue
Brawley, CA 92227

EXHIBIT A
VICINITY MAP

APN:
048-440-001



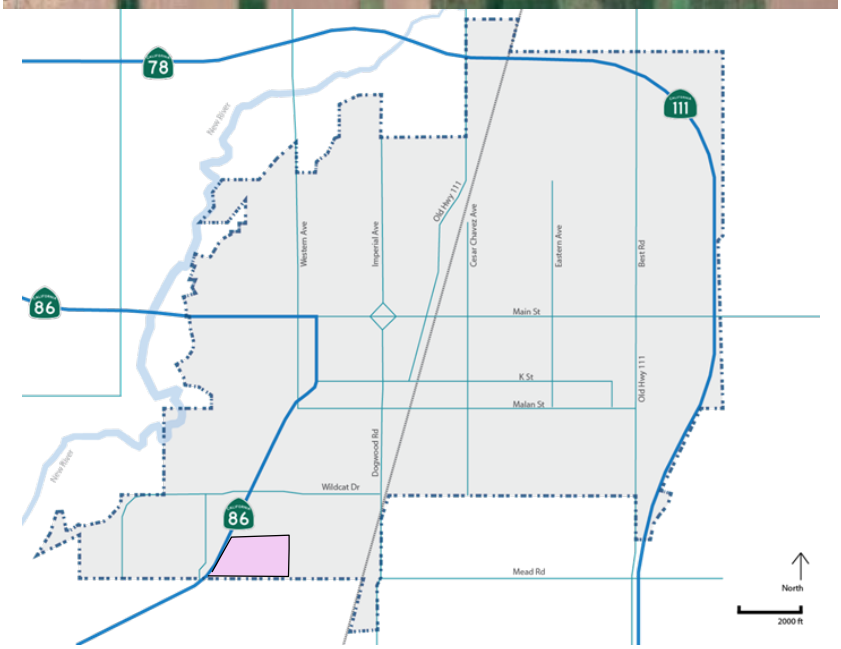
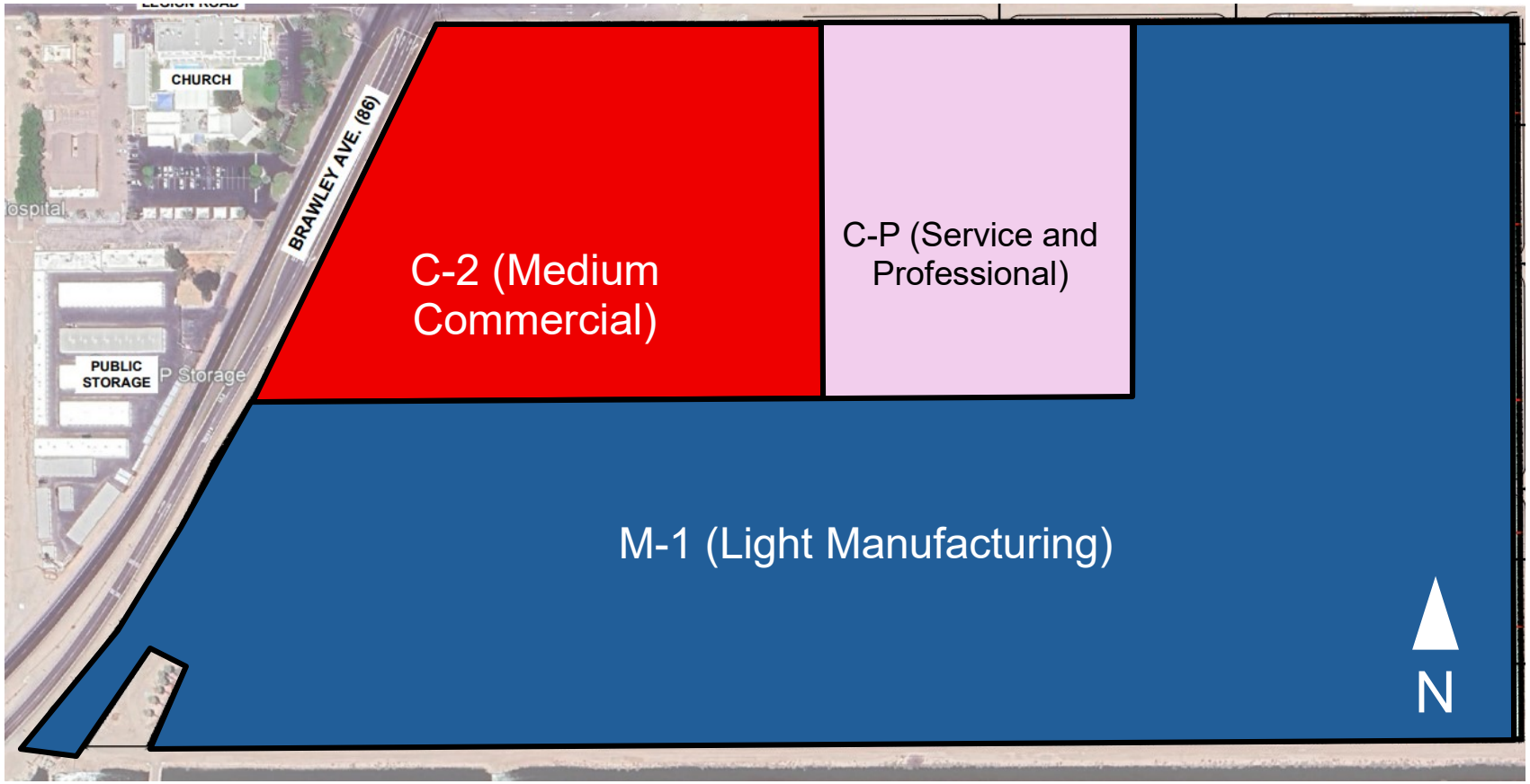


EXHIBIT B
EXISTING ZONING

LEGION ROAD

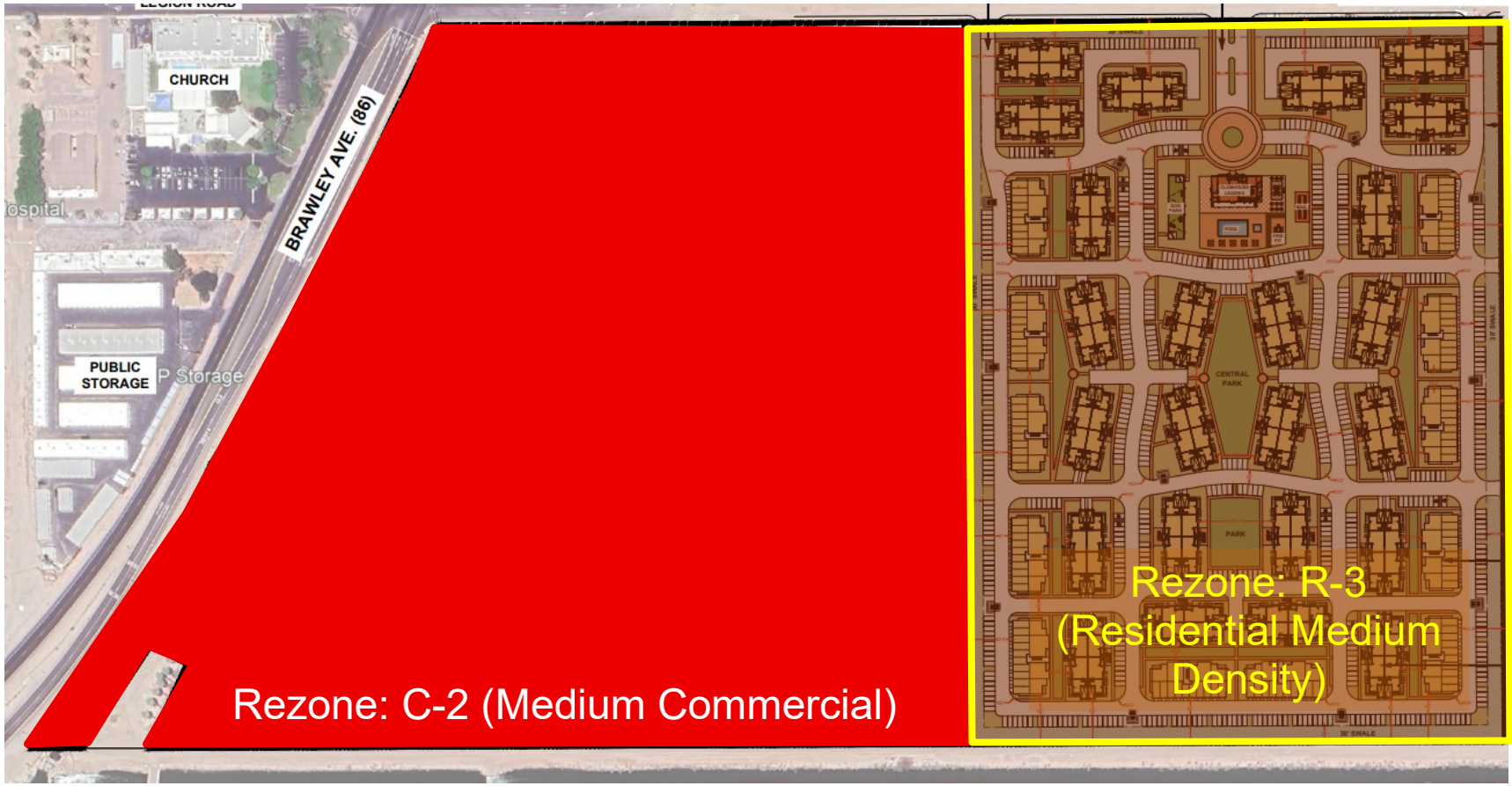


WESTERN AVENUE

MEAD ROAD

EXHIBIT C
PROPOSED NEW ZONING

LEGION ROAD



MEAD ROAD

WESTERN AVENUE

N

EXHIBIT D
EXISTING GENERAL PLAN DESIGNATION

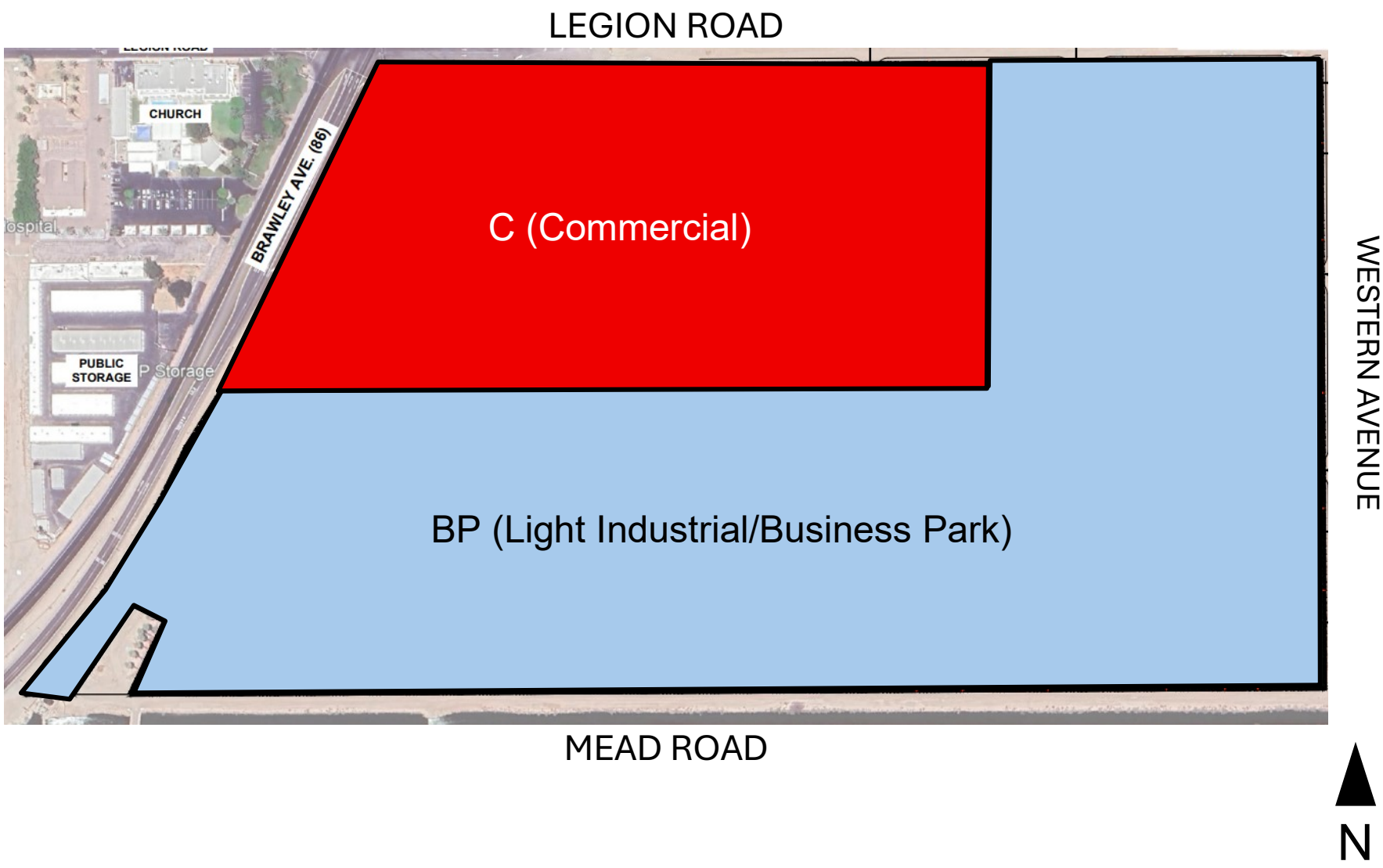
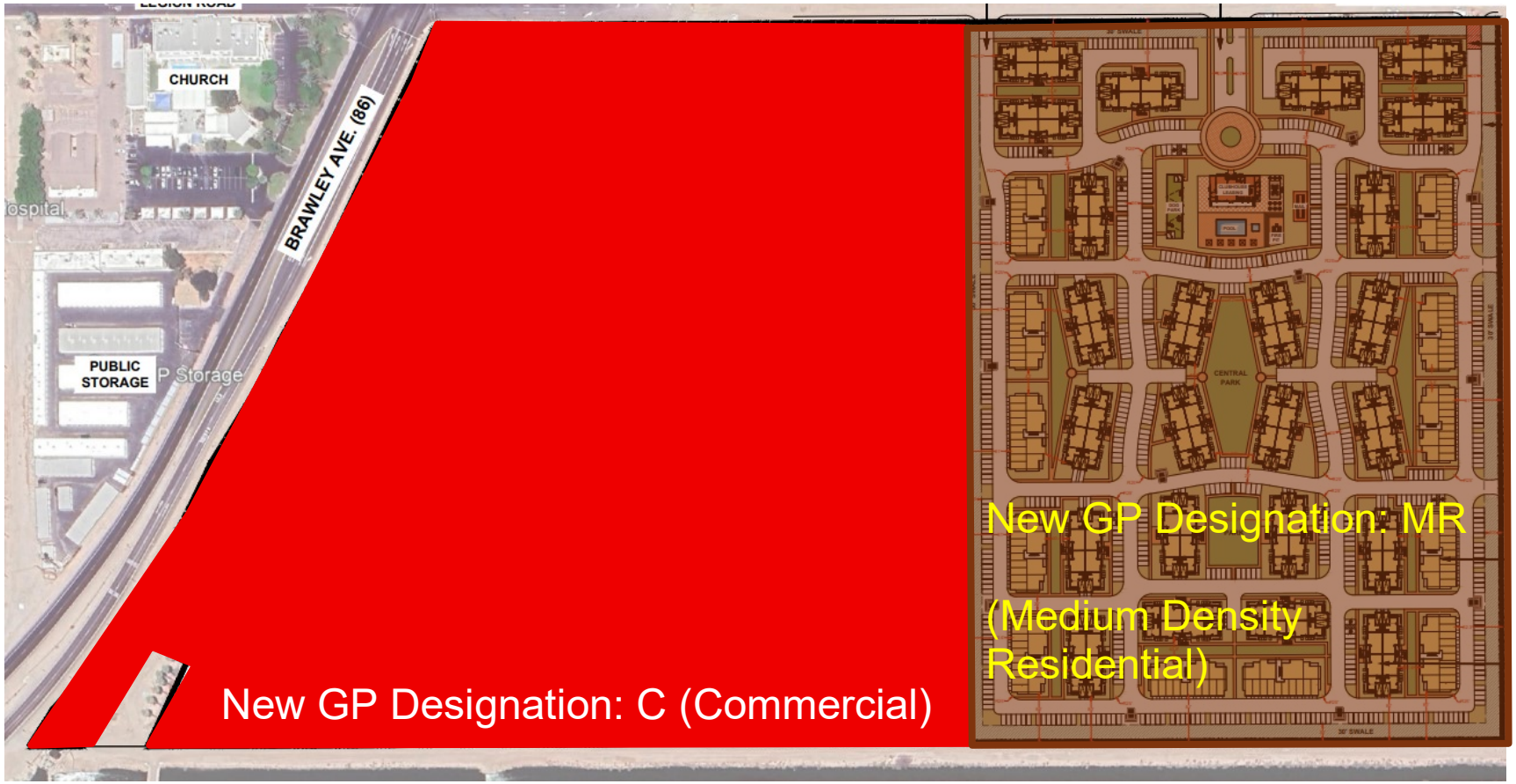


EXHIBIT E
PROPOSED GENERAL PLAN DESIGNATION

LEGION ROAD



MEAD ROAD

WESTERN AVENUE

N

EXHIBIT F – CONCEPTUAL SITE PLAN

COMMERCIAL PAD SUMMARY TABLE

SITE AREA: 36 ACRES

PAD SUMMARY

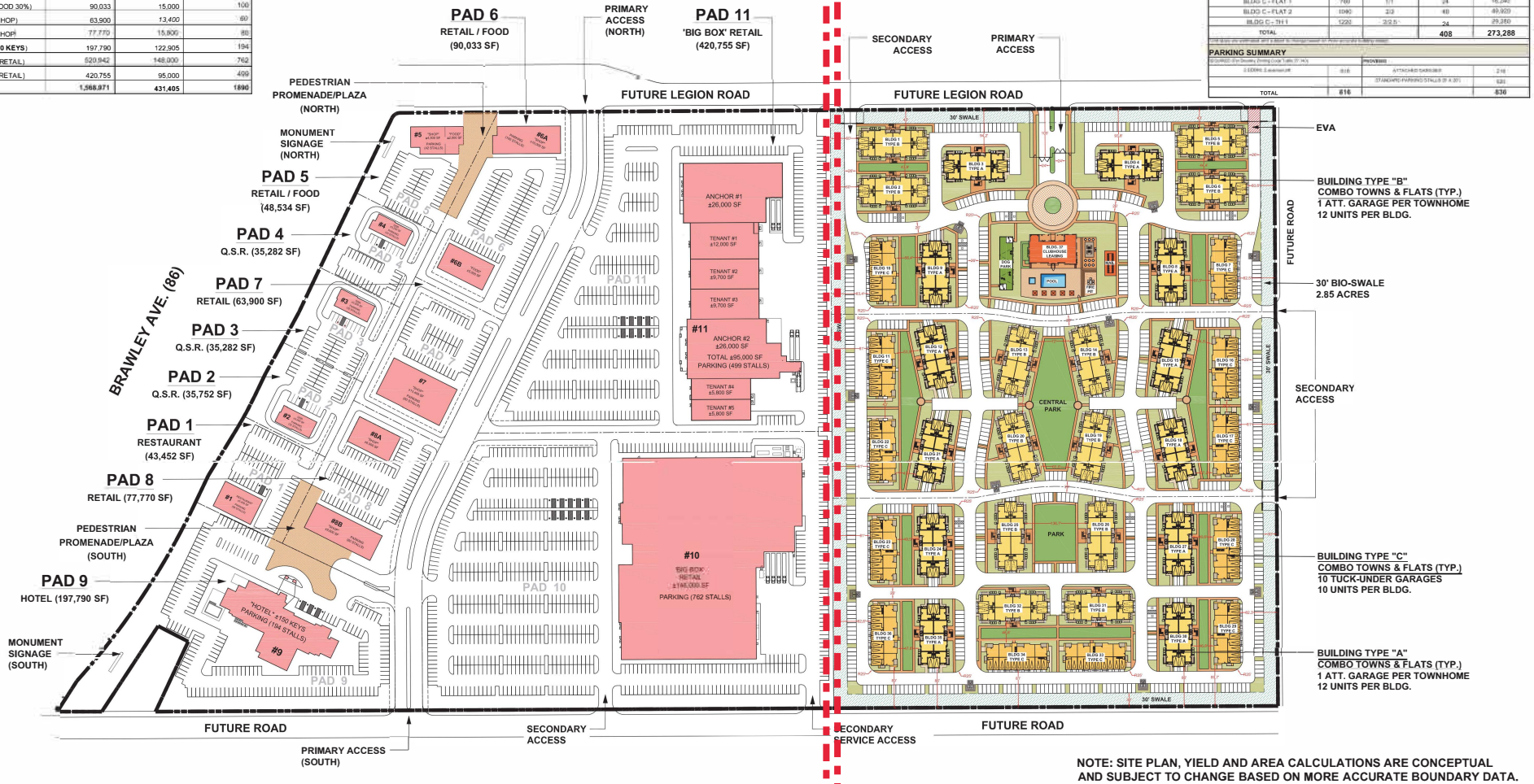
PAD NUMBER	LOT SIZE (SF)	TOTAL BUILDING AREA (SF)	NO. OF PARKING PROVIDED
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL / FOOD 30%)	48,534	6,500	42
#6 (RETAIL/ FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	13,400	60
#8 (RETAIL / SHOP)	77,770	15,800	80
#9 (HOTEL - 150 KEYS)	197,790	122,905	194
#4 ('BIG BOX' RETAIL)	520,942	148,000	762
#4 ('BIG BOX' RETAIL)	420,755	95,000	499
TOTAL	1,568,971	431,405	1890

APARTMENT SUMMARY TABLE

SITEAREA	28.77 ACRES			
TOTAL UNITS	408 UNITS			
DENSITY	14.2 DU/AC			
APARTMENT UNIT SUMMARY				
BLDG A - UNIT 1	760	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG C - CARRIAGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	760	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	49,920
BLDG C - TH 1	1220	2/2.5	24	29,280
TOTAL			408	273,288
PARKING SUMMARY				
	816	ATTACHED GARAGES	2 ea	
		STANDARD PARKING STALLS (9' X 20')	820	
TOTAL	816			836

PAGE 9

PAGE 10



NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

Source: W Design & Architects, 03/09/2025

Not to Scale

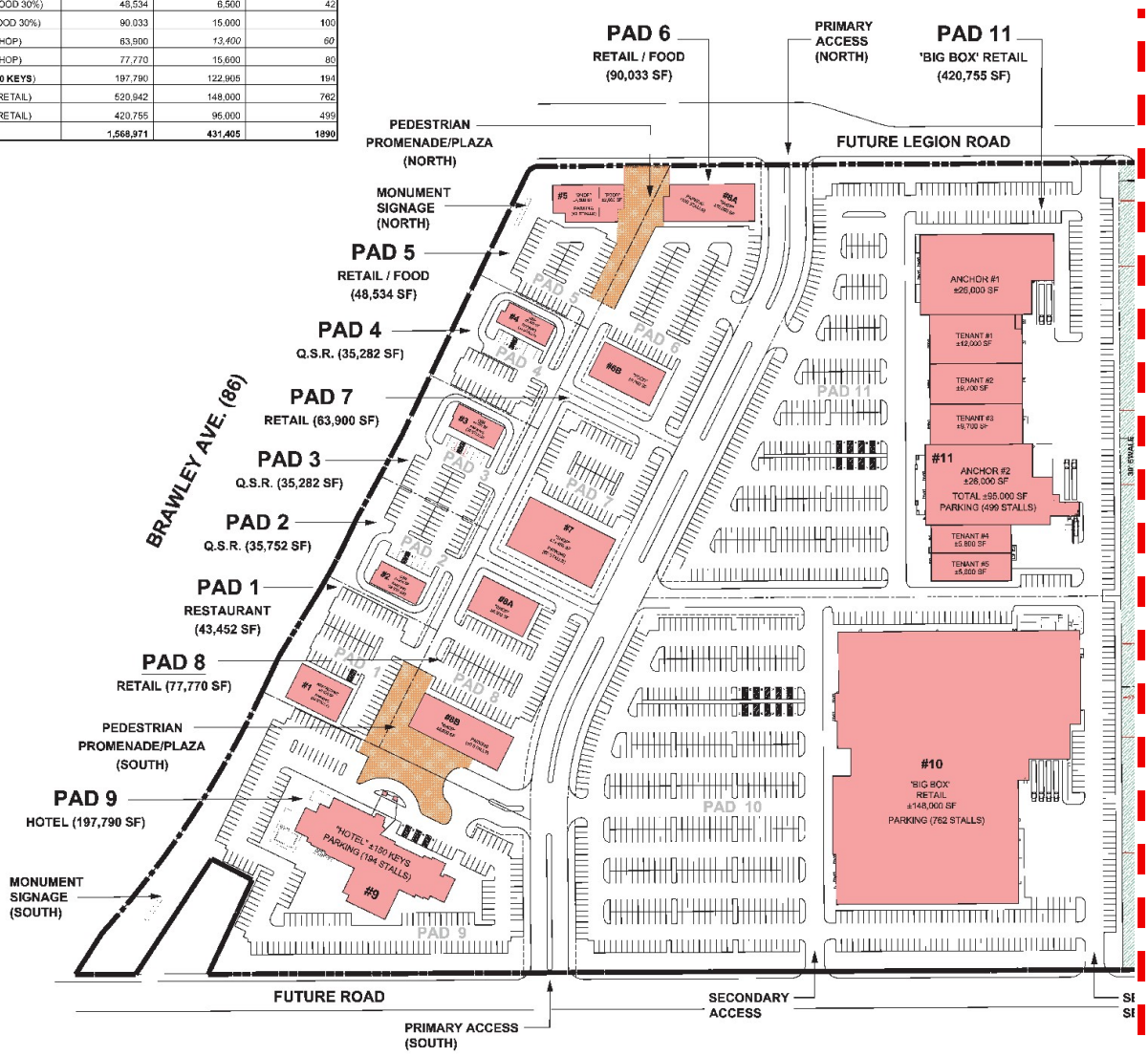
Michael Baker INTERNATIONAL

Project Site Plan

Exhibit 1

EXHIBIT F – CONCEPTUAL SITE PLAN

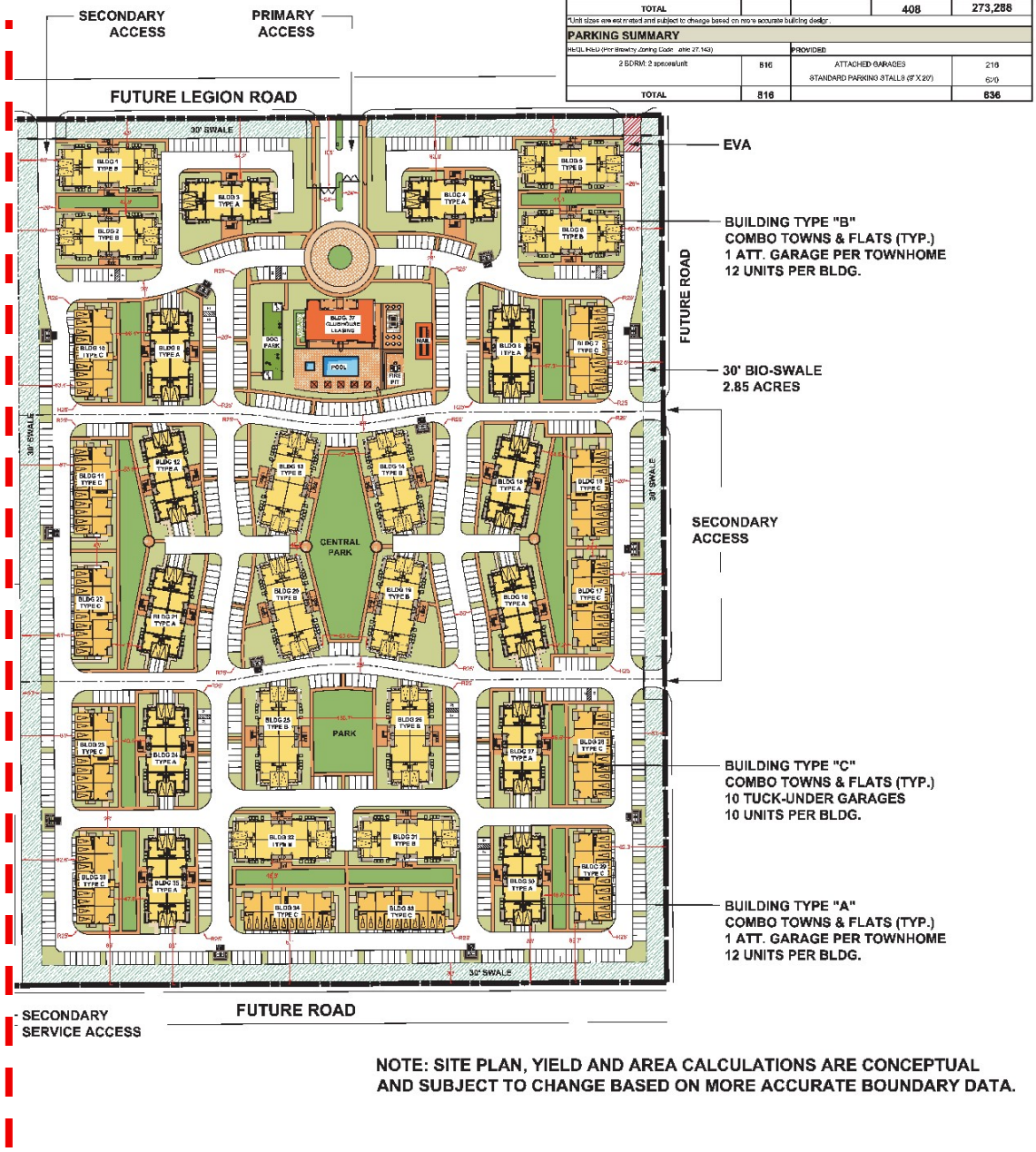
COMMERCIAL PAD SUMMARY TABLE			
SITE AREA	36 ACRES		
PAD SUMMARY			
PAD NUMBER	LOT SIZE (SF)	TOTAL BUILDING AREA (SF)	NO. OF PARKING PROVIDED
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL / FOOD 30%)	48,534	6,500	42
#6 (RETAIL/ FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	13,400	60
#8 (RETAIL / SHOP)	77,770	15,600	80
#9 (HOTEL, 150 KEYS)	197,790	122,905	194
#4 ('BIG BOX' RETAIL)	520,942	148,000	762
#4 ('BIG BOX' RETAIL)	420,755	96,000	499
TOTAL	1,568,971	431,405	1890



Source: W Design & Architects, 03/09/2025

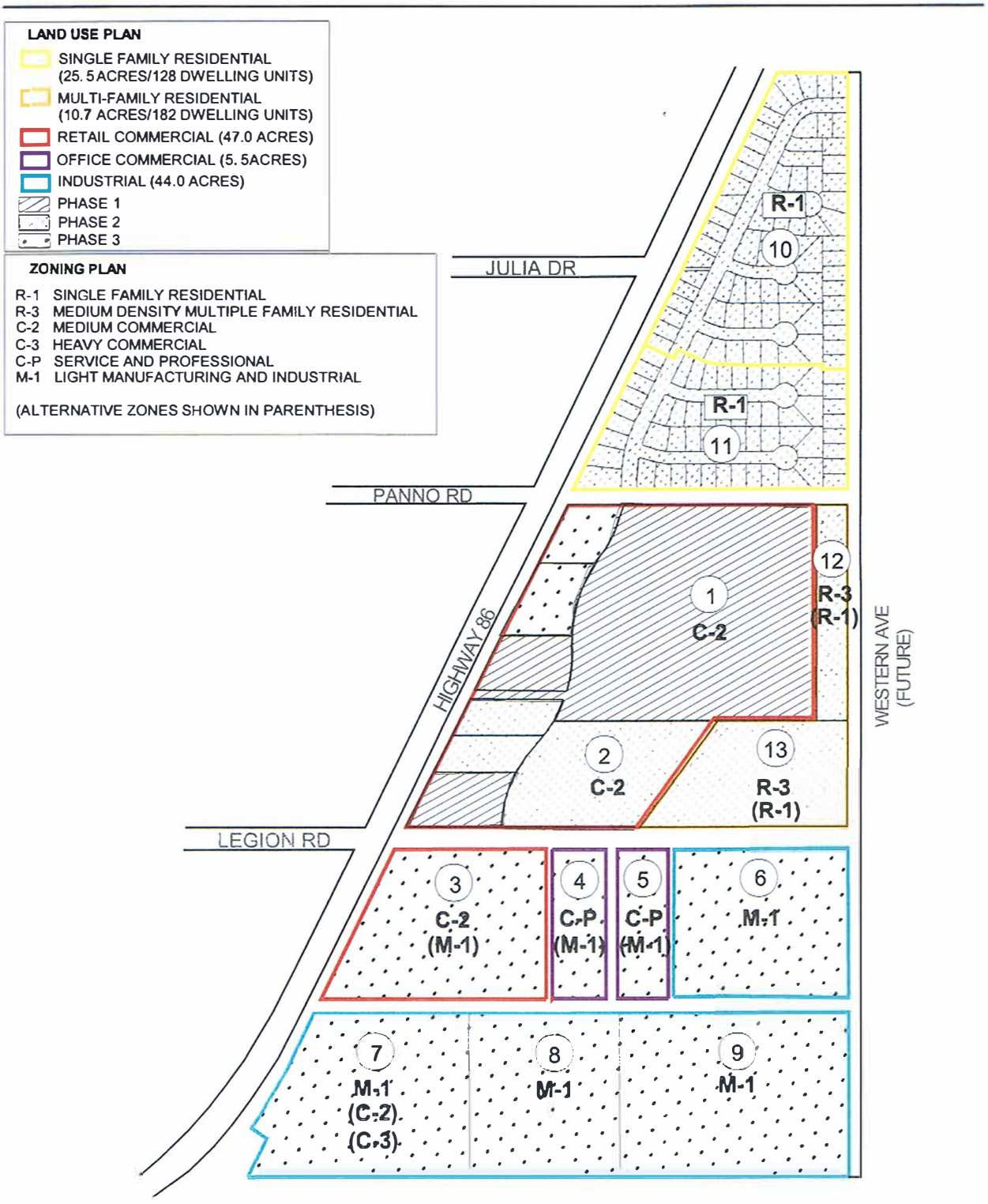
EXHIBIT F – CONCEPTUAL SITE PLAN

APARTMENT SUMMARY TABLE				
SITE AREA	28.77 ACRES			
TOTAL UNITS	408 UNITS			
DENSITY	14.2 DU/AC			
APARTMENT UNIT SUMMARY				
UNIT PLAN	SQ. FT.*	BD/BA	# UNITS	TOTAL S.F.
BLDG A - UNIT 1	760	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG C - CARRIAGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	760	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	49,920
BLDG C - TH 1	1220	2/2.5	24	29,280
TOTAL			408	273,288
*Unit sizes are estimated and subject to change based on more accurate building design.				
PARKING SUMMARY				
REQUIRED (Per Brawley Zoning Code - Sec 27.143)		PROVIDED		
2 BDRM: 2 spaces/unit	816	ATTACHED GARAGES		216
		STANDARD PARKING STALLS (9' X 20')		620
TOTAL	816			836



NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

EXHIBIT G
EXISTING SPECIFIC PLAN MAP

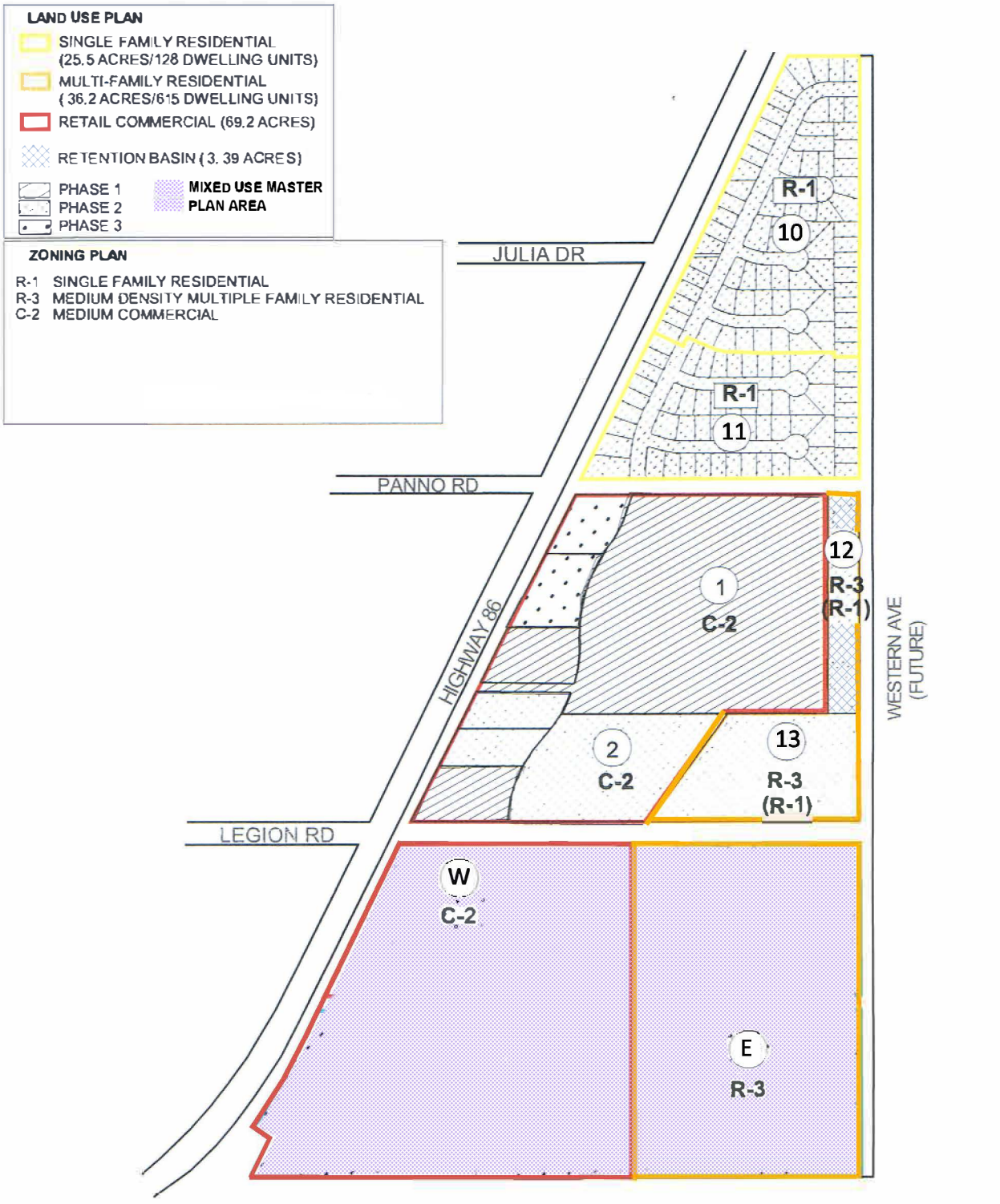


Source: EDAW Inc.

600 0 600 Feet
Scale

Figure 3
Brawley Gateway Specific Plan

EXHIBIT H
AMENDED SPECIFIC PLAN MAP



Source: EDAW Inc.

600 0 600 Feet
Scale

Figure 3
Brawley Gateway Specific Plan

DRAFT

Initial Study & Environmental Analysis
for

Zone Change #24-03
General Plan Amendment #24-02
Specific Plan Amendment #26-01
Tentative Tract Map #26-01
Site Plan #26-04

BRAWLEY GATEWAY MIXED USE MASTER PLAN DEVELOPMENT

City of Brawley

383 Main Street
Brawley, CA 92227
(760) 344-2222

JUNE 2026

City of Brawley
Initial Study/Environmental Checklist

---

1. **Project Title** Zone Change (ZC) #24-03 / General Plan Amendment (GPA) #24-02 / Specific Plan Amendment (SPA) #26-01 / Tentative Tract Map (TTM) #26-01 / Site Plan (SP) #26-04 – Brawley Gateway Mixed Use Master Plan Development (a.k.a. "YK America")

2. **Lead agency name and address:**

City of Brawley
383 Main Street
Brawley, CA 92227

Contact: Cristhian Barajas, Development Services Director
(760) 344-8822
cristhian.barajas@brawley-ca.gov

3. **Property Owner:** Thomas R. & Lucy Church, Co-Trustees et al.

4. **Project Developer:** Pacific Anchor Holdings, LLC

5. **Project Representative:** David Wang, Senior Project Manager (YK America)

6. **Legal Description:** LOT 16 BRAWLEY GATEWAY-UNIT 1 CITY OF BRAWLEY 66.29 AC

APN: 048-440-001

7. **Project Location:** SE Corner of Highway 86 & Legion Road

8. **Project Description:** The Brawley Gateway Mixed Use Master Plan Development consists of a Zone Change (ZC #24-03), General Plan Amendment (GPA #24-02), Specific Plan Amendment (SPA #26-01), Tentative Major Subdivision (i.e., Tract) Map (TTM #26-01), and Site Plan (#26-04) within the Brawley Gateway Specific Plan Area. ZC #24-03, GPA #24-02, and SPA #26-01 propose to rezone a 66-acre lot along the southern edge of the City of Brawley currently zoned as C-P (Service & Professional), C-2 (Medium Commercial), and M-1 (Light Manufacturing). The project site is currently utilized for agricultural purposes and is located within the Gateway Specific Plan area. The proposed rezone would divide the lot between a C-2 zone on the west and an R-3 (Residential Medium Density) zone on the east. The C-P and M-1 zones would be eliminated, as well as the alternate zoning designations provided in the current Gateway Specific Plan. The rezone is consistent with existing land uses within the project vicinity and the proposed land uses in the Rancho Los Lagos (RLL) annexation directly south of the project site. The area of this lot designated Commercial (C) in the General Plan,

DRAFT

while the Business Park/Light Industrial (BP) area would be removed entirely. The Medium Density Residential (MR) General Plan Land Use designation would also be added to the eastern portion of the site. City Zoning Maps, General Plan Land Use Maps, and Specific Plan Exhibits/Figures will be edited in accordance with these changes. TTM #26-01 proposes subdividing the western (commercial) portion of the site into eleven (11) lots and the eastern (residential) portion of the site into three (3) lots. Pursuant to Section 23A.10 of the Municipal Code and Articles XVI, XVII, and XVIII of the City Zoning Ordinance, the Planning Commission must review the findings within the Brawley Mixed Use Master Plan Development project documents for consistency with adopted regulations and make recommendations to City Council for approval, conditional approval, or disapproval of ZC #24-03; GPA #24-02; SPA #26-01; TTM #26-01; SP #26-04; and the Mitigated Negative Declaration.

9. General Plan Land Use Designation:

Existing City General Plan: Special Study Area (Gateway SP)

Areas 3-5: Commercial (C)

Areas 6-9: Business Park/Light Industrial (BP)

Proposed City General Plan: Special Study Area (Gateway SP)

West Portion: Commercial (C)

East Portion: Medium Density Residential (MR)

10. Specific Plan Land Use Designation:

EXISTING GATEWAY SPECIFIC PLAN

Area 3: Retail Commercial

Areas 4-5: Office Commercial

Areas 6-9: Industrial

PROPOSED GATEWAY SPECIFIC PLAN

West Portion: Retail Commercial

East Portion: Multi-family Residential

DRAFT

11. City Zoning:

Proposed Annexed Territory: N/A

Existing City Zoning: C-P (Service & Professional)
C-2 (Medium Commercial)
M-1 (Light Manufacturing)

Proposed City Zoning: C-2 (Medium Commercial)
R-3 (Residential Medium Density)

12. Specific Plan Zoning:

EXISTING GATEWAY SPECIFIC PLAN

Area 3: C-2 (Medium Commercial)
Alternative: M-1 (Light Manufacturing)

Area 4: C-P (Service & Professional)
Alternative: M-1 (Light Manufacturing)

Area 5: C-P (Service & Professional)
Alternative: M-1 (Light Manufacturing)

Area 6: M-1 (Light Manufacturing)

Area 7: M-1 (Light Manufacturing)
Alternative: C-2 (Medium Commercial)
Alternative: C-3 (Heavy Commercial)

Area 8: M-1 (Light Manufacturing)

Area 9: M-1 (Light Manufacturing)

PROPOSED GATEWAY SPECIFIC PLAN

West Portion: C-2 (Medium Commercial)
no alternatives

East Portion: R-3 (Residential Medium Density)
no alternatives

DRAFT

13. Surrounding Land:

North	C-2 (Medium Commercial);	Gas Station / Vacant
	R-3 (Residential Medium Density);	Vacant
	P-F (Public Facilities);	Retention Basin
South	A-1 (Light Agriculture);	Agriculture / Future RLL
	P-F (Public Facilities);	IID Canal Infrastructure
East	R-1 (Residential Single Family);	Vehicle Storage / Agriculture / Vacant
West	C-P (Service & Professional);	Church/Vacant/Medical
	C-3 (Heavy Commercial);	Mini-Storage
	Transportation:	Highway 86 expressway

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

a) Building
b) Fire
c) Public Works
d) Imperial Irrigation District

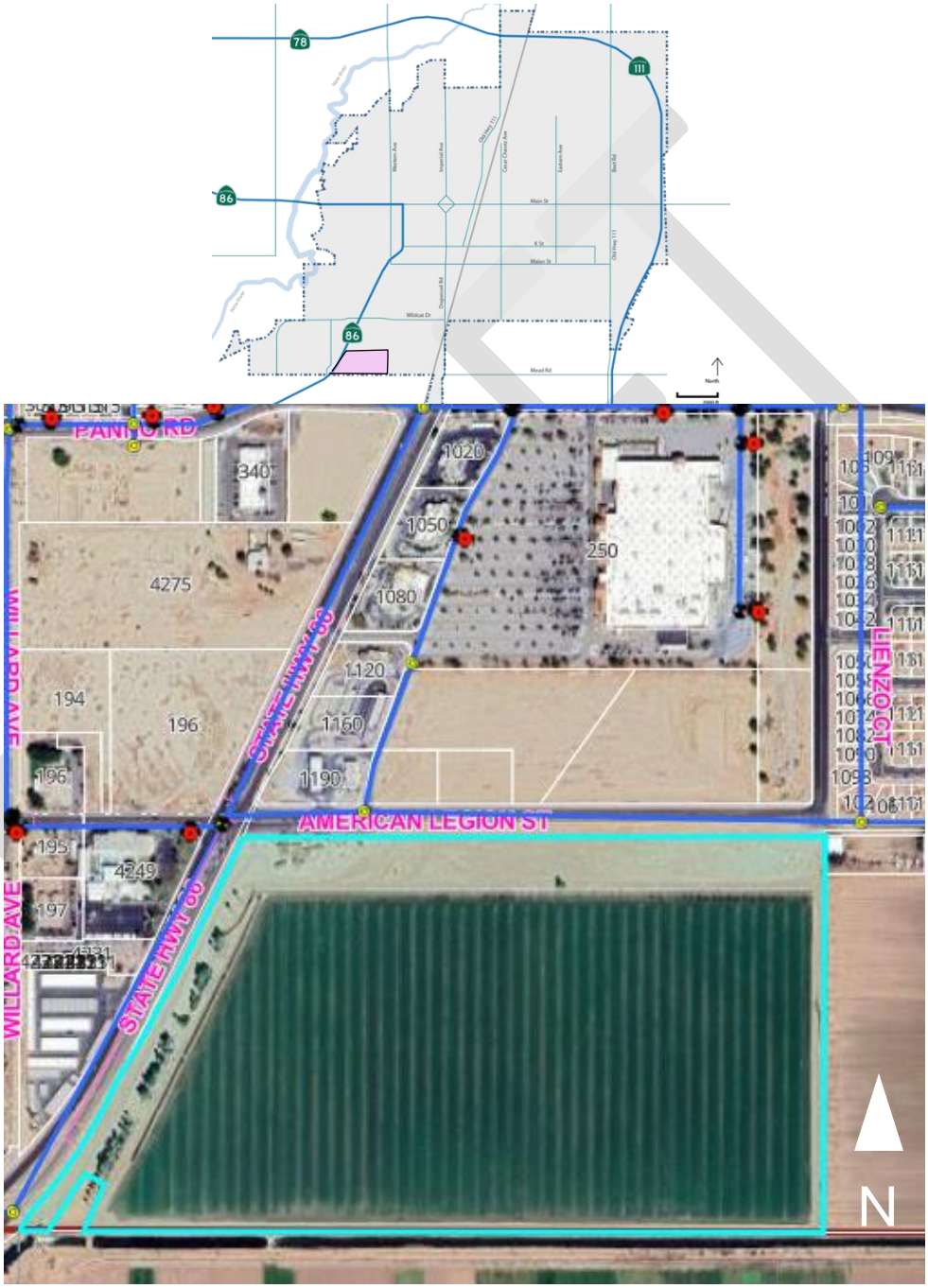
15. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1?

AB 52 and SB 18 consultation letters to tribal contacts were mailed out to tribal contacts provided by the NAHC. Native American tribes traditionally and/or culturally affiliated with the project area either stated that they did not wish to comment or did not respond to letters requesting comments. The project developer will be required to have Native American monitoring during project construction. Tribal consultation shall be conducted in the case of the discovery of a tribal resource during ground-disturbing activities.

DRAFT

EXHIBIT A
Vicinity Map/Project Location

APN: 048-440-001



INTRODUCTION:

This Initial Study (IS) has been prepared by the City of Brawley, as Lead Agency, in accordance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The purpose of this Initial Study is to determine whether the Brawley Mixed Use Master Plan Development may have a significant effect on the environment and to identify mitigation measures that would reduce any potentially significant impacts to a less-than-significant level. This Initial Study is based on technical analyses prepared for the project, including air quality, biological resources, noise, transportation and vehicle miles traveled (VMT), and cultural resources studies.

PROJECT DESCRIPTION:

This Brawley Gateway Mixed Use Master Plan Development project proposes a Zone Change (ZC #24-03), amendments to the City of Brawley General Plan (GPA #24-02) and Brawley Gateway Specific Plan (SPA #26-01), a Tentative Major Subdivision/Tract Map (TTM #26-01), and a Site Plan (SP #26-04) to allow development of a mixed-use project on an approximately 66-acre site located within the City of Brawley. The project site is currently utilized for agricultural purposes and is identified as Lot 16 of Brawley Gateway Unit 1. The Assessor's Parcel Number (APN) for this site is 048-440-001.

According to the Brawley Zoning Map, the zoning designations for the project site are C-P (Service & Professional), C-2 (Medium Commercial), and M-1 (Light Manufacturing). The Brawley Gateway Specific Plan also includes M-1, C-2, and C-3 (Heavy Commercial) as alternative zoning designations for some portions of the site. The proposed rezone would divide the site into an eastern portion zoned R-3 (Residential Medium Density) and C-2 (Medium Commercial), with any C-P, C-3, and M-1 designations being eliminated. Figures within the Brawley Gateway Specific Plan will be amended to reflect these modifications and eliminations of corresponding land uses. The Brawley General Plan will also be amended to reflect the elimination of the Business Park/Light Industrial (BP) land use designation within the project area, as well as the addition of the Medium Density Residential (MR) designation and the expansion of the Commercial (C) designation. The rezone is consistent with existing land uses within the project vicinity as well as the proposed land uses in the Rancho Los Lagos (RLL) Specific Plan, intended for future annexation directly south of the project site.

The eastern portion of the site, approximately 29 acres, would allow development of up to 408 multi-family residential units with amenities, open space, and parking. The submitted Tentative Tract Map proposes subdividing this portion of the site into three (3) lots. The western portion of the site, approximately 37 acres, would be subdivided into 11 commercial lots intended to accommodate a variety of commercial uses, including retail development and a hotel with approximately 100 rooms.

Primary access to the project site would be provided from Legion Road along the northern boundary. Additional circulation includes a future roadway connection along the southern boundary of the site, which would require construction adjacent to the Rockwood Canal, subject to coordination and approval by the Imperial Irrigation District and other applicable agencies.

DRAFT

ENVIRONMENTAL SETTING:

The project site is located within City limits and is designated for urban development under the City of Brawley General Plan and Gateway Specific Plan. Surrounding land uses include existing and planned commercial development to the west and north, agricultural land to the east and south, and State Route 86 along the western boundary. The vacant land north of the eastern portion of the site is proposed for multifamily residential development. Vacant and agricultural land to the east of the site has been zoned for single-family residential development. The site is generally flat and actively farmed, with irrigation provided by the Rockwood Canal along the site's southern boundary. Canals along the north and west have been undergrounded.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

DRAFT

ENVIRONMENTAL REVIEW COMMITTEE DETERMINATION

The proposed project could not have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.	
The proposed project could have a significant effect on the environment; however, there will not be a significant effect in this case because **the mitigation measures** described on an attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION** will be prepared.	**X**
The proposed project MAY have a significant effect(s) on the environment and an **ENVIRONMENTAL IMPACT REPORT** is required.	
The proposed project MAY have a significant effect(s) 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, if the effect is a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated." **A FOCUSED ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.	
Although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because all potentially significant effects (1) have been analyzed in an earlier EIR pursuant to applicable standards and (2) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project. **No further action is required.**	

CA Department of Fish and Game
No Impact Finding ▢ Requested

Cristhian Barajas, Date
Development Services Director

Yes	No	Absent	Members of the EEC
			Public Works
			Police
			Fire
			Planning
			Administration

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 is 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 Section 17, "Earlier Analysis," may be cross-referenced).

5) Earlier analysis 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.

    Authority: *Public Resources Code Sections 21083 and 21087. Reference: Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151; Sundstrom v. County of Mendocino, 202 Cal. App. 3d 296 (1988); Leonoff v. Monterey Board of Supervisors, 222 Cal. App. 3d 1337 (1990).*

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.

DRAFT

I. AESTHETICS *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
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) Substantially degrade the existing visual character or quality of public views of the site and its surroundings?			**X**	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			**X**	

I. AESTHETICS IMPACT DISCUSSION

The project would convert agricultural land to urban development, introducing new buildings, roadways, and landscaping. Development standards contained in the Gateway Specific Plan and the Brawley Zoning Ordinance regulate design, landscaping, and site layout. Visual impacts would be consistent with planned urban development in the Gateway District, as previously identified in the District's environmental review documents. Impacts would be less than significant.

II. AGRICULTURE AND FORESTRY RESOURCES *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
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**

DRAFT

II. AGRICULTURE AND FORESTRY RESOURCES *(continued)* *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				**X**
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?		**X**		

II. AGRICULTURE AND FORESTRY RESOURCES DISCUSSION

The project would result in the conversion of agricultural land to urban uses. The project site is designated for urban development under the General Plan and Gateway Specific Plan. While the conversion of agricultural land represents a change in land use, it would not result in an additional significant impact to agricultural resources when evaluated in the context of adopted planning documents. Although the project will be developed in the conversion of farmland to non-agricultural use, the adopted Gateway Specific Plan environmental analysis originally accounted for the transformation of agricultural land into urban development. However, mitigation will require the project to carry out construction so that no damage or loss of essential agricultural irrigation or water infrastructure occurs, thereby affecting nearby agricultural uses. Furthermore, the project site's land is not under a Williamson Act Contract, nor is it surrounded by any such land. With the aforementioned mitigation, impacts would be less than significant.

III. AIR QUALITY – *Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.* *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Conflict with or obstruct implementation of the applicable air quality plan?			**X**	

III. AIR QUALITY ***(continued)*** *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				**X**
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			**X**	
d) Expose sensitive receptors to substantial pollutant concentrations?			**X**	
e) Create objectionable odors affecting a substantial number of people?			**X**	

III. AIR QUALITY DISCUSSION

An Air Quality Assessment was prepared for the project to evaluate construction and operational emissions. Construction activities would generate temporary emissions of criteria air pollutants and fugitive dust. Maximum daily construction emissions would not exceed Imperial County Air Pollution Control District (ICAPCD) thresholds with implementation of mitigation measures.

Operational emissions associated with vehicle trips and energy use would not exceed applicable thresholds and would not obstruct implementation of the Air Quality Attainment Plan for Imperial County.

Mitigation Measures:

MM-AQ-1 Fugitive Dust Control:	Implement ICAPCD-required dust control measures during construction.
MM-AQ-2 Construction Equipment Emissions:	Limit idling, maintain equipment, and utilize best available control technologies where feasible.

With implementation of these measures, air quality impacts would be reduced to less than significant.

IV. BIOLOGICAL RESOURCES *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		**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 Game or U.S. Fish and Wildlife Service?				**X**
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		**X**		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				**X**
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				**X**

IV. BIOLOGICAL RESOURCES DISCUSSION

A Biological Resources Assessment determined that the project site consists primarily of active agricultural land with limited habitat value. No sensitive natural communities or special-status species were observed during site surveys. The project area is within potential habitat for the western burrowing owl.

DRAFT

Mitigation Measures:

MM-BIO-1 Jurisdictional Resources:	Complete a formal aquatic resources delineation prior to grading and obtain any required permits if impacts to jurisdictional waters cannot be avoided.
MM-BIO-2 Burrowing Owl Protection:	Conduct pre-construction surveys and implement avoidance and buffer measures consistent with CDFW guidance.
MM-BIO-3 Bat Roosting Habitat	Conduct bat roost assessments prior to removal of palm trees, if applicable.

With implementation of these measures, impacts to biological resources would be reduced to less than significant.

V. CULTURAL RESOURCES *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?			**X**	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?			**X**	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			**X**	
d) Disturb any human remains, including those interred outside of formal cemeteries?			**X**	

V. CULTURAL RESOURCES DISCUSSION

A Cultural Resources Assessment and records search were conducted for the project site. No historical or archaeological resources were identified. The project would not result in a significant impact to cultural resources.

Mitigation Measures:

MM-CUL-1
Inadvertent Discovery:

If cultural resources are discovered during construction, work shall cease and a qualified archaeologist shall evaluate the find in accordance with CEQA and State requirements.

VI. ENERGY

The project would comply with Title 24 and CALGreen requirements. Project energy features would therefore have a less than significant impact.

VII. GEOLOGY AND SOILS *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			**X**	
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 landslides, lateral spreading, subsidence, liquefaction or collapse?			**X**	

VII. GEOLOGY AND SOILS ***(continued)*** *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			**X**	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?			**X**	

VII. GEOLOGY AND SOILS DISCUSSION

A geotechnical report will provide the appropriate design methods to ensure health and safety and reduce the risk of structure failure. No unusual geological hazards are identified. Compliance with CBC required.

VIII. GREENHOUSE GAS EMISSIONS *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
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**	

VIII. GREENHOUSE GAS EMISSIONS DISCUSSION

The project would generate greenhouse gas emissions from construction activities and vehicle trips associated with future development. The project is consistent with regional growth assumptions and would not conflict with any applicable greenhouse gas reduction plans.

Mitigation Measures:

MM-GHG-1

Energy Efficiency and Transportation Measures: Implement applicable ICAPCD, Title 24, and CALGreen requirements.

DRAFT

IX. HAZARDS AND HAZARDOUS MATERIALS *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
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 reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			**X**	
d) Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				**X**
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			**X**	
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?			**X**	
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			**X**	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			**X**	

IX. HAZARDS AND HAZARDOUS MATERIALS DISCUSSION

The project site is not currently listed as a site containing hazardous materials. Standard construction practices and stop work protocols apply to mitigate any significant impacts.

DRAFT

X. HYDROLOGY AND WATER QUALITY *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Violate any water quality standards or waste discharge requirements			**X**	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				**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, in a manner which would result in substantial erosion or siltation on- or off-site?			**X**	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result In flooding on- or off-site?				**X**
e) 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?		**X**		
f) Otherwise substantially degrade water quality?			**X**	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				**X**
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				**X**
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				**X**
j) Inundation by seiche, tsunami, or mudflow?				**X**

DRAFT

X. HYDROLOGY AND WATER QUALITY DISCUSSION

Development of the project site would increase impervious surface area, potentially affecting runoff and water quality. The project would comply with all applicable City of Brawley, Regional Water Quality Control Board, and State requirements. A preliminary analysis indicates that the existing infrastructure may be able to accommodate the project's water discharge needs. However, the project is required to provide confirmation that the nearby regional detention basin has adequate capacity to support project needs.

Mitigation Measures:

MM-HYD-1
Stormwater Management: Prepare and implement a SWPPP and Best Management Practices for water quality.

MM-HYD-2
Construction Controls: Implement erosion and sediment control measures during grading.

With mitigation, impacts would be less than significant.

XI. LAND USE/PLANNING *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Physically divide an established community?				**X**
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				**X**
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				**X**

XI. LAND USE/PLANNING DISCUSSION

The project is consistent with the Brawley Gateway Specific Plan and General Plan overall goals. It will require a Zone Change, General Plan Amendment, and Specific Plan Amendment to ensure zoning consistency.

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

XII. MINERAL RESOURCES DISCUSSION

There are no known mineral resources in the project area.

XIII. NOISE	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Would the project involve exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			**X**	
b) Would the project involve exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?			**X**	
c) Would the project involve a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			**X**	
d) Would the project involve a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			**X**	

DRAFT

XIII. NOISE ***(continued)***	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
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 expose people residing or working in the project area to excessive noise levels?				**X**
f) For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				**X**

XIII. NOISE DISCUSSION

A Noise Assessment evaluated potential construction and operational noise impacts. Construction noise would be temporary and regulated by City standards. Operational noise from traffic and commercial uses would be compatible with surrounding land uses.

Mitigation Measures:

MM-NOI-1
Construction Noise Control: Limit construction to permitted hours and use properly maintained equipment.

MM-NOI-2
Operational Noise Standards: Design residential buildings, ancillary structures, and equipment to meet applicable interior and exterior noise standards.

With mitigation, impacts would be less than significant.

DRAFT

XIV. POPULATION AND HOUSING *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and business) or indirectly (for example, through extension of roads or other infrastructure)?		**X**		
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				**X**
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				**X**

XIV. POPULATION AND HOUSING DISCUSSION

Impacts on population are generally in line with local growth expectations, but the project still has the potential to directly induce substantial population growth in the area due to proposals for new businesses and residences. Indirect population growth is also possible due to infrastructure improvements along Mead Road, Legion Road, and Western Avenue. No housing exists on the lot at present. The project would provide new housing consistent with planning documents, as City staff anticipates the northern portion of the Gateway Specific Plan currently designated as residential use will undergo future zoning changes that will relocate the proposed housing within the Specific Plan to this site.

Mitigation Measures:

MM-POP-1 Project Phasing:	Developer will phase project to induce gradual growth and will implement necessary improvements to nearby infrastructure, such as roads and sidewalks.

With mitigation, impacts would be less than significant.

DRAFT

XV. PUBLIC SERVICES *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
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:			**X**	
1. Fire Protection?			**X**	
2. Police Protection?			**X**	
3. Schools?			**X**	
4. Parks?			**X**	
5. Other Public Facilities?			**X**	

XV. PUBLIC SERVICES DISCUSSION

The proposed project will require Fire and Police services but will not have a significant impact. Adequate services are available with development conditions. Additionally, the development has identified dedicated areas on the site for future Public Facilities use.

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

DRAFT

XVI. RECREATION DISCUSSION

On-site amenities are provided, including centrally located parks in the multifamily residential portion, and a multi-purpose trail adjacent to Caltrans right-of-way on the western edge of the development, connecting to other nearby development.

XVII. TRANSPORTATION AND TRAFFIC *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			**X**	
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			**X**	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?			**X**	
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			**X**	
e) Result in inadequate emergency access?			**X**	
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			**X**	

DRAFT

XVII. TRANSPORTATION AND TRAFFIC DISCUSSION

A Transportation Impact Analysis and Vehicle Miles Traveled study were prepared for the project. The project is forecast to generate approximately 15,150 daily vehicle trips. The analysis determined that the project would not result in significant transportation impacts under SB 743. Local circulation improvements would be implemented as conditions of approval.

Mitigation Measures:

MM-TRAF-1 Roadway Improvements:	Implement required roadway, signal, and access improvements.

Transportation impacts would be less than significant.

XVIII. TRIBAL CULTURAL RESOURCES

In accordance with AB 52 and SB 18, mail and electronic communications were initiated with tribes culturally affiliated with the project site. Letters were mailed out to culturally affiliated tribes on August 15, 2025. Only the Ft. Yuma Quechan Tribe responded to the City during the AB 52 and SB 18 consultation periods, with the tribe stating that they did not wish to comment on this project.

The Cultural Resource study prepared for this project acknowledged the potential for unknown tribal cultural resources to be unearthed during project construction. In addition to the mitigation measures established for general cultural resources, mitigation measures have also been proposed to reduce potential impacts on unknown tribal cultural resources to less than significant.

Mitigation Measures:

MM-TCR-1 Tribal Cultural Resources:	If tribal cultural resources are identified, the City shall coordinate with affiliated tribes regarding appropriate treatment.
MM-TCR-2 Tribal Cultural Monitor:	A Tribal Cultural Monitor shall be on site for ground disturbing activities, and culturally affiliated tribes shall be consulted in the event of new developments, such as the inadvertent discovery of cultural artifacts, cremation sites, or human remains.

DRAFT

XIX. UTILITIES AND SERVICE SYSTEMS *Would the project:*	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			**X**	
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			**X**	
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			**X**	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			**X**	
e) 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**	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			**X**	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			**X**	

XIX. UTILITIES AND SERVICE SYSTEMS DISCUSSION

The project would be served by existing City water, wastewater, and solid waste facilities. Any infrastructure improvements required to serve the project would be implemented as part of development.

XX. WILDFIRE

The project is located in an urban area and is not located in any known Fire Hazard Severity Zone.

DRAFT

MANDATORY FINDINGS OF SIGNIFICANCE

The following are Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			**X**	
b) 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**	

Although the project is situated within the context of regional and local growth, such as the proposed Lithium Valley Specific Plan, the Rancho Los Lagos annexation, Wal-Mart expansion, nearby commercial and residential growth within the Brawley Gateway District and the Latigo Ranch areas, nothing unique about the proposed rezone for this project deviates from the intent to develop the site per the Brawley Gateway Specific Plan and relevant environmental studies, that would result in additional mandatory findings of significance.

DRAFT

CONCLUSION

Based on the analysis contained in this Initial Study, the City of Brawley finds that the project could have a significant effect on the environment; however, with incorporation of the mitigation measures identified herein, all potentially significant impacts would be reduced to a less-than-significant level. Therefore, a Mitigated Negative Declaration has been prepared for the project.

PERSONS AND ORGANIZATIONS CONSULTED

Brawley Public Works Department
Brawley Fire Department
Imperial Irrigation District

REFERENCES

2025 California Fire Code
2008 General Plan EIR
2004 Addendum to the Mitigated Negative Declaration for the Brawley Gateway Specific Plan

DRAFT

CITY OF BRAWLEY
MITIGATED NEGATIVE DECLARATION
BRAWLEY GATEWAY MIXED USE MASTER PLAN DEVELOPMENT

Zone Change, General Plan Amendment, Gateway Specific Plan Amendment, Tentative Major Subdivision/Tract Map, and Site Plan

(ZC #24-03, GPA #24-02, SPA #26-01, TTM #26-01, SP #26-04)

I. DESCRIPTION OF PROJECT

A Zone Change, General Plan Amendment, Gateway Specific Plan Amendment, Tentative Tract Map, and Site Plan to allow development of a mixed-use project on an approximately 66-acre site located within the City of Brawley. The project proposes subdividing the site to allow approximately 408 multi-family residential units across three (3) residential lots on the eastern portion and approximately 37 acres of commercial development across 11 lots on the western portion, including retail uses and a hotel with approximately 100 rooms. The site is currently utilized for agricultural purposes. Primary access would be provided from (future) Legion Road, with additional circulation along the southern boundary requiring a future roadway connection adjacent to the Rockwood Canal.

II. DESCRIPTION OF ENVIRONMENTAL SETTING

- ***North –*** Planned roadway (Legion Road) / Urban development
- ***South –*** Rockwood Canal / Agricultural uses
- ***East –*** Agricultural uses
- ***West –*** State Route 86 / Commercial development

The project site is located within City limits and is designated for urban development under the City of Brawley General Plan and Gateway Specific Plan. Surrounding land uses include a mix of agricultural, commercial, and planned urban development.

III. ENVIRONMENTAL IMPACT AND PHYSICAL EFFECT

The City of Brawley prepared a CEQA Initial Study and circulated the Mitigated Negative Declaration for public review on April 30, 2026. The Brawley Development Review Committee (DRC) reviewed the project on September 1, 2025 and January 15,

2026. City staff, responsible agencies, and interested parties were provided the opportunity to comment during the public review period.

1. There is no substantial evidence, based on the whole record before the public agency, that the project, as mitigated, may have a significant effect on the environment.
2. Feasible mitigation measures will be incorporated into the project to reduce all potentially significant impacts to a level of insignificance.
3. The project is consistent with the General Plan, Gateway Specific Plan, and Zoning Ordinance of the City of Brawley.
4. The project will not have a demonstrable negative aesthetic effect because development standards included in the Brawley Zoning Ordinance will ensure a high quality of architectural and landscape design.
5. The City will provide adequate public services to serve the project and will perform any improvements required.
6. The developer will provide adequate public services to serve the project and will perform any improvements required.
7. There are no unusual geologic hazards or flooding problems that would not be adequately addressed by compliance with city development requirements and the California Building Code (CBC).

VI. POTENTIAL SIGNIFICANT IMPACTS

AGRICULTURE/FORESTRY RESOURCES

The project would result in the conversion of agricultural land to urban uses. The project site is designated for urban development under the General Plan and Gateway Specific Plan. While the conversion of agricultural land represents a change in land use, it would not result in an additional significant impact to agricultural resources when evaluated in the context of adopted planning documents. Although the project will be developed in the conversion of farmland to non-agricultural use, the adopted Gateway Specific Plan environmental analysis originally accounted for the transformation of agricultural land into urban development. However, mitigation will require the project to carry out construction so that no damage or loss of essential agricultural irrigation or water infrastructure occurs, thereby affecting nearby agricultural uses. Furthermore, the project site's land is not under a Williamson Act Contract, nor is it surrounded by any such land. With the aforementioned mitigation, impacts would be less than significant.

BIOLOGICAL RESOURCES

The Biological Resources Assessment determined that the project site consists primarily of active agricultural land with limited habitat value. No sensitive natural communities or special-status species were observed on the site. The project area is within the burrowing owl's potential habitat; therefore, pre-construction surveys and avoidance measures shall be implemented. With mitigation, impacts on biological resources would be less than significant.

HYDROLOGY AND WATER QUALITY

The project site is currently undeveloped agricultural land. Development would increase impervious surface area, potentially increasing runoff. The project would comply with all applicable City of Brawley, Regional Water Quality Control Board, and State requirements, including preparation of a Storm Water Pollution Prevention Plan and implementation of Best Management Practices. These measures would reduce impacts to hydrology and water quality to less than significant.

POPULATION/HOUSING

Impacts on population are generally in line with local growth expectations, but the project still has the potential to directly induce substantial population growth in the area due to proposals for new businesses and residences. Indirect population growth is also possible due to infrastructure improvements along Mead Road, Legion Road, and Western Avenue. No housing exists on the lot at present. The project would provide new housing consistent with planning documents, as City staff anticipates the northern portion of the Gateway Specific Plan currently designated as residential use will undergo future zoning changes that will relocate the proposed housing within the Specific Plan to this site. With the implementation of project phasing, impacts would be mitigated to less than significant.

VII. REASONS TO SUPPORT FINDING OF A MITIGATED NEGATIVE DECLARATION

Based on this analysis, it is determined that any environmental impacts of this project are nonexistent or would not be significant with appropriate mitigation. Therefore, a Mitigated Negative Declaration is appropriate for this project.

A MITIGATED NEGATIVE DECLARATION IS THEREFORE APPROVED FOR THIS PROJECT.

_____

Cristhian Barajas
Development Services Director
City of Brawley

CITY OF BRAWLEY

PLANNING DEPARTMENT APPLICATION

Fee $ _____
Planning Staff Initials _____

CITY STAMP

Amount Received $ _____
Finance Initials _____

CHECK ALL THAT APPLY:

PROJECT

___ Conditional Use Permit
___ New ___ Extension/Renewal
___ Adjustment Plat (Lot Line Adjustment/Lot Merger)
(*no additional parcels to be created*)
___ Certificate of Compliance (required with Adj. Plat)
X Site Plan Review
Variance
☑ Rezoning
☑ General Plan Amendment + Specific Plan Amendment
___ Right-of-Way / Alley Vacation
___ Parcel Map Waiver
___ Minor Subdivision (*4 or fewer parcels to be created)*
X Major Subdivision (*5 or more parcels to be created*)
___ Final Map

CEQA STATUS

___ Notice of Exemption
(*ministerial and categorically exempt*)
___ Negative Declaration
(*requires initial environmental study*)
___ Environmental Impact Report (EIR)

___ Other (Please Specify) _____

	PROPERTY OWNER	ENGINEER / AGENT*
Name:	Pacific Anchor Holdings, LLC	David Wang
Mailing Address:	9680 Flair Drive	9680 Flair Drive
	El Monte, CA 91731	El Monte, CA 91731
Phone:	626-444-6668	626-327-4792
Fax:	626-444-6698	626-444-6698
E-mail:	DavidW@YKAmerica.com	DavidW@YKAmerica.com

Assessor Parcel Number(s): 048-42 0 0 1

Describe project, purpose/reason for your application, proposed/existing uses on the subject property, and adjacent land uses. Attach separate sheet if necessary.

The proposed development is located on parcel with APN 048-420-001 (66 Acres). It will compose a 37-acre commercial area and about 29 acre will be multifamily residential with amenities. We propose a zone change from Light Manufacturing (M-1) and Service and Professional (C-P) to Medium Commercial (C-2) and Residential Medium Density (R-3).

REQUIRED SUPPORT DOCUMENTS

1. All applicable information requested on the Tentative Map Checklist (*Major Subdivisions*), Final Map Requirements (*Final Maps*), or Site Plan Checklist (*all projects*).
2. Environmental Assessment (*completed by applicant or legal representative**).
3. Preliminary Title Report/Deed (*for proof of ownership*).
4. Application Fee (*Planning Department Application Fee Schedule*) and a deposit (*to be determined by the Planning Director*).
5. Copy of current property tax statement.
6. Other items as determined by Staff.

SPECIAL NOTES

Applicant or authorized representative* must be present at Planning Commission meeting(s) and/or City Council meeting(s) for action to be taken on the application.

Submit twenty (20) copies of Site Plans, Parcel/Tract Maps or Adjustment Plats including one electronic copy shall be submitted with the application. Projects in the Airport Land Use Commission sphere require thirty (30) copies.

Staff's acceptance of the application or deeming the application complete does not imply that Staff will recommend approval of the project.

The owner(s) of the parcel(s) listed on this application must pay all fees and costs related to the project(s) listed on this application including, but not limited to, application fees (*Application Fee Schedule*), engineering fees and costs (*as determined by the City Engineer at the time of final map check and/or improvement plan check*), building permit fees (*Building Permit Fee Schedule*), development impact fees (*Development Impact Fee Implementation Schedule*), water and wastewater capacity fees (*Capacity Fee Implementation Schedule*), Environmental Fees (*Department of Fish and Game*), and fees imposed by the County of Imperial (*tax certificate, recordation fees, and Air Pollution Control District (APCD) fees*). A deposit in an amount determined by the Planning Director will be required at the time of application. Nonpayment of fees will stop the entitlement process.

I, Justin Huang,
(*print name of property owner*)
hereby apply to the City of Brawley for the actions indicated above for the above-specified property that I own or control, as per the attached information, and in accordance with all applicable local, state, and federal laws and regulations. I hereby agree to pay all fees and cost associated with the actions indicated for the above-specified property that I own and control as per the attached information, and pay fees and costs associated with required off-site improvements as determined by the City Engineer.

I, Justin Huang,
(*print name of property owner*)
give the following person/organization permission to act as my agent* and to make decisions in my name as he/she/they feel necessary for the project described on the previous pages.

David Wang
(*print name of agent*)

YK America
(*agent's company name, if applicable*)

I certify that the above information, to the best of my knowledge, is true and correct.

Signature of Property Owner — Date: 5/6/2024

Signature of Agent — Date: 05/06/2024

***Property owner's signature must be notarized if an agent is being designated.**

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Los Angeles)

On May 6, 2024 before me, Cheewai Leung, Notary Public,
(insert name and title of the officer)

personally appeared Justin Huang,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

CHEEWAI LEUNG
COMM. # 2470186
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
COMM. EXPIRES NOV. 7, 2027

Signature _____ **(Seal)**

CITY OF BRAWLEY

ENVIRONMENTAL INFORMATION FORM

Date Filed: _____

General Information

1. Developer or project sponsor

   Name: Pacific Anchor Holdings, LLC

   Address: 9680 Flair Drive | El Monte | CA | 91731
   street | *city* | *state* | *zip*

2. Person to contact concerning this project

   Name: David Wang

   Address: 9680 Flair Drive | El Monte | CA | 91731
   street | *city* | *state* | *zip*

   626-327-4792 | 626-444-6698 | DavidW@YKAmerica.com
   phone | *fax* | *e-mail*

3. Address of project: Property located at northeast corner of intersection of CA-86 and Rockwood Canal

   Assessor's Block and Lot Number (s): 048-420-001

4. Existing zoning district: Light Manufacturing (M-1) and Service and Professional (C-P)

5. Permit Application Number(s) for the project:

6. List and describe any other related permits and other public approvals required for this project, including those required by city, regional, state and federal agencies: _____

   Rezoning; General Plan Amendment

7. Proposed use of project site (attach separate sheets): Multifamily residential and commercial

Include In Project Description

8. Site size.
9. Square footage.
10. Number of floors of construction.
11. Amount of off-street parking provided.
12. Attach plans.
13. Proposed scheduling.
14. Associated projects.
15. Anticipated incremental development.
16. If residential, include the number of units, schedule of unit sizes, range of sale prices or rents and type of household size expected.
17. If commercial, indicate the type, whether neighborhood, city or regionally oriented, square footage of sales area, and loading facilities.
18. If industrial, indicate type, estimated employment per shift, and loading facilities.
19. If institutional, indicate the major function, estimated employment per shift, and loading facilities.
20. If the project involves a variance, conditional use or rezoning application, state clearly each is required.

Are the following items applicable to the project or its effects? Discuss below all items checked yes (attach additional sheets as necessary).

Yes	No		
[ ]	☑	21.	Change in existing features of any bays, tidelands, beaches, lakes or hills, or substantial alteration of ground contours.
[ ]	☑	22.	Change in scenic views or vistas from existing residential areas or public lands or roads.
[ ]	☑	23.	Change in pattern, scale or character of general area project.
[ ]	☑	24.	Significant amounts of solid waste or litter.
[ ]	☑	25.	Change in dust, ash, smoke, fumes or odors in vicinity.
[ ]	☑	26.	Change in ocean, bay, lake, stream or ground water quality or quantity, or alteration of drainage patterns.
[ ]	☑	27.	Substantial change in existing noise or vibration levels in the vicinity
[ ]	☑	28.	Site on filled land or on slope of 10 percent or more.
[ ]	☑	29.	Use of disposal of potentially hazardous materials, such as toxic substances, flammables or explosives.
☑	[ ]	30.	Substantial change in demand for municipal services (police, fire, water, sewage, etc.).
[ ]	☑	31.	Substantially increase fossil fuel consumption (electricity, oil, natural gas, etc.).
[ ]	☑	32.	Relationship to a larger project or series of projects.

Environmental Setting

33. Describe the project site, as it exists before the project, including information on topography, soil stability, plants and animals, and any cultural, historical or scenic aspects. Describe any existing structures on the site, and the use of the structures. Attach photographs of the site. Snapshots or Polaroid photos will be accepted.

34. Describe the surrounding properties, including information on plants and animals and any cultural, historical or scenic aspects. Indicate the type of land use (residential, commercial, etc.), intensity of land use (one-family, apartment houses, shops, department stores, etc.), and scale of development (height, frontage, set-back, rear yard, etc.). Attach photographs of the vicinity. Snapshots or Polaroid photos will be accepted.

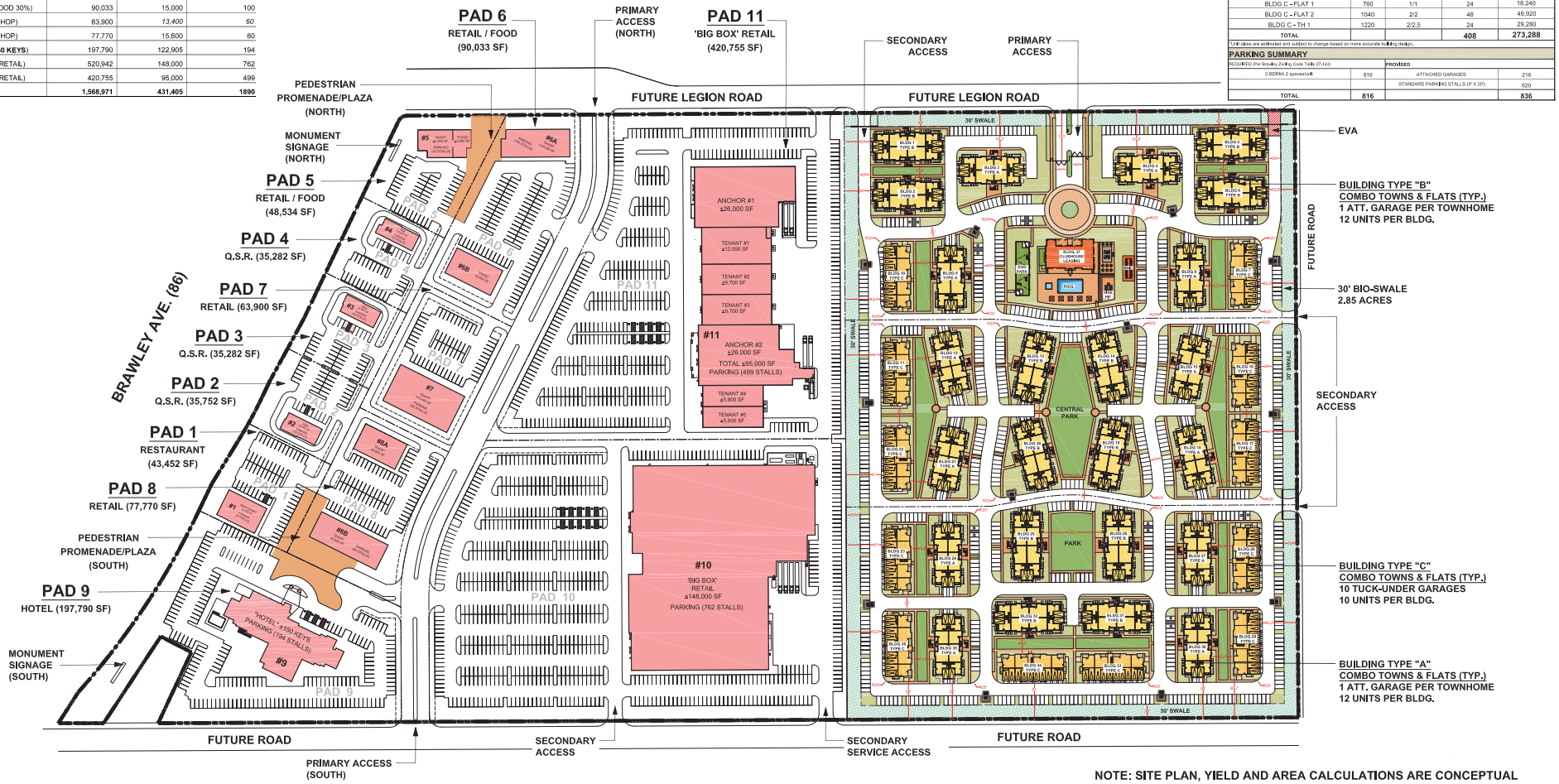
Certification: I, Justin Huang
print name
hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

signature

5/6/2024
date

COMMERCIAL PAD SUMMARY TABLE			
SITE AREA	36 ACRES		
PAD SUMMARY			
PAD NUMBER	**LOT SIZE (SF)**	**TOTAL BUILDING AREA (SF)**	**NO. OF PARKING PROVIDED**
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL / FOOD 30%)	48,534	6,500	42
#6 (RETAIL/ FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	*13,400*	*60*
#8 (RETAIL / SHOP)	77,770	15,600	80
#9 (HOTEL, **150 KEYS**)	197,790	122,905	194
#4 ('BIG BOX' RETAIL)	520,942	148,000	762
#4 ('BIG BOX' RETAIL)	420,755	95,000	499
TOTAL	**1,568,971**	**431,405**	**1890**

APARTMENT SUMMARY TABLE				
SITE AREA	28.77 ACRES			
TOTAL UNITS	408 UNITS			
DENSITY	14.2 DU/AC			
APARTMENT UNIT SUMMARY				
UNIT PLAN	SQ. FT.*	BD/BA	# UNITS	TOTAL SQ.
BLDG A - UNIT 1	760	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG C - CARRIAGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	760	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	49,920
BLDG C - TH 1	1220	2/2.5	24	29,280
TOTAL			408	273,288
*Unit sizes are estimated and subject to change based on more accurate building design.				
PARKING SUMMARY				
REQUIRED (Per Brawley Zoning Code Table 27.143)		PROVIDED		
2 BDRM/ 2 spaces/unit	816	ATTACHED GARAGES		216
		STANDARD PARKING STALLS (9' X 20')		620
TOTAL	816			836



NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

Source: W Design & Architects, 03/09/2025

Not to Scale

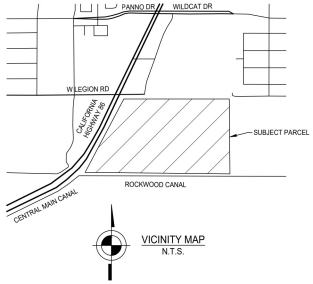
Michael Baker INTERNATIONAL

Project Site Plan

Exhibit 1

TENTATIVE MAP

BRAWLEY COMMERCIAL AND RESIDENTIAL DEVELOPMENT
CITY OF BRAWLEY, COUNTY OF IMPERIAL, STATE OF CALIFORNIA

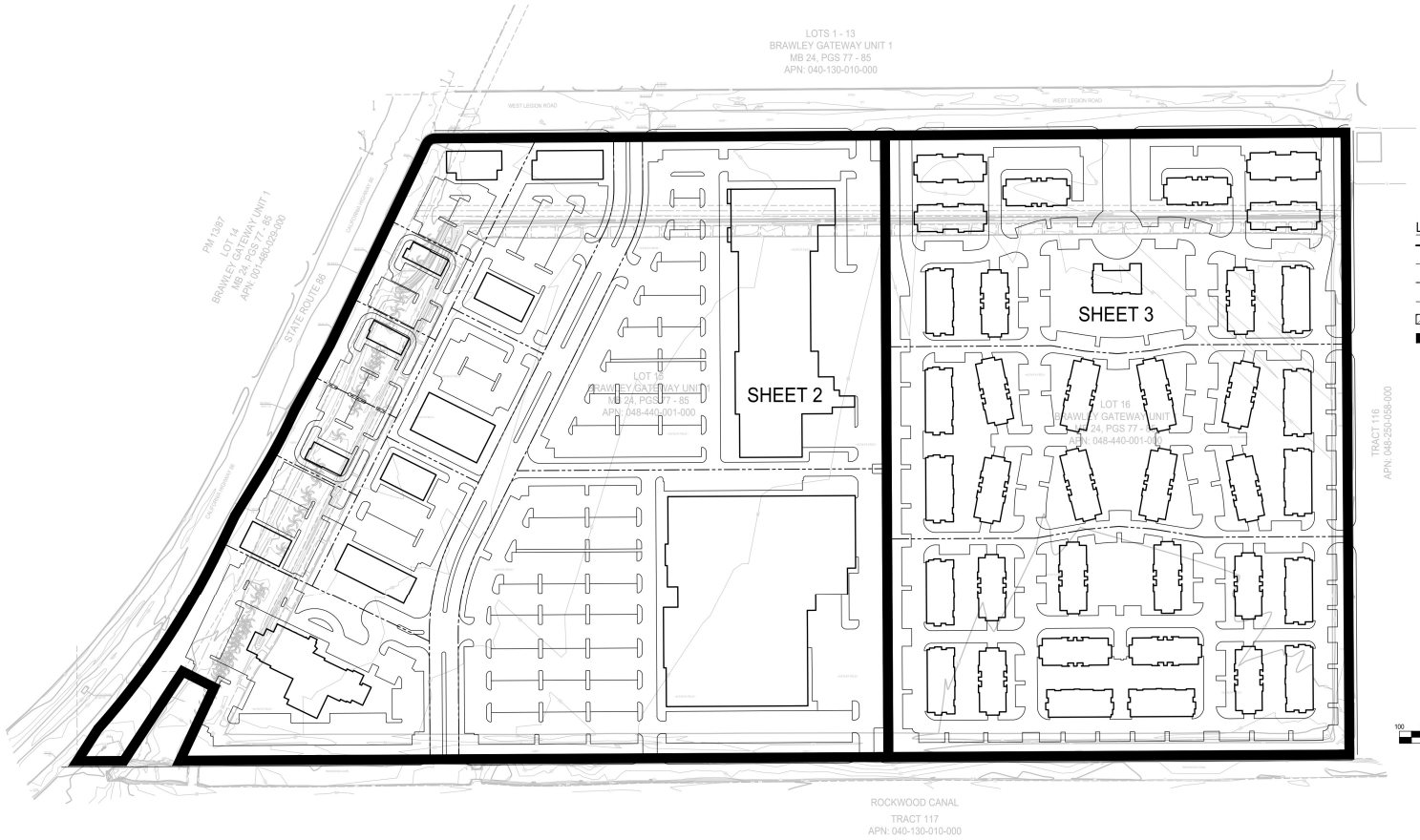


VICINITY MAP
N.T.S.

PROJECT INFORMATION

PROPERTY INFORMATION

PROPERTY OWNERS:	STEPHEN C. CHURCH REVOCABLE TRUST
ENGINEER	MICHAEL INCLEDON INCLEDON CONSULTING GROUP 1570 CORPORATE DRIVE, SUITE A COSTA MESA, CA 92626 RCE #52390
ASSESSORS ID NUMBERS	048-440-001-000
LEGAL DESCRIPTIONS	LOT 18 OF "BRAWLEY GATEWAY UNIT 1", IN THE CITY OF BRAWLEY, COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO MAP ON FILE BOOK 24 PAGE 77 OF FINAL MAP, IN THE OFFICE OF THE COUNTY RECORDER OF IMPERIAL COUNTY. EXCEPTING THEREFROM ALL WATER ON OR UNDER SAID LAND AS EXCEPTED IUN THE DEED FROM SECURITY FIRST NATIONAL BANK OF LOS ANGELES, TRUSTEE TO BRUCE CHURCH, INC., OF EL CENTRO, DATED MARCH 2, 1950 AND RECORDED MARCH 8, 1950 IN BOOK 773 AT PAGE 309 OF OFFICIAL RECORDS.
EXISTING ZONING	M-1 - LIGHT MANUFACTURING C-2 - MEDIUM COMMERCIAL C-P - SERVICE AND PROFESSIONAL
PROPOSED ZONING	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX
EXISTING LAND USE	AGRICULTURAL
PROPOSED LAND USE	MULTI FAMILY RESIDENTIAL GENERAL COMMERCIAL
EXISTING TREES	THERE ARE EXISTING PALM TREES ON THE SITE
EXISTING STRUCTURES	THERE ARE NO EXISTING STRUCTURES ON THE SITE
DATE MAP PREPARED	MARCH, 2025
FLOOD ZONE	ZONE X, ACCORDING TO FEMA FLOOD MAP NO. 06025C1375C
TOTAL AREA, RES. AND COMM.	66.29 AC



LEGEND

- PROPERTY LINE
- EASEMENT
- LOT LINE
- CENTER LINE
- STORMWATER BIORETENTION BASIN
- PLAN SHEET DEMARCATION

SURVEY INFORMATION

BENCHMARK

XXXXXXXXXXXXXXXXX

BASIS OF BEARINGS

THE BASIS OF BEARINGS IS THE EASTERLY MOST LINE OF THE EXISTING LOT 16 OF BRAWLEY GATEWAY UNIT 1, IN THE CITY OF BRAWLEY, COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO MAP ON FILE BOOK 24 PAGE 77 OF FINAL MAP, IN THE OFFICE OF THE COUNTY RECORDER OF IMPERIAL COUNTY. SAID BEARING BEING NORTH 00°22'01" WEST

100 50 0 100
SCALE: 1" = 100'

COPYRIGHT © 2025

YK AMERICA
9680 FLAIR DRIVE
EL MONTE, CA 91731
TEL: (626) 444-6668
FAX: (626) 444-6698
OWNER

INCLEDON CONSULTING GROUP
Civil Engineering • Surveying • Planning
1570 Corporate Drive, Suite A, Costa Mesa, CA 92626
P: 657.622.2121 / www.ingcivil.com
CONSULTANT

CALIFORNIA HIGHWAY 86 & WEST LEGION ROAD

BRAWLEY, CA 92227

REV. DATE DESCRIPTION

TITLE SHEET

SHEET TITLE

458.020
JOB #

3/17/2025
DATE

1
SHEET #

PROJECT INFORMATION

PROPERTY INFORMATION

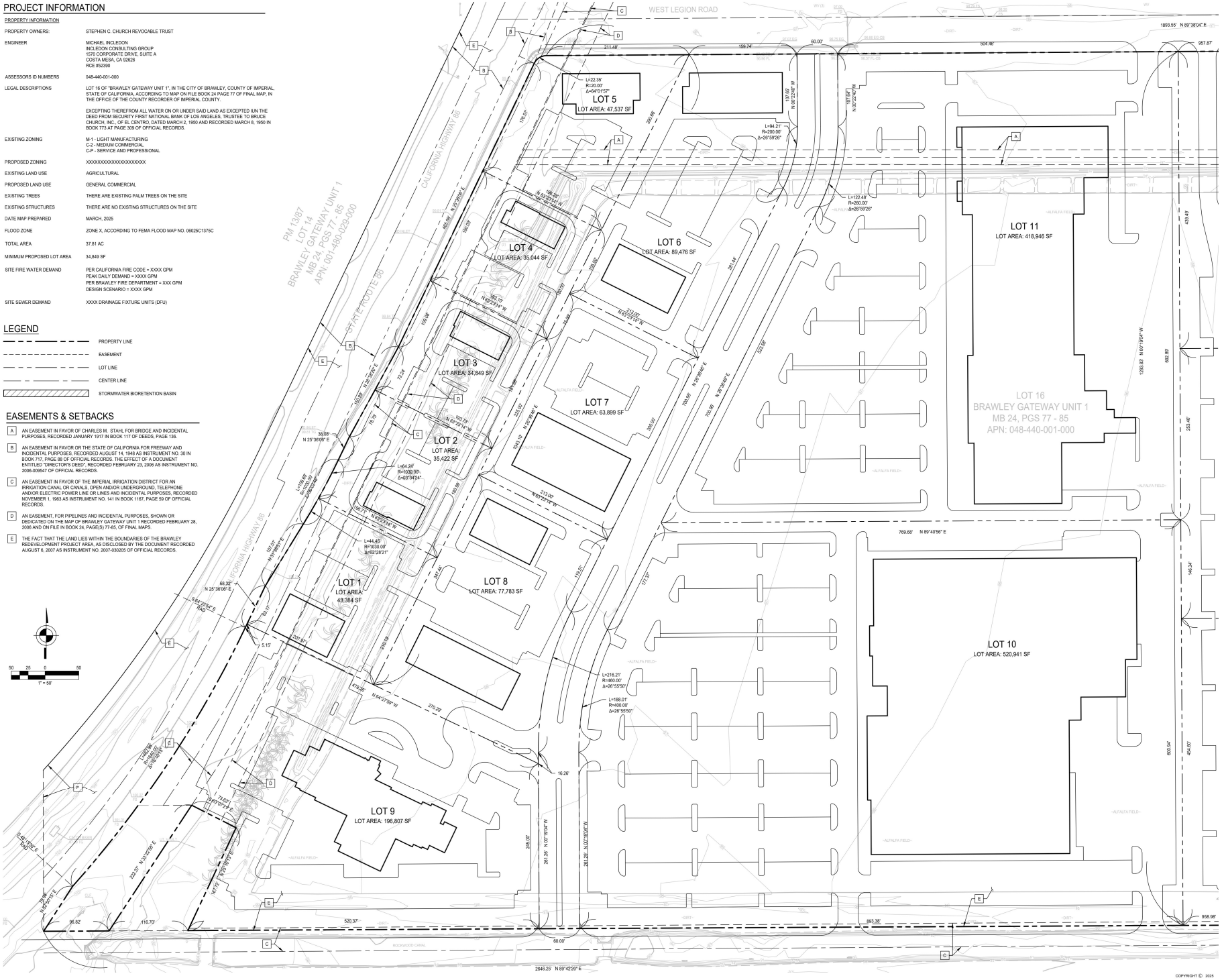
PROPERTY OWNERS:	STEPHEN C. CHURCH REVOCABLE TRUST
ENGINEER	MICHAEL INCLEDON INCLEDON CONSULTING GROUP 1570 CORPORATE DRIVE, SUITE A COSTA MESA, CA 92626 RCE #62390
ASSESSORS ID NUMBERS	048-440-001-000
LEGAL DESCRIPTIONS	LOT 16 OF "BRAWLEY GATEWAY UNIT 1", IN THE CITY OF BRAWLEY, COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO MAP ON FILE BOOK 24 PAGE 77 OF FINAL MAP, IN THE OFFICE OF THE COUNTY RECORDER OF IMPERIAL COUNTY. EXCEPTING THEREFROM ALL WATER ON OR UNDER SAID LAND AS EXCEPTED IUN THE DEED FROM SECURITY FIRST NATIONAL BANK OF LOS ANGELES, TRUSTEE TO BRUCE CHURCH, INC., OF EL CENTRO, DATED MARCH 2, 1950 AND RECORDED MARCH 8, 1950 IN BOOK 773 AT PAGE 309 OF OFFICIAL RECORDS.
EXISTING ZONING	M-1 - LIGHT MANUFACTURING C-2 - MEDIUM COMMERCIAL C-P - SERVICE AND PROFESSIONAL
PROPOSED ZONING	XXXXXXXXXXXXXXXXXXXX
EXISTING LAND USE	AGRICULTURAL
PROPOSED LAND USE	GENERAL COMMERCIAL
EXISTING TREES	THERE ARE EXISTING PALM TREES ON THE SITE
EXISTING STRUCTURES	THERE ARE NO EXISTING STRUCTURES ON THE SITE
DATE MAP PREPARED	MARCH, 2025
FLOOD ZONE	ZONE X, ACCORDING TO FEMA FLOOD MAP NO. 06025C1375C
TOTAL AREA	37.81 AC
MINIMUM PROPOSED LOT AREA	34,849 SF
SITE FIRE WATER DEMAND	PER CALIFORNIA FIRE CODE = XXXX GPM PEAK DAILY DEMAND = XXXX GPM PER BRAWLEY FIRE DEPARTMENT = XXX GPM DESIGN SCENARIO = XXXX GPM
SITE SEWER DEMAND	XXXX DRAINAGE FIXTURE UNITS (DFU)

LEGEND

- PROPERTY LINE
- EASEMENT
- LOT LINE
- CENTER LINE
- STORMWATER BIORETENTION BASIN

EASEMENTS & SETBACKS

- A AN EASEMENT IN FAVOR OF CHARLES M. STAHL FOR BRIDGE AND INCIDENTAL PURPOSES, RECORDED JANUARY 1917 IN BOOK 117 OF DEEDS, PAGE 136.
- B AN EASEMENT IN FAVOR OR THE STATE OF CALIFORNIA FOR FREEWAY AND INCIDENTAL PURPOSES, RECORDED AUGUST 14, 1948 AS INSTRUMENT NO. 30 IN BOOK 717, PAGE 88 OF OFFICIAL RECORDS. THE EFFECT OF A DOCUMENT ENTITLED "DIRECTOR'S DEED", RECORDED FEBRUARY 23, 2006 AS INSTRUMENT NO. 2006-009547 OF OFFICIAL RECORDS.
- C AN EASEMENT IN FAVOR OF THE IMPERIAL IRRIGATION DISTRICT FOR AN IRRIGATION CANAL OR CANALS, OPEN AND/OR UNDERGROUND, TELEPHONE AND/OR ELECTRIC POWER LINE OR LINES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 1, 1963 AS INSTRUMENT NO. 141 IN BOOK 1167, PAGE 59 OF OFFICIAL RECORDS.
- D AN EASEMENT, FOR PIPELINES AND INCIDENTAL PURPOSES, SHOWN OR DEDICATED ON THE MAP OF BRAWLEY GATEWAY UNIT 1 RECORDED FEBRUARY 28, 2006 AND ON FILE IN BOOK 24, PAGE(S) 77-85, OF FINAL MAPS.
- E THE FACT THAT THE LAND LIES WITHIN THE BOUNDARIES OF THE BRAWLEY REDEVELOPMENT PROJECT AREA, AS DISCLOSED BY THE DOCUMENT RECORDED AUGUST 6, 2007 AS INSTRUMENT NO. 2007-030205 OF OFFICIAL RECORDS.



YK AMERICA
9680 FLAIR DRIVE
EL MONTE, CA 91731
TEL: (626) 444-6668
FAX: (626) 444-6698
OWNER

INCLEDON CONSULTING GROUP
Civil Engineering • Surveying • Planning
1570 Corporate Drive, Suite A, Costa Mesa, CA 92626
P: 657.622.2121 / www.ingcivil.com
CONSULTANT

CALIFORNIA HIGHWAY 86 & WEST LEGION ROAD

BRAWLEY, CA 92227

REV. DATE DESCRIPTION

COMMERCIAL TENTATIVE MAP

SHEET TITLE

458.020
JOB #

03/13/2025
DATE

2
SHEET #

COPYRIGHT © 2025

K:\PROJECTS\458.020\BRAWLEY\CAD\SHEETS\TENTATIVE MAP\2_TENTATIVE MAP_COMMERCIAL.DWG, 3/17/2025 4:02 PM

PROJECT INFORMATION

PROPERTY INFORMATION

PROPERTY OWNERS:	STEPHEN C. CHURCH REVOCABLE TRUST
ENGINEER	MICHAEL INCLEDON INCLEDON CONSULTING GROUP 1570 CORPORATE DRIVE, SUITE A COSTA MESA, CA 92626 RCE #52390
ASSESSORS ID NUMBERS	048-440-001-000
LEGAL DESCRIPTIONS	LOT 16 OF "BRAWLEY GATEWAY UNIT 1", IN THE CITY OF BRAWLEY, COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO MAP ON FILE BOOK 24 PAGE 77 OF FINAL MAP, IN THE OFFICE OF THE COUNTY RECORDER OF IMPERIAL COUNTY. EXCEPTING THEREFROM ALL WATER ON OR UNDER SAID LAND AS EXCEPTED IUN THE DEED FROM SECURITY FIRST NATIONAL BANK OF LOS ANGELES, TRUSTEE TO BRUCE CHURCH, INC., OF EL CENTRO, DATED MARCH 2, 1950 AND RECORDED MARCH 8, 1950 IN BOOK 773 AT PAGE 309 OF OFFICIAL RECORDS.
EXISTING ZONING	M-1 - LIGHT MANUFACTURING C-2 - MEDIUM COMMERCIAL C-P - SERVICE AND PROFESSIONAL
PROPOSED ZONING	XXXXXXXXXXXXXXXXXXXX
EXISTING LAND USE	AGRICULTURAL
PROPOSED LAND USE	MULTI FAMILY RESIDENTIAL
EXISTING TREES	THERE ARE NO EXISTING TREES ON THE SITE
EXISTING STRUCTURES	THERE ARE NO EXISTING STRUCTURES ON THE SITE
DATE MAP PREPARED	MARCH, 2025
FLOOD ZONE	ZONE X, ACCORDING TO FEMA FLOOD MAP NO. 06025C1375C
TOTAL AREA	28.48 AC
MINIMUM PROPOSED LOT AREA	8.63 AC
SUBDIVISION PROPOSAL	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
SITE FIRE WATER DEMAND	PER CALIFORNIA FIRE CODE = XXXX GPM PEAK DAILY DEMAND = XXXX GPM PER BRAWLEY FIRE DEPARTMENT = XXX GPM DESIGN SCENARIO = XXXX GPM
SITE SEWER DEMAND	XXXX DRAINAGE FIXTURE UNITS (DFU)

LEGEND

- PROPERTY LINE
- EASEMENT
- LOT LINE
- CENTER LINE
- STORMWATER BIORETENTION BASIN

EASEMENTS & SETBACKS

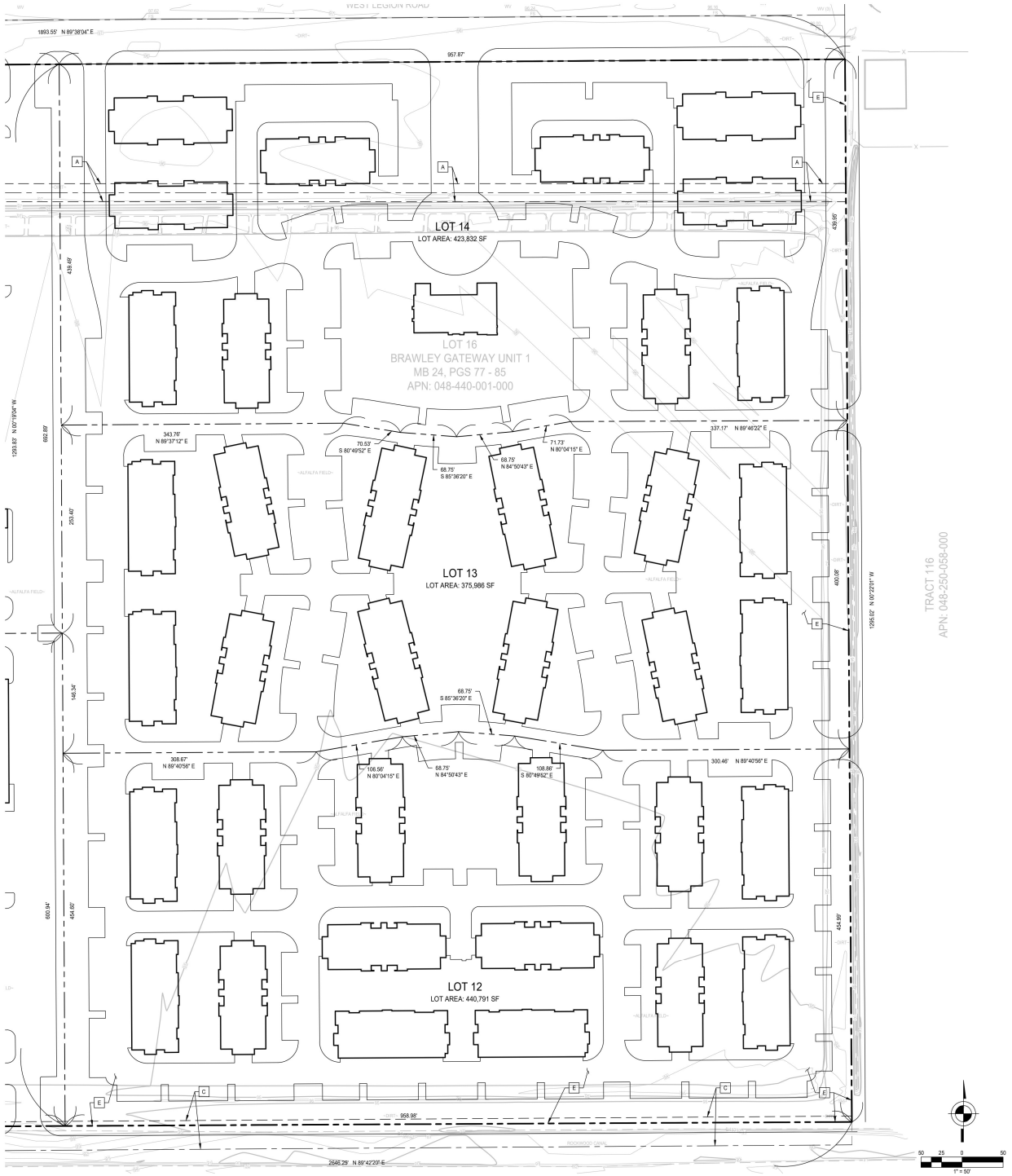
A AN EASEMENT IN FAVOR OF CHARLES M. STAHL FOR BRIDGE AND INCIDENTAL PURPOSES, RECORDED JANUARY 1917 IN BOOK 117 OF DEEDS, PAGE 136.

B AN EASEMENT IN FAVOR OR THE STATE OF CALIFORNIA FOR FREEWAY AND INCIDENTAL PURPOSES, RECORDED AUGUST 14, 1948 AS INSTRUMENT NO. 30 IN BOOK 717, PAGE 88 OF OFFICIAL RECORDS. THE EFFECT OF A DOCUMENT ENTITLED "DIRECTOR'S DEED", RECORDED FEBRUARY 23, 2006 AS INSTRUMENT NO. 2006-009547 OF OFFICIAL RECORDS.

C AN EASEMENT IN FAVOR OF THE IMPERIAL IRRIGATION DISTRICT FOR AN IRRIGATION CANAL OR CANALS, OPEN AND/OR UNDERGROUND, TELEPHONE AND/OR ELECTRIC POWER LINE OR LINES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 1, 1963 AS INSTRUMENT NO. 141 IN BOOK 1167, PAGE 59 OF OFFICIAL RECORDS.

D AN EASEMENT, FOR PIPELINES AND INCIDENTAL PURPOSES, SHOWN OR DEDICATED ON THE MAP OF BRAWLEY GATEWAY UNIT 1 RECORDED FEBRUARY 28, 2006 AND ON FILE IN BOOK 24, PAGE(S) 77-85, OF FINAL MAPS.

E THE FACT THAT THE LAND LIES WITHIN THE BOUNDARIES OF THE BRAWLEY REDEVELOPMENT PROJECT AREA, AS DISCLOSED BY THE DOCUMENT RECORDED AUGUST 6, 2007 AS INSTRUMENT NO. 2007-030205 OF OFFICIAL RECORDS.



COPYRIGHT © 2025

YK AMERICA
9680 FLAIR DRIVE
EL MONTE, CA 91731
TEL: (626) 444-6668
FAX: (626) 444-6698
OWNER

INCLEDON
CONSULTING GROUP
Civil Engineering • Surveying • Planning
1570 Corporate Drive, Suite A, Costa Mesa, CA 92626
P: 657.622.7171 / www.ingcivil.com
CONSULTANT

CALIFORNIA HIGHWAY 86 & WEST LEGION ROAD

BRAWLEY, CA 92227

REV. DATE DESCRIPTION

RESIDENTIAL TENTATIVE MAP

SHEET TITLE

458.020
JOB #

03/13/2025
DATE

3
SHEET #

K:\PROJECTS\458.020 BRAWLEY\CAD\SHEETS\TENTATIVE MAP\3 - TENTATIVE MAP - RESIDENTIAL.DWG, 3/17/2025 4:03 PM

CONDITIONS OF APPROVAL

Brawley Gateway Specific Plan Amendment (SPA) 26-01
General Plan Amendment (GPA) 24-02
Zone Change (ZC) 24-03 / Site Plan (SP) 26-04
Tentative Tract Map (TTM) 26-01

BRAWLEY GATEWAY MIXED USE MASTER PLAN

LOT 16 OF BRAWLEY GATEWAY UNIT 1

APN: 048-440-001

SE corner of CA-86 & Legion Road

GENERAL	CONDITION
G-1	The conditional approval of this Zone Change (ZC) 24-03, General Plan Amendment (GPA) 24-02, Specific Plan Amendment (SPA) 26-01, Tentative Tract Map (TTM) 26-01, and Site Plan (SP) 26-04, herein referred to as "Permit", shall not constitute the waiver of any requirement of the City's ordinances or regulations, except where a condition set forth herein specifically provides for a waiver.
G-2	The provisions of the Permit are to run with the land and shall bind the current and future owner(s), successor(s) in interest, assignee(s) and/or transferor(s) of said parcel.
G-3	Developer/Applicant/Property Owner, herein referred to as "Developer", shall comply with all local, state and/or federal laws, rules, regulations and/or standards as they may pertain to this project, whether specified herein or not.
G-4	If the City finds and determines that the Developer or successor-in-interest has not complied or cannot comply with the terms and conditions of the Permit, or the Planning/Building/Code Enforcement Department determines that the permitted activities constitute a nuisance, the City shall provide the Developer or successor-in-interest with notice and opportunity to comply with the enforcement or abatement order. If after the receipt of the order the Developer or successor-in-interest (1) fails to comply, and/or (2) cannot comply with the conditions set forth in the Permit, then the matter shall be referred to the Planning Commission for permit modification, suspension, or termination, or to the appropriate enforcement authority.

DRAFT

G-5	As between the City and the Developer or successor-in-interest, any violation of this permit may be a "nuisance per se". The City may enforce the terms and conditions of this permit in accordance with its Codified Ordinances and/or State law. The provisions of this paragraph shall not apply to any claim of nuisance per se brought by a third party.
G-6	Developer shall not be permitted to maintain a "nuisance", which is anything which: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, and/or (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal, and/or (3) occurs during or as a result of the re-located business.
G-7	Developer shall defend, indemnify, and hold harmless the City of Brawley, or its agents, officers and employees from any claim, action or proceedings against the City or its agents, officers, or employees to attack, set aside, void or annul, an approval by the Development Review Committee, Planning Commission or City Council concerning the project. The City of Brawley shall promptly notify the applicant of any claim, action or proceedings and shall cooperate fully in the defense.
BUILDING	**CONDITION**
B-1	The Developer shall obtain a Building Permit for all building construction and on-site improvements including permanent and temporary signs, and landscaping and parking when applicable. Inspections for compliance shall be obtained prior to issuance of a Certificate of Occupancy and/or issuance of a business license. All applicable fees shall be paid.
FIRE	**CONDITION**
F-1	Fire hydrants, sprinklers, and alarm systems shall be installed per California Fire Code and as approved by the Brawley Fire Department prior to the issuance of a Certificate of Occupancy.
F-2	Developer shall install fire access lanes per California Fire Code and approval by the Brawley Fire Department prior to the issuance of a Certificate of Occupancy.

DRAFT

F-3	Developer shall abide by California Fire Code, Appendix D, Section 104. All buildings shall be equipped with an approved automatic fire sprinkler system. Other fire suppression systems allowed by California Fire Code and approved by the City Fire Department may be considered. If the conditions set forth in Condition F-3 are not satisfied to the approval of the City Fire Department, the site shall require a secondary ingress/egress.
PUBLIC WORKS / CITY ENGINEER	**CONDITION**
PW-1	The Developer shall provide half-width improvements to both Legion Road and Western Avenue. Improvements to Western Avenue shall have a width of 36'. Additionally, the Developer shall provide improvements to existing Mead Road up to a width of 38'.
PW-2	The Developer shall provide a southern continuation of the multipurpose trail that currently runs along the west side of Lots 6, 7, and 8 of the Brawley Gateway Subdivision along the east side of Highway 86, approved by the City's Planning Division. Said trail shall also run along the east side of Highway 86 along the future commercial pads #1-5 and #9.
PW-3	Any trenching required for the project in the public right-of-way will be coordinated and approved by the Public Works Director and City Engineer. Asphalt replacement as a result of trenching activities will be required to conform to City Standards and shall be installed to the satisfaction of the Public Works Director and City Engineer.
PW-4	All off-site improvements in the public right-of-way shall require an Encroachment Permit. Encroachment Permits will be filed with the Public Works Office and reviewed and approved by the City Engineer and Public Works Director.
PW-5	Sewer and water improvements meeting City Standards shall be provided. Backflow preventer(s) shall be installed etc. Improvements shall be subject to review and approval by the Public Works Director and City Engineer before the issuance of a Certificate of Occupancy for any structure for each parcel.
PW-6	Developer shall provide street and public right-of-way improvements (e.g., sidewalk, driveway, curb and gutter, etc.) to City Standards. Improvement shall be subject to approval by the Public Works Director and City Engineer before the issuance of a Certificate of Occupancy.

DRAFT

PW-7	Hydraulics, drainage, and grading details to City standards provided to the Public Works Director and City Engineer. The percentage of retention shall be determined by the Public Works Director and City Engineer per current discharge amount and the amount of pervious surface that will be eliminated. The Site Plan is subject to require amendment should the City Engineer and Public Works Director determine the proposed retention basins are insufficient. Any required off-site stormwater improvements shall be reviewed, approved, and installed to the satisfaction of the Public Works Director and City Engineer. Fencing requirements along the perimeter of the retention basin(s) shall be determined by the City Engineer/Public Works Director in accordance with the findings in the project technical reports confirming the depth, slope, and size of the detention basin(s). If required, the installation of fencing shall abide by Sec. 27.179 of the Zoning Ordinance.
PW-8	The Developer shall file a Shared Use Agreement for the maintenance of the Wal-Mart retention basin and conduct any improvements needed to increase its capacity for project-related uses.
PW-9	Where feasible, utilities, including both electric and water, will be undergrounded. The infeasibility of utility undergrounding will be determined per Zoning Ordinance Sec. 23A.16.
PW-10	Any improvement on Caltrans right-of-way will require a Caltrans encroachment permit prior to the issuance of a Building Permit.
PW-11	Any improvement on Imperial Irrigation District right-of-way will require an IID encroachment permit prior to the issuance of a Building Permit.
PW-12	The Final Subdivision Map shall be prepared in accordance with a completed final survey of the subdivision and in compliance with the requirements of the Subdivision Map Act and applicable City Ordinances.
PW-13	The Final Subdivision Map shall clearly show all stakes, monuments, or other evidence found on the ground which were used as ties to determine the boundaries of the lots. The survey of monuments referenced must be found acceptable by the City Engineer and meet Subdivision Map Act standards and that all Conditions of Approval have been met.
PW-14	A Grading Plan and Erosion Control Plan shall be accompanied with the Final Map to the City Engineer for review and approval.

DRAFT

PUBLIC SAFETY	CONDITION
PS-1	Lighting shall be installed in accordance with Sec. 27.182 of the Zoning Ordinance, other applicable City standards, and California Energy Commission and California Building Code requirements.
ZONING & LAND USE	**CONDITION**
Z-1	The Planning Director reserves the right to request additional Site Plan Review for the development of Retail Commercial parcels within the project area in accordance with the Brawley Gateway Specific Plan, especially in cases where proposed plans (e.g., land use, circulation, parking, etc.) differ significantly from those included in the approved version of SP26-04.
Z-2	Planning shall reserve the right to provide architectural design comments.
Z-3	Planning shall reserve the right to provide comment on placement, aesthetics, and maintenance of retention basins.
Z-4	Commercial developments shall be developed in accordance with Article V of the Zoning Ordinance and Section III.C.1 of the Brawley Gateway Specific Plan.
Z-5	Multifamily residential developments and their amenities (e.g., trash enclosures, common areas, etc.) shall be developed in accordance with Section 27.182 of the Zoning Ordinance and Section III.C.5 of the Brawley Gateway Specific Plan.
Z-6	Landscaping will be installed per Sec. 27.180 of the Zoning Ordinance. Any landscaping in the public right-of-way will require a maintenance agreement which shall be reviewed and approved by the City Engineer / Public Works Director and Planning Director. Maintenance agreement will be deed recorded.
Z-7	Fences, walls, and hedges shall be installed per Sec. 27.179 & 27.182(12) of the Zoning Ordinance. This shall include a masonry wall to separate the C-2 zone from the R-3 zone. A pedestrian path shall be permitted between these two zones in appropriate areas to encourage pedestrian activity between residents and the nearby commercial center.

DRAFT

Z-8	Parking lot space provisions, configurations, screening, landscaping, tree canopy shading, lighting , pavement, and other details shall be in accordance with Article XI and Sec. 27.182(12) of the Zoning Ordinance, as well as the Brawley Gateway Specific Plan.
Z-9	Open space and landscaping for apartment complexes shall be provided in accordance with Sec. 27.182(11) of the Zoning Ordinance.
Z-10	Developer shall install the required number of appropriately-sized tot lots for the proposed multifamily developments in accordance with the standards set in Sec. 27.182(10) of the Zoning Ordinance.
Z-11	The Building Permit Application shall include a detailed Landscape Plan in compliance with the aforementioned landscaping standards described in Conditions Z-6 through Z-10.
Z-12	Signage shall be installed per Article XIV of the Zoning Ordinance and shall require a separate review and permit.
Z-13	Half an acre of land shall be dedicated for City Public Facilities (e.g., Fire, Police).
GRANT PROGRAMS	**CONDITION (CONTINGENT ON FUNDING)**
C-1	The Developer shall provide their fair share to cover study costs for Rockwood Canal improvements **OR** conduct improvements to the Rockwood Canal provided funding can be secured.
C-2	The Developer shall satisfy all affordable housing and infrastructure obligations required as a condition of any grant program or external funding source utilized for the project.

DRAFT

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Cynthia Mancha, City of Brawley, Development Services - Planning Division

From: Zhe Chen, Michael Baker International

Date: April 22, 2025

Subject: **Brawley Mixed Use Master Plan Project – Air Quality Assessment**

PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term air quality impacts that would result from the construction and operation of the proposed Brawley Mixed Use Master Plan Project (project), located in the City of Brawley (City), California.

PROJECT LOCATION

The approximately 66-acre project site is located in the northern portion of the City of Brawley in south-central Imperial County (County), California; refer to Exhibit 1, *Regional Vicinity Map*. The Cities of Imperial and El Centro lie approximately 9 miles and 13 miles, respectively, to the southwest. The international United States/Mexico border is located approximately 22 miles to the south.

The project site is located south of (future) Legion Road, east of Brawley Avenue/State Highway 86, and north of Rockwood Canal; refer to Exhibit 2, *Site Vicinity*. The affected County Assessor Parcel Number is 048-440-001. The site currently supports agricultural use. Regional access to the project vicinity is provided via Interstate 8, located approximately 14 miles to the south.

PROJECT DESCRIPTION

The project proposes an amendment to the Brawley Gateway Specific Plan to subdivide the property and allow for future commercial and multi-family residential uses; refer to Exhibit 3, *Site Plan*. Specifically, the western portion of the project site (approximately 37 acres) would be subdivided into 11 pads for future commercial uses. Pads 1-8 would include commercial buildings ranging from approximately 3,200 square feet (SF) to approximately 15,600 SF and are intended to support strip retail plaza uses. Pads 1-8 would have a combined building square footage totaling approximately 65,500 SF. Pads 10-11 would have a combined building square footage totaling approximately 243,000 SF and would support larger retail shopping center uses. Additionally, Pad 9 is anticipated to support a commercial hotel with approximately 150 rooms and an estimated building square footage of approximately 122,905 SF. Onsite parking would be provided for the proposed uses in conformance with City Zoning Ordinance requirements. Specifically, the commercial component of the proposed project would provide a total of 1,890 standard surface parking spaces.

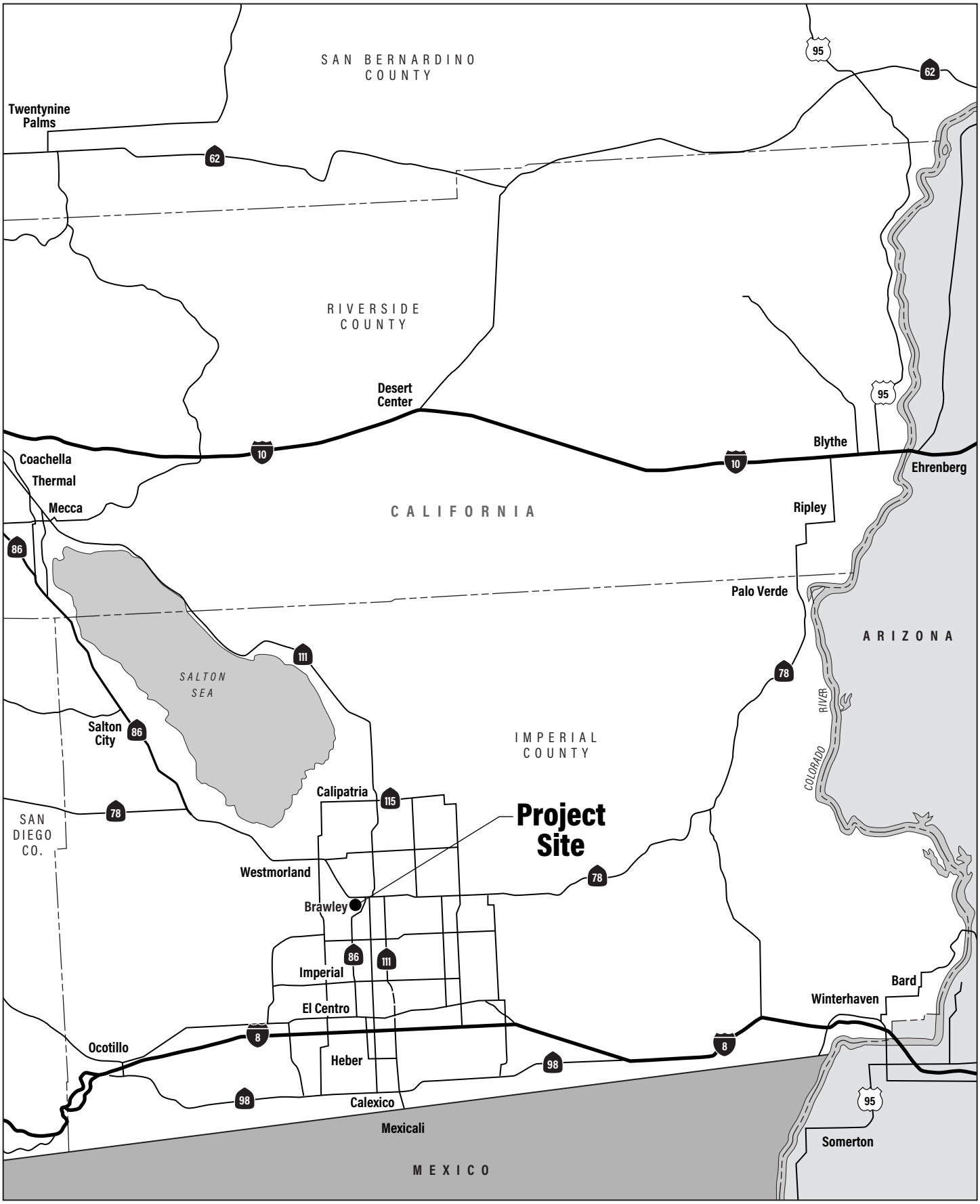
The eastern portion of the project site (approximately 29 acres) would be subdivided for the development of 408 multi-family residential units with varying floor plans. The residential component of the proposed project would provide a total of 836 parking spaces, including 216 attached garage spaces and 620 standard surface parking spaces. The residential area would offer community amenities including a dog park, clubhouse, pool, and fire pit as well as several community parks and green space for resident use and would provide opportunities for passive and active outdoor recreation.

Primary access to the commercial component of the proposed project would be provided via (future) Legion Road to the north; secondary access would be provided via a future/unnamed road to the south. Access from the north would require improvement of Legion Road to the centerline along the northern property boundary. The new access roadway along the southern boundary would be constructed above the existing canal (Rockwood Canal). Construction of this roadway would occur in coordination with the Imperial Irrigation District which owns and operates the canal.

Access to the proposed residential uses would be provided via(future) Legion Road to the north; secondary access would be provided via a future road along the eastern boundary of the project site.

Operation of the proposed project would include the proposed 408 multi-family residential units on the eastern portion of the project site and future commercial uses on the western portion of the project site. The future commercial uses would operate consistent with the applicable zone, zoning regulations, and conform with allowed business hours. However, it should be noted that operating hours may vary depending on the specific use proposed (i.e., retail shopping center versus commercial hotel use). All parking demands generated by the residential and commercial components of the project would be accommodated on-site. The need for any off-site parking (i.e., street parking) would not be anticipated or proposed.

Construction activities would include grading, building construction, paving, and the application of architectural coatings. Construction activities would occur over approximately 33 months. The proposed earthwork would result in approximately 20,000 cubic yards of soil import.



Michael Baker INTERNATIONAL

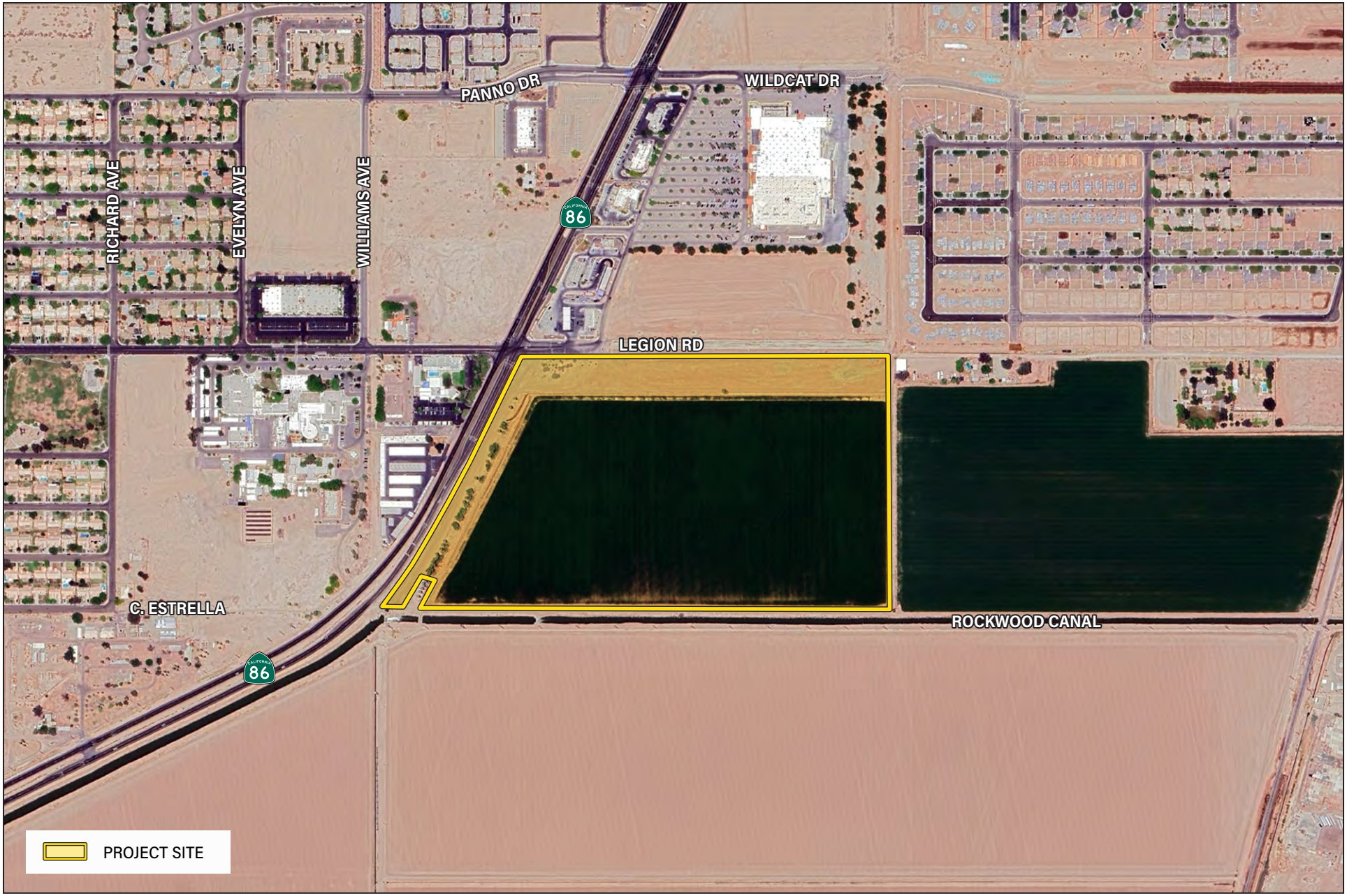
NOT TO SCALE

10/2024 • JN 202590

BRAWLEY MIXED USE MASTER PLAN PROJECT – AIR QUALITY ASSESSMENT

Regional Vicinity Map

Exhibit 1



Source: Google Earth Pro, October 2024

Michael Baker INTERNATIONAL

NOT TO SCALE

10/2024 • JN 202590

BRAWLEY MIXED USE MASTER PLAN PROJECT – AIR QUALITY ASSESSMENT

Site Vicinity

Exhibit 2

COMMERCIAL PAD SUMMARY TABLE

SITE AREA	36 ACRES		
PAD SUMMARY			
PAD NUMBER	LOT SIZE (SF)	TOTAL BUILDING AREA (SF)	NO. OF PARKING PROVIDED
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL / FOOD 30%)	48,534	6,500	42
#6 (RETAIL/ FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	13,400	60
#8 (RETAIL / SHOP)	77,770	15,600	80
#9 (HOTEL, 150 KEYS)	197,790	122,905	194
#4 ('BIG BOX' RETAIL)	520,942	148,000	762
#4 ('BIG BOX' RETAIL)	420,755	95,000	499
TOTAL	1,568,971	431,405	1890

APARTMENT SUMMARY TABLE

SITE AREA	28.77 ACRES
TOTAL UNITS	408 UNITS
DENSITY	14.2 DU/AC

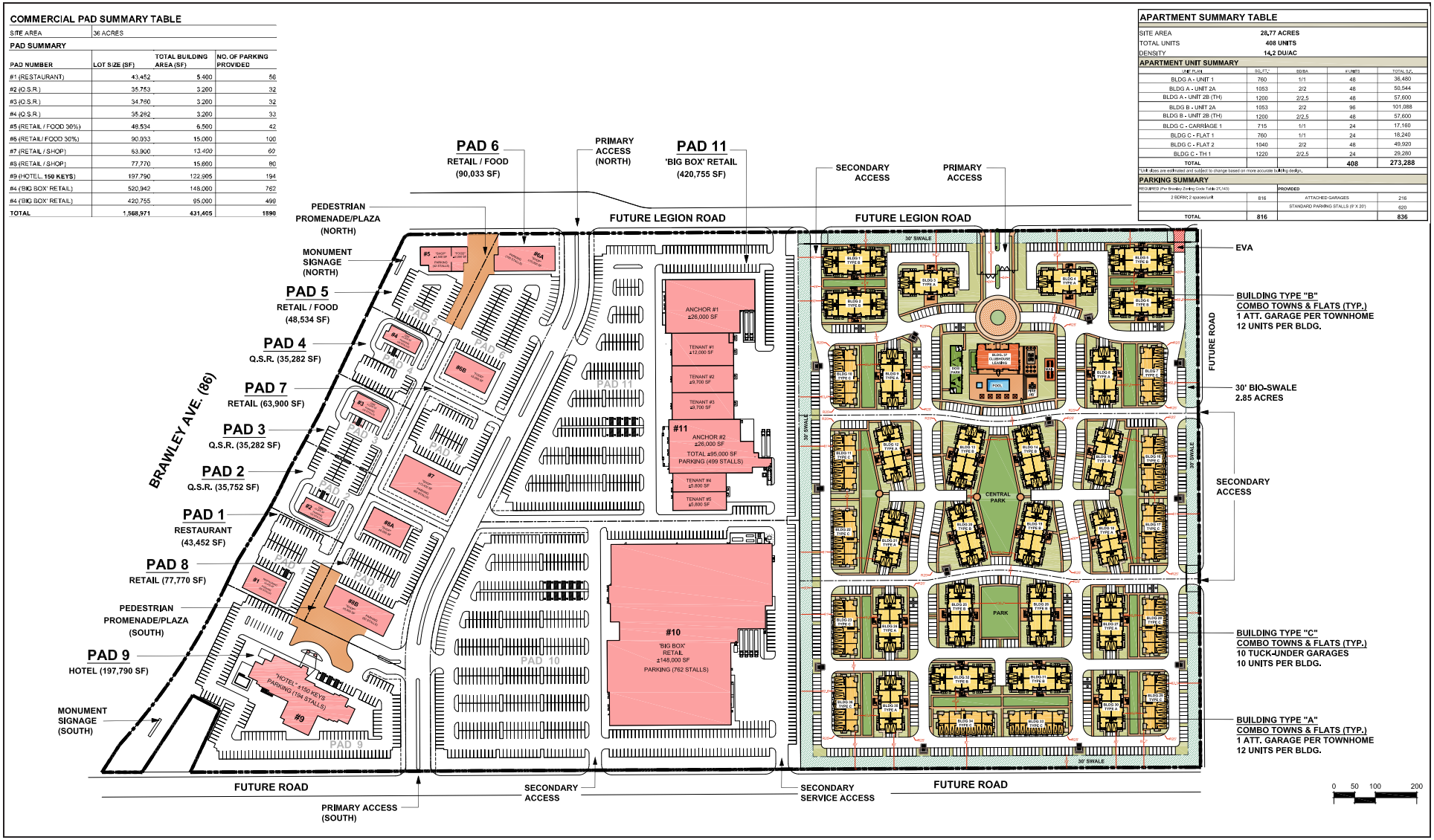
APARTMENT UNIT SUMMARY

UNIT PLAN	SQ. FT.*	BD/BA	# UNITS	TOTAL SQ.
BLDG A - UNIT 1	760	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG C - CARRIAGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	760	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	49,920
BLDG C - TH 1	1220	2/2.5	24	29,280
TOTAL			408	273,288

*Unit sizes are estimated and subject to change based on more accurate building design.

PARKING SUMMARY

REQUIRED (Per Brawley Zoning Code Table 27.143)		PROVIDED	
2 BDRM/ 2 spaces/unit	816	ATTACHED GARAGES	216
		STANDARD PARKING STALLS (9' X 20')	620
TOTAL	816		836



Source: W Design & Architects, April 2025

Michael Baker INTERNATIONAL

NOT TO SCALE

04/2025 • JN 202590

BRAWLEY MIXED USE MASTER PLAN PROJECT – AIR QUALITY ASSESSMENT

Site Plan

Exhibit 3

CRITERIA AIR POLLUTANTS

Air quality is a general description of how levels of air pollution and other atmospheric conditions can affect public health and the environment. Under the Federal Clean Air Act (FCAA), the U.S. Environmental Protection Agency (EPA) has identified six air pollutants that are environmentally prevalent and produced by human activities to be of concern with respect to health, the environment and welfare of the public. These specific pollutants, known as criteria air pollutants, are pollutants for which the federal and state governments have established ambient air quality standards—or criteria—for outdoor concentrations to protect public health. These pollutants are common byproducts of human activities and have been documented through scientific research to cause various adverse health effect outcomes. The federal ambient concentration criteria are known as the National Ambient Air Quality Standards (NAAQS), and the California ambient concentration criteria are referred to as the California Ambient Air Quality Standards (CAAQS). The criteria air pollutants regulated at the federal jurisdiction include carbon monoxide (CO), ground-level ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter ten microns or less in diameter (PM_{10}), fine particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb).

Carbon Monoxide (CO). CO is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of CO.

Ozone (O_3). O_3 occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" O_3 layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays. "Bad" O_3 is a photochemical pollutant, and needs volatile organic compounds (VOCs), nitrogen oxides (NO_X), and sunlight to form; therefore, VOCs and NO_X are O_3 precursors. To reduce O_3 concentrations, it is necessary to control the emissions of these O_3 precursors. Significant O_3 formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High O_3 concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While O_3 in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level O_3 (in the troposphere) can adversely affect the human respiratory system and other tissues. O_3 is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of O_3. Short-term exposure (lasting for a few hours) to O_3 at elevated levels can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache, and nausea.

Nitrogen Dioxide (NO_2). NO_X are a family of highly reactive gases that are a primary precursor to the formation of ground-level O_3 and react in the atmosphere to form acid rain. NO_2 (often used

interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at elevated levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations). NO_2 can irritate and damage the lungs and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter, which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003, the California Air Resources Board (CARB) adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25). Exposure to PM_{10} may result in particles being deposited on the lung surface, causing tissue damage, lung inflammation, and impacting respiratory and cardiovascular health.

Fine Particulate Matter ($PM_{2.5}$). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In February 2024, the EPA lowered the federal primary $PM_{2.5}$ annual standard to 9.0 microgram per cubic meter (ug/m^3) from the 12.0 ug/m^3 standard set in 2012. The secondary annual standard remains at 15.0 ug/m^3. States and Tribal Authorities have submitted initial recommendations of areas that do not attain this standard (i.e., nonattainment areas) to EPA for consideration; the EPA will finalize area designations by February 2026.

On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Due to the size of $PM_{2.5}$, these particles are more likely to be inhaled and deposited in the deeper parts of the lungs. Short-term exposure (up to 24 hours) may result in chronic bronchitis, asthma attacks, respiratory symptoms, and premature mortality.

Sulfur Dioxide (SO_2). Sulfur dioxide (SO_2) is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. Sulfur dioxide is often used interchangeably with SO_X. Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics.

Volatile Organic Compounds (VOC). VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O_3 to the same extent when exposed to photochemical processes. VOCs

often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOC is not considered a criteria pollutant; however, it is a precursor to O_3, which is a criteria pollutant. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and ROG (see below) are used interchangeably. Exposure to VOC vapors may result in eyes, nose, and throat irritation, nausea, headaches, and damage to the liver, kidney, and central nervous system.

Reactive Organic Gases (ROG). Similar to VOCs, ROGs are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC are used interchangeably. Exposure to ROGs may result in the same adverse health effects as VOCs.

EXISITNG SETTING

Regional Topography

The CARB divides the State into 15 air basins that share similar meteorological and topographical features. The project site lies within the Salton Sea Air Basin (Basin). The Basin includes all of Imperial County and the middle part of Riverside County.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of air pollutants throughout the Basin.

Climate

The climate in the Basin is typical of a desert regime, with large daily and seasonal fluctuations in temperature and relatively high annual average temperatures. High temperatures frequently exceed 100 degrees Fahrenheit (°F) for the summer months. During the winter, temperatures can drop to near freezing (and below freezing at higher elevations).

Climatic conditions in the Basin are governed by the large-scale sinking and warming air in the subtropical high-pressure center of the Pacific Ocean. The high pressure ridge blocks most mid-latitude storms except in the winter when the high-pressure ridge is weakest and farther south. Similarly, the coastal mountains prevent the intrusion of any cool damp marine air from the coast. Because of the weakened storms and the mountainous barrier, the Basin has hot summers, mild winters, and little rainfall. The flat terrain of the Valley and the strong temperature differentials created by intense solar heating produces moderate winds and deep thermal convection.

The flat terrain and strong temperature differentials created by intense heating and cooling patterns produce moderate winds and deep thermal circulation systems. As a result, the general dispersion of local air pollution is greater than in the coastal basins where polluted inversion layers may remain for long periods of time.

The project area experiences average high temperatures of up to 107°F during the month of July, and average low temperatures of 43°F during the months of January and December. The area also experiences an average of up to approximately 0.8 inches of precipitation per month, with the most precipitation occurring in the month of February.[1]

Local Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The closest air monitoring station to the project site that monitors O_3 and PM_{10} is the Westmorland-W 1st Street Monitoring Station located at 202 W First Street, Westmorland CA, 92281. The closest air monitoring station to the project site that monitors NO_2 and $PM_{2.5}$ is the El Centro-9th Street Monitoring Station located at 150 9th Street, El Centro CA, 92243. The closest air monitoring station to the project site that monitors CO is the Calexico-Ethel Street Monitoring Station located at 1085 Andrade Ave, Calexico CA, 92231. Local air quality data from 2022 to 2024 is provided in Table 1, *Summary of Air Quality Data*. Table 1 lists the monitored maximum concentrations and number of exceedances of federal/state air quality standards for each year.

Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The nearest sensitive receptor to the project site is the existing church (Gateway Church of Brawley) located to the west, across Brawley Avenue/Highway 86, approximately 130 feet away when measured from the property line. It should be noted that a residential community comprised of single-family residences is currently being constructed approximately 75 feet northeast of the project site when measured from the property line. While these single-family residences have not been fully constructed, the residences are most likely to be constructed and occupied prior to the construction completion of the proposed project. As such, they are analyzed as the closest sensitive receptors as a conservative analysis.

[1] Weather Spark, *Average Weather in Brawley, California, United States*, https://weatherspark.com/y/2199/Average-Weather-in-Brawley-California-United-States-Year-Round, accessed April 9, 2025.

Table 1
Measured Air Quality Level

Pollutant	Primary Standard		Year	Maximum Concentration[1]	Number of Days State/Federal Std. Exceeded
	California	Federal			
Ozone (O_3)[2] (1-hour)	0.09 ppm for 1 hour	NA[7]	2022 2023 2024	0.085 ppm 0.090 ppm 0.057 ppm	0/0 0/0 0/0
Ozone (O_3)[2] (8-hour)	0.070 ppm for 8 hours	0.070 ppm for 8 hours	2022 2023 2024	0.068 ppm 0.084 ppm 0.072 ppm	0/0 7/6 */*
Carbon Monoxide (CO)[4] (1-hour)	20 ppm for 1 hour	35 ppm for 1 hour	2022 2023 2024	5.066 ppm * *	0/0 */* */*
Nitrogen Dioxide (NO_2)[3]	0.18 ppm for 1 hour	0.100 ppm for 1 hour	2022 2023 2024	0.051 ppm 0.051 ppm 0.023 ppm	0/0 0/0 0/0
Fine Particulate Matter ($PM_{2.5}$)[3, 5]	No Separate Standard	35 µg/m^3 for 24 hours	2022 2023 2024	30.6 µg/m^3 42.0 µg/m^3 23.6 µg/m^3	NA/0 NA/1 NA/0
Coarse Particulate Matter (PM_{10})[2, 5, 6]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours[8]	2022 2023 2024	896.2 µg/m^3 621.5 µg/m^3 *	123/19 82/14 */*

ppm = parts per million
µg/m^3 = micrograms per cubic meter
N/A = Not Applicable
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
* = Insufficient Data

Notes:
1. Maximum concentration is measured over the same period as the California Standards.
2. Data collected from the Westmorland-W 1st Street Monitoring Station located at 202 W First Street, Westmorland CA 92281.
3. Data collected from the El Centro-9th Street Monitoring Station located at 150 9th Street, El Centro CA 92243.
4. Data collected from the Calexico-Ethel Street Monitoring Station located at 1085 Andrade Ave, Calexico CA 92231.
5. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
6. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
7. The Federal standard for 1-hour ozone was revoked in June 2005.
8. The Federal standard for average PM_{10} was revoked in December 2006.

Sources:
California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/, accessed April 10, 2025.
California Air Resources Board, *AQMIS2: Air Quality Data*, https://www.arb.ca.gov/aqmis2/aqdselect.php, accessed April 10, 2025.

REGULATORY SETTING

Federal

Federal Clean Air Act (FCAA)

The FCAA of 1970 and the FCAA Amendments of 1971 required the EPA to establish NAAQS, which required the EPA to adopt more stringent air quality standards or to include standards for other specific pollutants. The FCAA was amended in 1990 to address a large number of air pollutants that are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. A total of 188 specific pollutants and chemical groups were initially identified as hazardous air pollutants, and the list has been modified over time. The FCAA Amendments included new regulatory programs to control acid deposition and regulate the issuance of stationary source operating permits. These standards identify levels of air quality for "criteria" pollutants that are considered the

maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare; refer to Table 2, *National and California Ambient Air Quality Standards*.

State

California Clean Air Act

Clean Air Act permitting in California is the shared responsibility of the CARB, its 35 air pollution control agencies (districts), and EPA Region 9. Generally, CARB plays an oversight role for permitting and does not issue any pre-construction or operating permits. However, the State agency provides significant support to agencies that need permitting assistance.

California Air Resource Board

CARB administers the air quality policy in California. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, shown with the NAAQS in Table 2, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with the CAAQS. These AQMPs also serve as the basis for the preparation of the State Implementation Plan (SIP) for the State of California.

Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment.

Regional

Imperial County Air Pollution Control District

The Imperial County Air Pollution Control District (ICAPCD) adopted the *Imperial County 2017 State Implementation Plan for the 2008 8-Hour Ozone Standard* (Ozone Plan) and the *Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter Less Than 10 Microns in Diameter* (PM_{10} Plan), which established a program of rules and regulations directed at reducing air pollutant emissions and achieving State and Federal air quality standards. The Ozone Plan and PM_{10} Plan incorporate the latest scientific and technical information and planning assumptions, including the latest growth assumptions from Southern California Association of Governments (SCAG) Connect SoCal: 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (2020-2045 RTP/SCS), and updated emission inventory methodologies for various source categories. SCAG updates the RTP/SCS every four years and the most recent plan, the 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal 2024) was adopted on April 4, 2024. While SCAG recently adopted the Connect SoCal 2024, the ICAPCD has not released the updated Ozone Plan and PM_{10} Plan.

Table 2
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[3,4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	**Nonattainment**	N/A	N/A[5]
	8 Hours	0.070 ppm (137 μg/m³)	**Nonattainment**	0.070 ppm (137 μg/m³)	**Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 μg/m³	**Nonattainment**	150 μg/m³	Attainment/Maintenance
	Annual Arithmetic Mean	20 μg/m³	**Nonattainment**	N/A	N/A
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		35 μg/m³	**Nonattainment**
	Annual Arithmetic Mean	12 μg/m³	**Nonattainment**	9.0 μg/m³	**Nonattainment**
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m³)	Attainment	9 ppm (10 mg/m³)	Attainment/Maintenance
	1 Hour	20 ppm (23 mg/m³)	Attainment	35 ppm (40 mg/m³)	Attainment/Maintenance
Nitrogen Dioxide (NO_2)[5]	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	N/A	53 ppb (100 μg/m³)	Attainment/Maintenance
	1 Hour	0.18 ppm (339 μg/m³)	Attainment	100 ppb (188 μg/m³)	Attainment/Maintenance
Lead (Pb)[7,8]	30 days Average	1.5 μg/m³	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 μg/m³	**Nonattainment**
	Rolling 3-Month Average	N/A	N/A	0.15 μg/m³	**Nonattainment**
Sulfur Dioxide (SO_2)[6]	24 Hours	0.04 ppm (105 μg/m³)	Attainment	0.14 ppm (for certain areas)	Unclassified/Attainment
	3 Hours	N/A	N/A	N/A	N/A
	1 Hour	0.25 ppm (655 μg/m³)	Attainment	75 ppb (196 μg/m³)	N/A
	Annual Arithmetic Mean	N/A	N/A	0.30 ppm (for certain areas)	Unclassified/Attainment
Visibility-Reducing Particles[9]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Unclassified		
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 μg/m³)	N/A		

Notes: μg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, 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 ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone 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 μg/m³ 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. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
6. On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of 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.
7. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
8. The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
9. In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board, *Ambient Air Quality Standards Chart,* https://ww2.arb.ca.gov/sites/default/files/2024-08/AAQS%20Table_ADA_FINAL_07222024.pdf, July 16, 2024.

Southern California Association of Governments

On September 3, 2020, the Regional Council of SCAG formally adopted the 2020-2045 RTP/SCS. The SCS portion of the 2020-2045 RTP/SCS highlights strategies for the region to reach the regional target of

reducing greenhouse gases (GHGs) from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels). Specially, these strategies are:

- Focus growth near destinations and mobility options;
- Promote diverse housing choices;
- Leverage technology innovations;
- Support implementation of sustainability policies; and
- Promote a green region.

Furthermore, the 2020-2045 RTP/SCS discusses a variety of land use tools to help achieve the state-mandated reductions in GHG emissions through reduced per capita vehicle miles traveled (VMT). Some of these tools include center-focused placemaking, focusing on priority growth areas, job centers, transit priority areas, as well as high quality transit areas and green regions.

The latest 2024-2050 RTP/SCS (Connect SoCal 2024) was adopted on April 4, 2024. Connect SoCal 2024 is a vision for the future of Southern California that includes policies, strategies, and projects to advance the region's mobility, economy, and sustainability through 2050. While SCAG recently adopted the Connect SoCal 2024, the ICAPCD has not released updated Ozone Plan and PM_{10} Plan. As such, this memorandum is based on the 2022 AQMP and the RTP/SCS that was adopted at the time, the 2020-2045 RTP/SCS.

Air Pollutant Emissions Thresholds

The *ICAPCD CEQA Air Quality Handbook* provides significance thresholds for both construction and operation of projects within the ICAPCD's jurisdiction. If the ICAPCD thresholds are exceeded, a potentially significant impact could result. However, ultimately the lead agency determines the thresholds of significance for impacts. If a project proposes development in excess of the established thresholds, as outlined in Table 3, *Imperial County Air Pollution Control District Emissions Thresholds*, a significant air quality impact may occur, and additional analysis is warranted to fully assess the significance of impacts.

Table 3
Imperial County Air Pollution Control District Emissions Thresholds

Phase	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	N/A	150	N/A
Operational	137	137	550	150	150	550
Notes: ROG = reactive organic gases; NO_X = nitrous oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter 10 microns in diameter or less; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; N/A = Not Applicable						
Source: Imperial County Air Pollution Control District, *CEQA Air Quality Handbook*, December 12, 2017.						

Local Carbon Monoxide Standards

A project would result in a local air quality impact if the project results in increased traffic volumes and/or decreases in level of service (LOS) that would result in an exceedance of the CO ambient air quality standards of 20 parts per million (ppm) for 1-hour CO concentration levels, and 9 ppm for 8-hour CO concentration levels. If the CO concentrations at potentially impacted intersections with the project are lower than the standards, then there is no significant impact. If future CO concentrations with the project are above the standard, then the project would have a significant local air quality impact.

Local

City of Brawley

City of Brawley General Plan Update

The Resource Management Element (RME) of the *City of Brawley General Plan Update* (General Plan)[2] includes goal and polices related to air quality. The following goal, objectives, and policies are applicable to the proposed project:

RME Goal 1: Reduction of Air Pollution

RME Objective 1.1: Reduce air pollution through proper land use, transportation and energy use planning.

RME Policy 1.1.2: Design vehicular access to commercial land uses from arterial streets to improve vehicular ingress and egress.

RME Policy 1.1.3: Locate multiple family developments close to commercial areas to encourage pedestrian travel rather than vehicular travel.

RME Policy 1.1.4: Develop neighborhood parks and/or joint use facilities near future concentrations of residents to encourage pedestrian travel to the recreation facilities.

RME Policy 1.1.5: Provide commercial areas that are conducive to pedestrian and bicyclist circulation.

RME Policy 1.1.10: Encourage site plan designs to provide the appropriate set-backs and/or design features that reduce toxic air contaminants at the source.

RME Objective 1.2: Improve air quality by influencing transportation choices of mode, time of day, or whether to travel.

RME Policy 1.2.5: For planned high density and mixed use developments, project proponents should consult with the local transit agency and incorporate all appropriate and feasible transit amenities into the plans.

RME Policy 1.2.10: Integrate air quality planning with the land use and transportation process.

RME Objective 1.4: Reduce emissions through greater energy efficiency and conservation, and the use of renewable resources.

RME Policy 1.4.2: Encourage and promote all new developments to be constructed with energy efficient lighting, air conditioning, and heating systems.

[2] City of Brawley, *City of Brawley General Plan Update*, September 2008, https://www.brawley-ca.gov/assets/planning/long_range_planning/september-2008-brawley-general-plan.pdf, accessed April 9, 2025.

RME Policy 1.4.3: Encourage and promote all new developments to be designed structurally to maximize cooling efficiency and natural shade.

RME Policy 1.4.4: Encourage and promote all new developments to incorporate trees to maximize natural shade and air pollution control.

RME Policy 1.4.5: Consider all feasible alternatives to minimize emissions from diesel equipment (e.g., trucks, construction equipment, and generators).

RME Policy 1.4.11: Utilize all available renewable energy sources to reduce fuel consumption and demand on the power grid.

CALIFORNIA ENVIRONMENTAL QUALITY ACT THRESHOLDS

In accordance with the *California Environmental Quality Act Guidelines* (CEQA Guidelines), project impacts are evaluated to determine whether significant adverse environmental impacts would occur. This analysis is focused on the project's potential impacts and identifies mitigation measures, if required, to reduce or avoid any potentially significant impacts that are identified. According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact Statement AQ-1);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard (refer to Impact Statement AQ-2);
- Expose sensitive receptors to substantial pollutant concentrations (refer to Impact Statement AQ-3); and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (refer to Impact Statement AQ-4).

Methodology

Construction

Project construction would primarily generate temporary criteria pollutants from construction equipment operation on-site and construction worker vehicle trips to and from the project site, and from construction material deliveries to and from the project site. Construction input data for CalEEMod include, but are not limited to, (1) the anticipated start and finish dates of construction activity; (2) inventories of construction equipment to be used; and (3) areas to be excavated and graded. Construction emissions were quantified by estimating the types and quantity of equipment that would be used on-site during each construction phase, as provided by the model defaults. CalEEMod also estimates off-site emissions from worker, vendor, and hauling truck trips.

Construction of the proposed project is anticipated to take approximately 33 months to complete. The construction activities would include grading, building construction, paving, and architectural coating. The number of worker and vendor trips were based on CalEEMod defaults, and the hauling truck trips were generally based on the soil import volume provided by the project applicant; approximately 20,000 cubic

yards of soil import is anticipated to be required for this project. The default trip lengths were used for worker, vendor, and hauling truck trips.

Operation

Operational sources of criteria pollutant emissions include area, energy, and mobile sources which are further discussed below. CalEEMod modeling was conducted for the proposed project condition.

Area Sources

Emissions associated with area sources include consumer products, landscape maintenance, and architectural coating. Area source emissions were calculated using standard emission rates from CARB, USEPA, ICAPCD, and CalEEMod model defaults.

Energy Sources

The project would be served by the Imperial Irrigation District (IID). The primary use of electricity by the project would be for space heating and cooling, water heating, ventilation, lighting, appliances, landscaping equipment, and electronics. However, emissions from electricity use are not included in the air quality analysis as they only apply to greenhouse gas emissions since electricity generation is an indirect emission generated off-site and, therefore, not relevant for local and regional air quality conditions. According to the project applicant, the project would not use natural gas on-site.

Mobile Sources

Mobile source emissions were estimated by multiplying the project's total VMT by the vehicle emission factors. The vehicle emission factors were CalEEMod default values for the Imperial County. The project-specific VMT were calculated from project trip generation rates and CalEEMod default trip lengths. It is estimated that the project would generate approximately 14,307 daily trips (Michael Baker 2025).

IMPACT ANALYSIS

AQ-1 WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN?

Level of Significance: Less Than Significant Impact.

The project is located within the Salton Sea Air Basin, which is governed by the ICAPCD. The ICAPCD adopted the Ozone Plan and the PM_{10} Plan that establish a program of rules and regulations directed at reducing air pollutant emissions and achieving State and Federal air quality standards. The Ozone Plan and PM_{10} Plan incorporate the latest scientific and technical information and planning assumptions, including the latest growth assumptions from SCAG 2020-2045 RTP/SCS, and updated emission inventory methodologies for various source categories. While SCAG has recently adopted Connect SoCal 2024, ICAPCD has not released updated Ozone Plan and PM_{10} Plan. As such, this consistency analysis is based on the Ozone Plan and the PM_{10} Plan and the RTP/SCS that was adopted at the time, the 2020-2045 RTP/SCS.

According to the ICAPCD CEQA Air Quality Handbook, project consistency with the Ozone Plan and PM_{10} Plan can be determined by comparing the actual population growth in the County of Imperial (County) with the projected growth rates used in the Ozone Plan and PM_{10} Plan. The projected growth rate in population is used as an indicator of future emissions from population-related emission categories in the Ozone Plan and PM_{10} Plan. These emission estimates are used, in part, to project the date by which the County will attain the federal ozone and PM_{10} standards.

The project site is zoned C-P Service and Professional, C-2 Medium Commercial, and M-1 Light Manufacturing by the Zoning Map[3], and designated Light Industrial/Business Park and Commercial by the Land Use Map[4]. The proposed project would involve constructing 408 units of multi-family residential uses, a 150-room hotel (approximately 122,905 SF) and approximately 308,500 SF of retail commercial uses. As such, the project would require a General Plan Amendment and Zoning Change. With approval of the General Plan Amendment and Zoning Change, the project would be consistent with the General Plan and Zoning Map requirements.

The population estimate as of January 1, 2024, is 28,345 persons in the City of Brawley.[5] The project would induce population growth directly through the construction of 408 residential units. Based on the CalEEMod default value of 3.56 persons per dwelling unit, the project would result in a direct population increase of approximately 1,452 persons. Based on the population forecast provided in the 2020-2045 RTP/SCS, the City is estimated to have approximately 41,100 residents by 2045 (the 2020-2045 RTP/SCS horizon year).[6] Therefore, between 2024 and 2045, the City is expected to have an estimated population growth of 12,755 residents. The project's 1,452 residents would represent approximately 11.4 percent of the anticipated growth in the City. In addition, according to the project applicant, the project would require approximately 325 employees. Based on the employment forecast provided in the 2020-2045 RTP/SCS, the City was estimated to have approximately 8,000 employees in 2016, increasing to an estimated 13,600 employees by 2045.[7] Therefore, between 2016 and 2045, the City is expected to have an estimated employment growth of 5,600 employees. The project's 325 employees would represent approximately 5.8 percent of the anticipated job growth in the City. Thus, the project would not exceed the population and employment forecasts and would be consistent with the projections in the 2020-2045 RTP/SCS. Since ICAPCD has incorporated the 2020-2045 RTP/SCS projections into the Ozone Plan and PM_{10} Plan, it can be concluded that the project would also be consistent with the Ozone Plan and PM_{10} Plan.

Therefore, with the approval of the General Plan Amendment and Zoning Change, the project would be consistent with the types, intensity, and patterns of land use envisioned for the site vicinity and would be considered consistent with the General Plan. Further, the population and housing projections, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City. As the ICAPCD has incorporated these same projections into the Ozone Plan and PM_{10} Plan, it can be

[3] City of Brawley Official Zoning Map, https://www.brawley-ca.gov/assets/planning/zoning_and_ordinances/city-of-brawley-zoning-map.pdf, accessed April 9, 2025.

[4] City of Brawley Official Land Use Map, https://www.brawley-ca.gov/assets/planning/long_range_planning/city-of-brawley-land-use-map.pdf, accessed April 9, 2025.

[5] California Department of Finance, *Population and Housing Estimates for Cities, Counties, and the State, January 2021-2024, with 2020 Benchmark*, https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2024/, accessed April 9, 2025.

[6] Southern California Association of Governments, *Connect SoCal 2020, Demographics and Growth Forecast*, https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_demographics-and-growth-forecast.pdf?1606001579, accessed April 9, 2025.

[7] Ibid.

concluded that the proposed project would be consistent with the projections. Impacts would be less than significant.

Mitigation Measures: No mitigation is required.

AQ-2 WOULD THE PROJECT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NONATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD?

Level of Significance: Less Than Significant Impact.

Construction

Refer to Appendix A, *Air Quality Emissions Data,* for the detailed CalEEMod output. Table 4, *Maximum Daily Construction Emissions,* summarizes the estimated maximum daily emissions of VOC (ROG), NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$.

Table 4
Maximum Daily Construction Emissions

Scenario	Pollutant (pounds/day) [1,2,3]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 1 (2026) Construction Emissions	3.95	29.3	62.7	0.07	7.21	2.19
Year 2 (2027) Construction Emissions	3.76	16.1	58.1	0.05	7.17	1.99
Year 3 (2028) Construction Emissions	67.6	15.8	64.0	0.05	8.31	2.24
Maximum Daily Emissions	***67.6***	***29.3***	***64.0***	***0.07***	***8.31***	***2.24***
ICAPCD Thresholds[4]	*75*	*100*	*550*	*N/A*	*150*	*N/A*
Threshold Exceeded?	**No**	**No**	**No**	**N/A**	**No**	**N/A**

Notes:
1. Emissions were calculated using CalEEMod, version 2022.1. Maximum emissions during summer or winter are presented here to represent the worst-case scenario.
2. Modeling assumptions include compliance with ICAPCD Regulation VIII which requires: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water or stabilize exposed surfaces; cover stockpiles with tarps; and water or stabilize unpaved roads.
3. For Imperial County, CalEEMod assumes 50 percent paved and 50 percent unpaved roads as provided by ICAPCD. However, this does not represent typical characteristics of the roads in the vicinity of the project site. As the project site is in an urban area and adjacent to Highway 86, all worker, vendor, and hauling trips would travel on paved roads. Therefore, 100 percent paved roads were modeled during construction activities.
4. ICAPCD does not require quantitative construction emissions analysis for projects that do not exceed the operational emissions thresholds (Tier 1 projects). However, construction emissions were quantified and compared to ICAPCD construction emissions thresholds for informational purposes. ICAPCD does not establish thresholds for SO_2 or $PM_{2.5}$.

Source: Refer to Appendix A for assumptions used in this analysis.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways. Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading

and construction is expected to be short-term and would cease upon project completion. It should be noted that most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. $PM_{2.5}$ is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and sulfur oxides (SO_X) combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

It should be noted that Imperial County roadways experience higher levels of entrained roadway dust and therefore CalEEMod default values for Imperial County assume 50 percent of travel on paved road. However, as the project site is located in an urban area and adjacent to Highway 86, all worker, vendor, and hauling trips would travel on paved roads. Therefore, 100 percent paved roads were modeled during construction activities. The project would also implement all dust control techniques required under ICAPCD regulations. Applicable regulations include those established by ICAPCD Regulation VIII, which requires that excessive fugitive dust emissions be controlled by regular watering or other dust prevention measures to reduce PM_{10} concentrations. A Dust Control Plan with enhanced dust control measures and identifying all sources of PM_{10} and $PM_{2.5}$ would also be provided to the ICAPCD for approval. These modeling assumptions and measures based on ICAPCD regulations were applied in CalEEMod. As depicted in Table 4, total fugitive dust (PM_{10}) emissions during construction would not exceed applicable ICAPCD threshold; ICAPCD does not establish threshold for $PM_{2.5}$. Thus, impacts in this regard would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions (e.g., NO_x and CO) from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. As depicted in Table 4, construction equipment and worker vehicle exhaust emissions would be below the established ICAPCD thresholds. Therefore, air quality impacts from equipment and vehicle exhaust emissions would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. As required, all architectural coatings for the proposed project structures would comply with ICAPCD Rule 424. Rule 424 provides specifications on painting practices as well as regulates the ROG content of paint. ROG emissions associated with the proposed project would be less than significant; refer to Table 4.

Total Daily Construction Emissions

In accordance with the ICAPCD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. As indicated in Table 4, criteria pollutant emissions during construction of the proposed project would not exceed the ICAPCD significance thresholds. Thus, total construction related air emissions would be less than significant.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are human health hazards when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, federal, and international agencies and was identified as a toxic air contaminant by CARB in 1986. Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), serpentinite and ultramafic rocks are not known to occur within the project area.[8] As such, impacts would be less than significant.

Operations

Long-term air quality impacts typically consist of mobile source emissions generated from project-related traffic (i.e., motor vehicle use by employees, deliveries travelling to and from the site), and emissions from area and energy sources. Emissions associated with each of these sources were calculated and are discussed below. Operational emissions generated by the proposed project are detailed in Table 5, *Maximum Operational Emissions*.

[8] California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*, August 2000, https://ww3.arb.ca.gov/toxics/asbestos/ofr_2000-019.pdf, accessed April 9, 2025.

Table 5
Maximum Operational Emissions

Scenario	Emissions (pounds per day)[1]					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Project Summer Emissions						
Mobile Source	60.80	35.90	365.00	0.71	58.50	15.20
Area Source	17.90	3.46	1.47	0.02	0.28	0.28
Energy Source	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Maximum Daily Emissions[2]	***78.7***	***39.36***	***366.47***	***0.73***	***58.78***	***15.48***
ICAPCD Regional Threshold	*137*	*137*	*550*	*150*	*150*	*550*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Project Winter Emissions						
Mobile Source	46.60	39.80	266.00	0.63	58.50	15.20
Area Source	17.90	3.46	1.47	0.02	0.28	0.28
Energy Source	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Maximum Daily Emission[2]	***64.50***	***43.26***	***267.47***	***0.65***	***58.78***	***15.48***
ICAPCD Regional Threshold	*137*	*137*	*550*	*150*	*150*	*550*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
1. Emissions were calculated using CalEEMod, version 2022.1.
2. The numbers may be slightly off due to rounding.

Refer to Appendix A for assumptions used in this analysis.

Mobile Source

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod. According to the transportation analysis (Michael Baker 2025), the project would generate approximately 14,307 daily trips. As shown in Table 5, emissions generated by vehicle traffic associated with the project would not exceed established ICAPCD thresholds.

Area Source Emissions

Area source emissions would be generated from consumer products, architectural coatings, and landscaping. According to the project applicant, the proposed project would utilize all-electric landscaping equipment. However, as a conservative estimate, this feature was not accounted for in the modeling. The project's criteria pollutant emissions from area sources would not exceed the established thresholds; refer to Table 5.

Energy Source Emissions

The primary use of electricity by the project would be for space heating and cooling, water heating, ventilation, lighting, appliances, landscaping equipment, and electronics. Criteria air pollutant emissions

from electricity use were not quantified since criteria pollutants emissions occur at the site of the power plant, which is off-site. The project would install high efficiency appliances and solar panels. However, as a conservative analysis, these project design features were not accounted for in the modeling. According to the project applicant, the project would not use natural gas on-site. Therefore, the project would not generate energy source criteria pollutant emissions; refer to Table 5.

Total Operational Emissions

As shown in Table 5, the total operational emissions would not exceed the ICAPCD significance thresholds. Therefore, impacts in this regard would be less than significant.

Air Quality Health Impacts

Adverse health effects induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individual [e.g., age, gender]). In particular, ozone precursors VOCs and NOx affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and, as such, translating project-generated criteria pollutants to specific health effects or additional days of nonattainment would produce meaningless results. In other words, the project's less than significant increases in regional air pollution from criteria air pollutants would have nominal or negligible impacts on human health.

As noted in the Brief of Amicus Curiae by the South Coast Air Quality Management District (SCAQMD), the SCAQMD acknowledged it would be extremely difficult, if not impossible, to quantify health impacts of criteria pollutants for various reasons including modeling limitations as well as where in the atmosphere air pollutants interact and form. Further, as noted in the Brief of Amicus Curiae by the San Joaquin Valley Air Pollution Control District (SJVAPCD), SJVAPCD has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts.

The SCAQMD acknowledges that health effects quantification from ozone, as an example is correlated with the increases in ambient level of ozone in the air (concentration) that an individual person breathes. SCAQMD's Brief of Amicus Curiae states that it would take a large amount of additional emissions to cause a modeled increase in ambient ozone levels over the entire region. The SCAQMD states that based on their own modeling in the SCAQMD's 2012 Air Quality Management Plan, a reduction of 432 tons (864,000 pounds) per day of NO_X and a reduction of 187 tons (374,000 pounds) per day of VOCs would reduce ozone levels at highest monitored site by only nine parts per billion. As such, the SCAQMD concludes that it is not currently possible to accurately quantify ozone-related health impacts caused by NO_X or VOC emissions from relatively small projects (defined as projects with regional scope) due to photochemistry and regional model limitations. As such, for the purpose of this analysis, since the project would not exceed ICAPCD thresholds for construction and operational air emissions, the project would have a less than significant impact for air quality health impacts as well.

Mitigation Measures: No mitigation is required.

AQ-3 WOULD THE PROJECT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS?

Level of Significance: Less Than Significant Impact.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. As discussed above, although the nearest existing sensitive receptor is a church (Gateway Church of Brawley) located approximately 130 feet to the west, a residential community comprised of single-family residences is currently being constructed and is most likely to be occupied prior to the construction completion of the proposed project. As such, the future single-family residential uses located approximately 75 feet to the northeast are analyzed as the nearest sensitive receptor.

Localized Air Quality Health Impacts

Construction

Project construction activities are anticipated to involve the operation of diesel-powered equipment, which would emit diesel particulate matter (DPM). In 1998, the CARB identified diesel exhaust as a toxic air contaminant (TAC). Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, in which a 30-year exposure period often is assumed. The project would construct mixed-use buildings while complying with the California Code of Regulations (CCR), Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by shutting it off when not in use or by reducing the time of idling to no more than five minutes. Implementation of these regulations would reduce the amount of DPM emissions from the construction of the project.

The nearest sensitive receptors to the project site are future single-family residences located approximately 75 feet to the northeast of the project boundary. However, health impacts on sensitive receptors associated with exposure to DPM from project construction are anticipated to be less than significant because construction activities are expected to occur well below the 30-year exposure period used in health risk assessments. Additionally, emissions would be short-term and intermittent in nature, and therefore would not generate TAC emissions at high enough exposure concentrations to represent a health hazard. Therefore, construction of the proposed project is not anticipated to result in an elevated cancer risk to nearby sensitive receptors and the impact would be less than significant.

Operations

The project would involve construction and operation of a residential and commercial development and would result in limited operational activities with potential health risks, including occasional diesel truck trips for trash pickups, deliveries, and landscaping maintenance operations. None of these activities would result in the generation of excessive TAC emissions, or associated health risks from the project's operation. Therefore, operation of the proposed project is not anticipated to result in an elevated cancer risk to nearby sensitive receptors. Impacts would be less than significant in this regard.

Carbon Monoxide Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (e.g., adversely affecting residents, school children, hospital patients, and the elderly).

The Basin is designated as an attainment/maintenance area for the federal CO standards and an attainment area under State standards. There has been a decline in CO emissions even though VMT on U.S. urban and rural roads have increased; estimated anthropogenic CO emissions have decreased 68 percent between 1990 and 2014. In 2014, mobile sources accounted for 82 percent of the nation's total anthropogenic CO emissions. Three major control programs have contributed to the reduced per-vehicle CO emissions, including exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A potential CO hotspot may occur at any location where the background CO concentration already exceeds 20 parts per million (ppm), which is the 1-hour California ambient air quality standard. As shown in Table 1, the closest monitoring station to the project site that monitors CO concentration is the El Centro-9th Street Monitoring Station, and the maximum CO concentration was measured at 5.066 ppm in 2022, the latest year with available data. Given that the background CO concentration does not currently exceed 20 ppm, a CO hotspot would not occur at the project site. Therefore, CO hotspot impacts would be less than significant in this regard.

Mitigation Measures: No mitigation is required.

AQ-4 WOULD THE PROJECT RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE?

Level of Significance: Less Than Significant Impact.

According to the ICAPCD CEQA Air Quality Handbook, land uses associated with odor complaints typically include wastewater treatment plants, sanitary landfills, composting stations, feedlots, asphalt plants, painting and coating operations, and rendering plants. The project does not propose any uses identified by the ICAPCD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust. However, construction-related odors would be short-term in nature and cease upon project completion. In addition, the project would be required to comply with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimize the idling time of construction equipment either by requiring equipment to be shut off when not in use or limiting idling time to no more than five minutes. Compliance with these existing regulations would further reduce the detectable odors from heavy-duty equipment exhaust. Any odor impacts to existing adjacent land uses would be short-term and negligible. As such, the project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Impacts would be less than significant in this regard.

Mitigation Measures: No mitigation is required.

REFERENCES

Documents

1. California Air Resources Board, *Ambient Air Quality Standards Chart,* https://ww2.arb.ca.gov/sites/default/files/2024-08/AAQS%20Table_ADA_FINAL_07222024.pdf, July 16, 2024.

2. California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/, accessed April 10, 2025.

3. California Air Resources Board, *AQMIS2: Air Quality Data*, https://www.arb.ca.gov/aqmis2/aqdselect.php, accessed April 10, 2025.

4. California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*, August 2000, https://ww3.arb.ca.gov/toxics/asbestos/ofr_2000-019.pdf, accessed April 9, 2025.

5. California Department of Finance, *Population and Housing Estimates for Cities, Counties, and the State, January 2021-2024, with 2020 Benchmark*, https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2024/, accessed April 9, 2025.

6. City of Brawley Official Zoning Map, https://www.brawley-ca.gov/assets/planning/zoning_and_ordinances/city-of-brawley-zoning-map.pdf, accessed April 9, 2025.

7. City of Brawley Official Land Use Map, https://www.brawley-ca.gov/assets/planning/long_range_planning/city-of-brawley-land-use-map.pdf, accessed April 9, 2025.

8. City of Brawley, *City of Brawley General Plan Update*¸ September 2008, https://www.brawley-ca.gov/assets/planning/long_range_planning/september-2008-brawley-general-plan.pdf, accessed April 9, 2025.

9. Imperial County Air Pollution Control District, *CEQA Air Quality Handbook*, December 12, 2017.

10. Imperial County Air Pollution Control District, *Imperial County 2017 State Implementation Plan For The 2008 8-Hour Ozone Standard*, September 2017.

11. Imperial County Air Pollution Control District, *Imperial County 2018 Redesignation Request And Maintenance Plan For Particulate Matter Less Than 10 Microns In Diameter*, October 2018.

12. Michael Baker International, *Brawley Mixed Use Master Plan Development - Traffic Analysis Update Memorandum,* April 2025.

13. Southern California Association of Governments, *2020–2045 Regional Transportation Plan/Sustainable Communities Strategy*, September 3, 2020.

14. Southern California Association of Governments, *Connect SoCal 2020, Demographics and Growth Forecast*, https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_demographics-and-growth-forecast.pdf?1606001579, accessed April 9, 2025.

15. Weather Spark, *Average Weather in Brawley, California, United States*, https://weatherspark.com/y/2199/Average-Weather-in-Brawley-California-United-States-Year-Round, accessed April 9, 2025.

Programs

1. Google Earth Pro, 2025.

2. California Air Pollution Control Officers Association, California Emissions Estimator Model (CalEEMod), version 2022.1.

Appendix A
Air Quality Emissions Data

Brawley Mixed Use Master Plan Update Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.3. Construction Emissions by Year, Mitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

2.6. Operations Emissions by Sector, Mitigated

3. Construction Emissions Details

3.1. Grading (2026) - Unmitigated

3.2. Grading (2026) - Mitigated

3.3. Building Construction (2026) - Unmitigated

3.4. Building Construction (2026) - Mitigated

3.5. Building Construction (2027) - Unmitigated

3.6. Building Construction (2027) - Mitigated

3.7. Building Construction (2028) - Unmitigated

3.8. Building Construction (2028) - Mitigated

3.9. Paving (2028) - Unmitigated

3.10. Paving (2028) - Mitigated

3.11. Architectural Coating (2028) - Unmitigated

3.12. Architectural Coating (2028) - Mitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.1.2. Mitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.2. Electricity Emissions By Land Use - Mitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.2.4. Natural Gas Emissions By Land Use - Mitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.3.2. Mitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.4.2. Mitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.5.2. Mitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.6.2. Mitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.7.2. Mitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.8.2. Mitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.9.2. Mitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.2.2. Mitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.3.2. Mitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.9.2. Mitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.10.4. Landscape Equipment - Mitigated

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.11.2. Mitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.12.2. Mitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.13.2. Mitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.14.2. Mitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Brawley Mixed Use Master Plan Update
Construction Start Date	2/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	4.80
Location	32.95831906859517, -115.54708285106608
County	Imperial
City	Brawley
Air District	Imperial County APCD
Air Basin	Salton Sea
TAZ	5602
EDFZ	19
Electric Utility	Imperial Irrigation District
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Hotel	150	Room	4.54	122,905	18,731	—	—	—

Condo/Townhouse	408	Dwelling Unit	28.8	273,288	101,016	—	1,452	—
Regional Shopping Center	243	1000sqft	21.6	243,000	95,832	—	—	—
Strip Mall	65.5	1000sqft	9.86	65,500	0.00	—	—	—
Parking Lot	2,510	Space	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Area Sources	LL-1	Replace Gas Powered Landscape Equipment with Zero-Emission Landscape Equipment

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	68.4	67.6	29.1	64.0	0.07	1.15	9.90	11.1	1.06	3.84	4.90	—	13,664	13,664	0.45	0.74	30.9	13,924
Mit.	68.4	67.6	29.1	64.0	0.07	1.15	7.94	8.31	1.06	1.90	2.24	—	13,664	13,664	0.45	0.74	30.9	13,924
% Reduced	—	—	—	—	—	—	20%	25%	—	50%	54%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	65.1	64.9	29.3	41.8	0.07	1.15	9.90	11.1	1.06	3.84	4.90	—	11,601	11,601	0.42	0.73	0.80	11,829
Mit.	65.1	64.9	29.3	41.8	0.07	1.15	6.78	7.21	1.06	1.63	2.19	—	11,601	11,601	0.42	0.73	0.80	11,829

% Reduced	—	—	—	—	—	—	32%	35%	—	57%	55%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	28.2	28.0	14.6	32.5	0.04	0.49	5.34	5.83	0.46	1.71	2.17	—	8,463	8,463	0.29	0.51	8.56	8,631
Mit.	28.2	28.0	14.6	32.5	0.04	0.49	4.83	5.11	0.46	1.16	1.42	—	8,463	8,463	0.29	0.51	8.56	8,631
% Reduced	—	—	—	—	—	—	10%	12%	—	32%	34%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.15	5.11	2.67	5.92	0.01	0.09	0.97	1.06	0.08	0.31	0.40	—	1,401	1,401	0.05	0.08	1.42	1,429
Mit.	5.15	5.11	2.67	5.92	0.01	0.09	0.88	0.93	0.08	0.21	0.26	—	1,401	1,401	0.05	0.08	1.42	1,429
% Reduced	—	—	—	—	—	—	10%	12%	—	32%	34%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	4.43	3.95	29.1	62.7	0.07	1.15	9.90	11.1	1.06	3.84	4.90	—	12,637	12,637	0.40	0.73	30.9	12,895
2027	4.22	3.76	15.4	58.1	0.05	0.39	6.78	7.17	0.36	1.63	1.99	—	12,448	12,448	0.40	0.73	27.7	12,702
2028	68.4	67.6	15.8	64.0	0.05	0.37	7.94	8.31	0.34	1.90	2.24	—	13,664	13,664	0.45	0.74	28.4	13,924
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.84	3.36	29.3	41.8	0.07	1.15	9.90	11.1	1.06	3.84	4.90	—	11,601	11,601	0.42	0.73	0.80	11,829
2027	3.49	3.05	16.1	38.9	0.05	0.39	6.78	7.17	0.36	1.63	1.99	—	11,432	11,432	0.42	0.73	0.72	11,660
2028	65.1	64.9	15.3	37.1	0.05	0.35	6.78	7.13	0.33	1.63	1.96	—	11,242	11,242	0.23	0.70	0.64	11,457

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	2.55	2.20	14.6	26.3	0.04	0.49	5.34	5.83	0.46	1.71	2.17	—	6,800	6,800	0.23	0.35	5.34	6,916
2027	2.75	2.42	11.3	32.5	0.04	0.28	4.83	5.11	0.26	1.16	1.42	—	8,463	8,463	0.29	0.51	8.56	8,631
2028	28.2	28.0	7.47	20.8	0.02	0.19	2.94	3.13	0.18	0.70	0.88	—	5,102	5,102	0.18	0.27	4.53	5,191
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.47	0.40	2.67	4.80	0.01	0.09	0.97	1.06	0.08	0.31	0.40	—	1,126	1,126	0.04	0.06	0.88	1,145
2027	0.50	0.44	2.06	5.92	0.01	0.05	0.88	0.93	0.05	0.21	0.26	—	1,401	1,401	0.05	0.08	1.42	1,429
2028	5.15	5.11	1.36	3.79	< 0.005	0.04	0.54	0.57	0.03	0.13	0.16	—	845	845	0.03	0.04	0.75	859

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	4.43	3.95	29.1	62.7	0.07	1.15	6.78	7.21	1.06	1.63	2.19	—	12,637	12,637	0.40	0.73	30.9	12,895
2027	4.22	3.76	15.4	58.1	0.05	0.39	6.78	7.17	0.36	1.63	1.99	—	12,448	12,448	0.40	0.73	27.7	12,702
2028	68.4	67.6	15.8	64.0	0.05	0.37	7.94	8.31	0.34	1.90	2.24	—	13,664	13,664	0.45	0.74	28.4	13,924
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.84	3.36	29.3	41.8	0.07	1.15	6.78	7.21	1.06	1.63	2.19	—	11,601	11,601	0.42	0.73	0.80	11,829
2027	3.49	3.05	16.1	38.9	0.05	0.39	6.78	7.17	0.36	1.63	1.99	—	11,432	11,432	0.42	0.73	0.72	11,660
2028	65.1	64.9	15.3	37.1	0.05	0.35	6.78	7.13	0.33	1.63	1.96	—	11,242	11,242	0.23	0.70	0.64	11,457
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	2.55	2.20	14.6	26.3	0.04	0.49	3.34	3.83	0.46	0.92	1.37	—	6,800	6,800	0.23	0.35	5.34	6,916
2027	2.75	2.42	11.3	32.5	0.04	0.28	4.83	5.11	0.26	1.16	1.42	—	8,463	8,463	0.29	0.51	8.56	8,631
2028	28.2	28.0	7.47	20.8	0.02	0.19	2.94	3.13	0.18	0.70	0.88	—	5,102	5,102	0.18	0.27	4.53	5,191

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.47	0.40	2.67	4.80	0.01	0.09	0.61	0.70	0.08	0.17	0.25	—	1,126	1,126	0.04	0.06	0.88	1,145
2027	0.50	0.44	2.06	5.92	0.01	0.05	0.88	0.93	0.05	0.21	0.26	—	1,401	1,401	0.05	0.08	1.42	1,429
2028	5.15	5.11	1.36	3.79	< 0.005	0.04	0.54	0.57	0.03	0.13	0.16	—	845	845	0.03	0.04	0.75	859

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	87.2	83.8	39.8	408	0.74	0.83	58.0	58.8	0.78	14.7	15.5	468	92,119	92,586	51.2	3.78	410	95,405
Mit.	81.7	78.7	39.4	367	0.74	0.78	58.0	58.8	0.75	14.7	15.4	468	92,009	92,476	51.2	3.78	410	95,294
% Reduced	6%	6%	1%	10%	< 0.5%	5%	—	< 0.5%	4%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	67.6	64.5	43.2	268	0.65	0.78	58.0	58.8	0.75	14.7	15.4	468	83,417	83,884	51.5	3.91	201	86,538
Mit.	67.6	64.5	43.2	268	0.65	0.78	58.0	58.8	0.75	14.7	15.4	468	83,417	83,884	51.5	3.91	201	86,538
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	73.8	70.9	38.0	308	0.65	0.52	56.7	57.2	0.48	14.3	14.8	468	81,314	81,782	51.2	3.77	286	84,471
Mit.	71.1	68.3	37.8	288	0.65	0.50	56.7	57.2	0.46	14.3	14.8	468	81,260	81,728	51.2	3.77	286	84,416
% Reduced	4%	4%	< 0.5%	7%	< 0.5%	4%	—	< 0.5%	3%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	13.5	12.9	6.93	56.3	0.12	0.09	10.3	10.4	0.09	2.62	2.71	77.4	13,463	13,540	8.47	0.62	47.4	13,985

Mit.	13.0	12.5	6.90	52.5	0.12	0.09	10.3	10.4	0.08	2.62	2.70	77.4	13,454	13,531	8.47	0.62	47.4	13,976
% Reduced	4%	4%	< 0.5%	7%	< 0.5%	4%	—	< 0.5%	3%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	63.6	60.8	35.9	365	0.71	0.50	58.0	58.5	0.47	14.7	15.2	—	72,580	72,580	3.08	3.43	214	73,895
Area	23.6	23.0	3.84	43.4	0.02	0.32	—	0.32	0.31	—	0.31	0.00	4,534	4,534	0.09	0.01	—	4,539
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	14,718	14,718	1.06	0.13	—	14,783
Water	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Total	87.2	83.8	39.8	408	0.74	0.83	58.0	58.8	0.78	14.7	15.5	468	92,119	92,586	51.2	3.78	410	95,405
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	49.4	46.6	39.8	266	0.63	0.50	58.0	58.5	0.47	14.7	15.2	—	64,017	64,017	3.42	3.56	5.56	65,168
Area	18.1	17.9	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	14,718	14,718	1.06	0.13	—	14,783
Water	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Total	67.6	64.5	43.2	268	0.65	0.78	58.0	58.8	0.75	14.7	15.4	468	83,417	83,884	51.5	3.91	201	86,538
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	53.3	50.6	37.7	288	0.65	0.49	56.7	57.1	0.46	14.3	14.8	—	66,190	66,190	3.14	3.43	90.7	67,380

Area	20.4	20.3	0.23	20.7	< 0.005	0.03	—	0.03	0.02	—	0.02	0.00	120	120	< 0.005	< 0.005	—	121
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	14,718	14,718	1.06	0.13	—	14,783
Water	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Total	73.8	70.9	38.0	308	0.65	0.52	56.7	57.2	0.48	14.3	14.8	468	81,314	81,782	51.2	3.77	286	84,471
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.73	9.23	6.89	52.5	0.12	0.09	10.3	10.4	0.08	2.62	2.70	—	10,958	10,958	0.52	0.57	15.0	11,156
Area	3.73	3.70	0.04	3.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	19.9	19.9	< 0.005	< 0.005	—	20.0
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,437	2,437	0.18	0.02	—	2,448
Water	—	—	—	—	—	—	—	—	—	—	—	14.3	47.3	61.6	1.47	0.04	—	109
Waste	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.31	0.00	—	221
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.4	32.4
Total	13.5	12.9	6.93	56.3	0.12	0.09	10.3	10.4	0.09	2.62	2.71	77.4	13,463	13,540	8.47	0.62	47.4	13,985

2.6. Operations Emissions by Sector, Mitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	63.6	60.8	35.9	365	0.71	0.50	58.0	58.5	0.47	14.7	15.2	—	72,580	72,580	3.08	3.43	214	73,895
Area	18.1	17.9	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	14,747	14,747	1.07	0.13	—	14,812
Water	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Total	81.7	78.7	39.4	367	0.74	0.78	58.0	58.8	0.75	14.7	15.4	468	92,009	92,476	51.2	3.78	410	95,294

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	49.4	46.6	39.8	266	0.63	0.50	58.0	58.5	0.47	14.7	15.2	—	64,017	64,017	3.42	3.56	5.56	65,168
Area	18.1	17.9	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	14,718	14,718	1.06	0.13	—	14,783
Water	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Total	67.6	64.5	43.2	268	0.65	0.78	58.0	58.8	0.75	14.7	15.4	468	83,417	83,884	51.5	3.91	201	86,538
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	53.3	50.6	37.7	288	0.65	0.49	56.7	57.1	0.46	14.3	14.8	—	66,190	66,190	3.14	3.43	90.7	67,380
Area	17.7	17.7	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	51.8	51.8	< 0.005	< 0.005	—	51.8
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	14,733	14,733	1.06	0.13	—	14,798
Water	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Total	71.1	68.3	37.8	288	0.65	0.50	56.7	57.2	0.46	14.3	14.8	468	81,260	81,728	51.2	3.77	286	84,416
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.73	9.23	6.89	52.5	0.12	0.09	10.3	10.4	0.08	2.62	2.70	—	10,958	10,958	0.52	0.57	15.0	11,156
Area	3.24	3.24	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.57	8.57	< 0.005	< 0.005	—	8.58
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,439	2,439	0.18	0.02	—	2,450
Water	—	—	—	—	—	—	—	—	—	—	—	14.3	47.3	61.6	1.47	0.04	—	109
Waste	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.31	0.00	—	221
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.4	32.4
Total	13.0	12.5	6.90	52.5	0.12	0.09	10.3	10.4	0.08	2.62	2.70	77.4	13,454	13,531	8.47	0.62	47.4	13,976

3. Construction Emissions Details

3.1. Grading (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.22	9.22	—	3.66	3.66	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.22	9.22	—	3.66	3.66	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.06	0.89	7.98	8.08	0.02	0.33	—	0.33	0.30	—	0.30	—	1,934	1,934	0.08	0.02	—	1,941

Dust From Material Movement	—	—	—	—	—	—	2.70	2.70	—	1.07	1.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.46	1.48	< 0.005	0.06	—	0.06	0.06	—	0.06	—	320	320	0.01	< 0.005	—	321
Dust From Material Movement	—	—	—	—	—	—	0.49	0.49	—	0.20	0.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.11	2.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	302	302	0.01	0.01	0.99	306
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.73	0.44	0.01	0.03	0.42	0.45	0.03	0.12	0.15	—	1,554	1,554	0.01	0.24	3.26	1,630
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.13	1.22	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	0.01	0.01	0.03	259
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.90	0.45	0.01	0.03	0.42	0.45	0.03	0.12	0.15	—	1,555	1,555	0.01	0.24	0.08	1,628
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.5	80.5	< 0.005	< 0.005	0.13	81.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.01	0.01	0.55	0.13	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	456	456	< 0.005	0.07	0.41	478
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.02	13.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.4	75.4	< 0.005	0.01	0.07	79.1

3.2. Grading (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.40	2.40	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.40	2.40	—	0.95	0.95	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.06	0.89	7.98	8.08	0.02	0.33	—	0.33	0.30	—	0.30	—	1,934	1,934	0.08	0.02	—	1,941
Dust From Material Movement	—	—	—	—	—	—	0.70	0.70	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.46	1.48	< 0.005	0.06	—	0.06	0.06	—	0.06	—	320	320	0.01	< 0.005	—	321
Dust From Material Movement	—	—	—	—	—	—	0.13	0.13	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.11	2.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	302	302	0.01	0.01	0.99	306
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.73	0.44	0.01	0.03	0.42	0.45	0.03	0.12	0.15	—	1,554	1,554	0.01	0.24	3.26	1,630
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.13	1.22	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	0.01	0.01	0.03	259

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.90	0.45	0.01	0.03	0.42	0.45	0.03	0.12	0.15	—	1,555	1,555	0.01	0.24	0.08	1,628
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.5	80.5	< 0.005	< 0.005	0.13	81.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.55	0.13	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	456	456	< 0.005	0.07	0.41	478
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.02	13.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.4	75.4	< 0.005	0.01	0.07	79.1

3.3. Building Construction (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	3.55	4.67	0.01	0.14	—	0.14	0.13	—	0.13	—	863	863	0.04	0.01	—	866
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.65	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.96	2.74	2.54	48.0	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	6,710	6,710	0.26	0.22	22.0	6,804
Vendor	0.20	0.15	3.82	1.72	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,530	3,530	0.04	0.49	8.86	3,686
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.39	2.16	2.90	27.1	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	5,670	5,670	0.28	0.22	0.57	5,744
Vendor	0.18	0.13	4.20	1.76	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,533	3,533	0.04	0.49	0.23	3,680
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.92	0.84	1.04	12.3	0.00	0.00	2.08	2.08	0.00	0.49	0.49	—	2,195	2,195	0.10	0.08	3.42	2,225
Vendor	0.06	0.05	1.49	0.63	0.01	0.02	0.35	0.37	0.02	0.10	0.12	—	1,272	1,272	0.02	0.18	1.38	1,326

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.19	2.25	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	363	363	0.02	0.01	0.57	368
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.23	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Building Construction (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	3.55	4.67	0.01	0.14	—	0.14	0.13	—	0.13	—	863	863	0.04	0.01	—	866

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.65	0.85	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	143
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.96	2.74	2.54	48.0	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	6,710	6,710	0.26	0.22	22.0	6,804
Vendor	0.20	0.15	3.82	1.72	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,530	3,530	0.04	0.49	8.86	3,686
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.39	2.16	2.90	27.1	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	5,670	5,670	0.28	0.22	0.57	5,744
Vendor	0.18	0.13	4.20	1.76	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,533	3,533	0.04	0.49	0.23	3,680
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.92	0.84	1.04	12.3	0.00	0.00	2.08	2.08	0.00	0.49	0.49	—	2,195	2,195	0.10	0.08	3.42	2,225
Vendor	0.06	0.05	1.49	0.63	0.01	0.02	0.35	0.37	0.02	0.10	0.12	—	1,272	1,272	0.02	0.18	1.38	1,326
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.19	2.25	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	363	363	0.02	0.01	0.57	368
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	211	211	< 0.005	0.03	0.23	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.80	2.59	2.34	43.5	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	6,593	6,593	0.26	0.22	20.0	6,685
Vendor	0.19	0.14	3.65	1.60	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,458	3,458	0.04	0.49	7.72	3,612
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.11	1.89	2.70	24.3	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	5,574	5,574	0.28	0.22	0.52	5,647
Vendor	0.14	0.13	4.01	1.64	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,461	3,461	0.04	0.49	0.20	3,608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.74	1.58	1.78	22.1	0.00	0.00	4.13	4.13	0.00	0.97	0.97	—	4,279	4,279	0.19	0.15	6.18	4,335
Vendor	0.13	0.10	2.81	1.16	0.02	0.04	0.70	0.73	0.04	0.19	0.23	—	2,471	2,471	0.03	0.35	2.38	2,578
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.29	0.33	4.03	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	709	709	0.03	0.02	1.02	718
Vendor	0.02	0.02	0.51	0.21	< 0.005	0.01	0.13	0.13	0.01	0.04	0.04	—	409	409	0.01	0.06	0.39	427
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2027) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24	—	0.24	0.22	—	0.22	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04	—	0.04	0.04	—	0.04	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	2.80	2.59	2.34	43.5	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	6,593	6,593	0.26	0.22	20.0	6,685
Vendor	0.19	0.14	3.65	1.60	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,458	3,458	0.04	0.49	7.72	3,612
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.11	1.89	2.70	24.3	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	5,574	5,574	0.28	0.22	0.52	5,647
Vendor	0.14	0.13	4.01	1.64	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,461	3,461	0.04	0.49	0.20	3,608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.74	1.58	1.78	22.1	0.00	0.00	4.13	4.13	0.00	0.97	0.97	—	4,279	4,279	0.19	0.15	6.18	4,335
Vendor	0.13	0.10	2.81	1.16	0.02	0.04	0.70	0.73	0.04	0.19	0.23	—	2,471	2,471	0.03	0.35	2.38	2,578
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.29	0.33	4.03	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	709	709	0.03	0.02	1.02	718
Vendor	0.02	0.02	0.51	0.21	< 0.005	0.01	0.13	0.13	0.01	0.04	0.04	—	409	409	0.01	0.06	0.39	427
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.18	4.61	0.01	0.11	—	0.11	0.10	—	0.10	—	854	854	0.03	0.01	—	857
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.58	0.84	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	142
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.67	2.28	2.13	40.4	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	6,468	6,468	0.25	0.22	18.2	6,558
Vendor	0.16	0.12	3.51	1.48	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,371	3,371	0.04	0.46	6.62	3,515
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	2.02	1.80	2.50	22.6	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	5,470	5,470	0.09	0.22	0.47	5,539
Vendor	0.14	0.10	3.84	1.54	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,374	3,374	0.04	0.46	0.17	3,512
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.77	0.69	0.82	10.2	0.00	0.00	2.06	2.06	0.00	0.48	0.48	—	2,094	2,094	0.09	0.07	2.80	2,121
Vendor	0.05	0.04	1.34	0.54	0.01	0.02	0.35	0.37	0.02	0.10	0.11	—	1,201	1,201	0.01	0.16	1.02	1,251
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.15	1.86	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	347	347	0.02	0.01	0.46	351
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	199	199	< 0.005	0.03	0.17	207
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2028) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.18	4.61	0.01	0.11	—	0.11	0.10	—	0.10	—	854	854	0.03	0.01	—	857
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.58	0.84	< 0.005	0.02	—	0.02	0.02	—	0.02	—	141	141	0.01	< 0.005	—	142
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.67	2.28	2.13	40.4	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	6,468	6,468	0.25	0.22	18.2	6,558
Vendor	0.16	0.12	3.51	1.48	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,371	3,371	0.04	0.46	6.62	3,515
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.02	1.80	2.50	22.6	0.00	0.00	5.80	5.80	0.00	1.36	1.36	—	5,470	5,470	0.09	0.22	0.47	5,539
Vendor	0.14	0.10	3.84	1.54	0.03	0.05	0.98	1.03	0.05	0.27	0.32	—	3,374	3,374	0.04	0.46	0.17	3,512
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.77	0.69	0.82	10.2	0.00	0.00	2.06	2.06	0.00	0.48	0.48	—	2,094	2,094	0.09	0.07	2.80	2,121
Vendor	0.05	0.04	1.34	0.54	0.01	0.02	0.35	0.37	0.02	0.10	0.11	—	1,201	1,201	0.01	0.16	1.02	1,251
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.15	1.86	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	347	347	0.02	0.01	0.46	351
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	199	199	< 0.005	0.03	0.17	207
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.58	2.36	< 0.005	0.06	—	0.06	0.06	—	0.06	—	360	360	0.01	< 0.005	—	361
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.29	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.6	59.6	< 0.005	< 0.005	—	59.8
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.36	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	218	218	0.01	0.01	0.61	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.3	47.3	< 0.005	< 0.005	0.06	48.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.84	7.84	< 0.005	< 0.005	0.01	7.94
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Paving (2028) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.58	2.36	< 0.005	0.06	—	0.06	0.06	—	0.06	—	360	360	0.01	< 0.005	—	361
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.29	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.6	59.6	< 0.005	< 0.005	—	59.8
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.36	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	218	218	0.01	0.01	0.61	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	185	185	< 0.005	0.01	0.02	187
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.3	47.3	< 0.005	< 0.005	0.06	48.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.84	7.84	< 0.005	< 0.005	0.01	7.94
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	63.7	63.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	63.7	63.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.34	0.47	< 0.005	0.01	—	0.01	0.01	—	0.01	—	55.6	55.6	< 0.005	< 0.005	—	55.8
Architectural Coatings	26.5	26.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.21	9.21	< 0.005	< 0.005	—	9.24
Architectural Coatings	4.84	4.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.53	0.46	0.43	8.07	0.00	0.00	1.16	1.16	0.00	0.27	0.27	—	1,294	1,294	0.05	0.04	3.63	1,312
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.36	0.50	4.52	0.00	0.00	1.16	1.16	0.00	0.27	0.27	—	1,094	1,094	0.02	0.04	0.09	1,108

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.19	2.39	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	490	490	0.02	0.02	0.65	496
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.44	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	81.1	81.1	< 0.005	< 0.005	0.11	82.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Architectural Coating (2028) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	63.7	63.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	63.7	63.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.34	0.47	< 0.005	0.01	—	0.01	0.01	—	0.01	—	55.6	55.6	< 0.005	< 0.005	—	55.8
Architectural Coatings	26.5	26.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.21	9.21	< 0.005	< 0.005	—	9.24
Architectural Coatings	4.84	4.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.53	0.46	0.43	8.07	0.00	0.00	1.16	1.16	0.00	0.27	0.27	—	1,294	1,294	0.05	0.04	3.63	1,312
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.36	0.50	4.52	0.00	0.00	1.16	1.16	0.00	0.27	0.27	—	1,094	1,094	0.02	0.04	0.09	1,108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.19	2.39	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	490	490	0.02	0.02	0.65	496
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.44	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	81.1	81.1	< 0.005	< 0.005	0.11	82.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	5.52	5.24	3.53	36.9	0.08	0.05	6.22	6.27	0.05	1.57	1.62	—	7,710	7,710	0.29	0.34	23.0	7,842

Condo/Townhouse	12.5	11.9	7.64	79.1	0.16	0.11	13.1	13.2	0.10	3.31	3.41	—	16,236	16,236	0.63	0.74	48.2	16,519
Regional Shopping Center	25.2	24.3	11.8	113	0.20	0.15	15.8	16.0	0.14	4.01	4.14	—	20,192	20,192	1.11	1.09	58.5	20,605
Strip Mall	20.4	19.3	13.0	136	0.28	0.19	22.9	23.1	0.18	5.81	5.99	—	28,442	28,442	1.06	1.26	84.7	28,929
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	63.6	60.8	35.9	365	0.71	0.50	58.0	58.5	0.47	14.7	15.2	—	72,580	72,580	3.08	3.43	214	73,895
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	4.33	4.04	3.93	26.0	0.07	0.05	6.22	6.27	0.05	1.57	1.62	—	6,792	6,792	0.31	0.36	0.60	6,906
Condo/Townhouse	9.76	9.15	8.48	56.4	0.14	0.11	13.1	13.2	0.10	3.31	3.41	—	14,308	14,308	0.69	0.77	1.25	14,555
Regional Shopping Center	19.4	18.4	12.8	87.6	0.18	0.15	15.8	16.0	0.14	4.01	4.14	—	17,863	17,863	1.26	1.12	1.52	18,231
Strip Mall	16.0	14.9	14.5	96.0	0.25	0.19	22.9	23.1	0.18	5.81	5.99	—	25,054	25,054	1.15	1.31	2.20	25,476
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	49.4	46.6	39.8	266	0.63	0.50	58.0	58.5	0.47	14.7	15.2	—	64,017	64,017	3.42	3.56	5.56	65,168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.85	0.80	0.69	5.31	0.01	0.01	1.13	1.14	0.01	0.29	0.30	—	1,187	1,187	0.05	0.06	1.64	1,207
Condo/Townhouse	1.92	1.82	1.49	11.4	0.03	0.02	2.37	2.39	0.02	0.60	0.62	—	2,499	2,499	0.11	0.12	3.45	2,542

Regional	3.81	3.66	2.16	16.1	0.03	0.02	2.66	2.69	0.02	0.67	0.70	—	2,895	2,895	0.19	0.17	3.86	2,955
Strip Mall	3.14	2.96	2.55	19.6	0.05	0.04	4.17	4.21	0.03	1.06	1.09	—	4,377	4,377	0.18	0.21	6.06	4,451
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	9.73	9.23	6.89	52.5	0.12	0.09	10.3	10.4	0.08	2.62	2.70	—	10,958	10,958	0.52	0.57	15.0	11,156

4.1.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	5.52	5.24	3.53	36.9	0.08	0.05	6.22	6.27	0.05	1.57	1.62	—	7,710	7,710	0.29	0.34	23.0	7,842
Condo/Townhouse	12.5	11.9	7.64	79.1	0.16	0.11	13.1	13.2	0.10	3.31	3.41	—	16,236	16,236	0.63	0.74	48.2	16,519
Regional Shopping Center	25.2	24.3	11.8	113	0.20	0.15	15.8	16.0	0.14	4.01	4.14	—	20,192	20,192	1.11	1.09	58.5	20,605
Strip Mall	20.4	19.3	13.0	136	0.28	0.19	22.9	23.1	0.18	5.81	5.99	—	28,442	28,442	1.06	1.26	84.7	28,929
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	63.6	60.8	35.9	365	0.71	0.50	58.0	58.5	0.47	14.7	15.2	—	72,580	72,580	3.08	3.43	214	73,895
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	4.33	4.04	3.93	26.0	0.07	0.05	6.22	6.27	0.05	1.57	1.62	—	6,792	6,792	0.31	0.36	0.60	6,906

Condo/Townhou	9.76	9.15	8.48	56.4	0.14	0.11	13.1	13.2	0.10	3.31	3.41	—	14,308	14,308	0.69	0.77	1.25	14,555
Regional Shopping Center	19.4	18.4	12.8	87.6	0.18	0.15	15.8	16.0	0.14	4.01	4.14	—	17,863	17,863	1.26	1.12	1.52	18,231
Strip Mall	16.0	14.9	14.5	96.0	0.25	0.19	22.9	23.1	0.18	5.81	5.99	—	25,054	25,054	1.15	1.31	2.20	25,476
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	49.4	46.6	39.8	266	0.63	0.50	58.0	58.5	0.47	14.7	15.2	—	64,017	64,017	3.42	3.56	5.56	65,168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.85	0.80	0.69	5.31	0.01	0.01	1.13	1.14	0.01	0.29	0.30	—	1,187	1,187	0.05	0.06	1.64	1,207
Condo/Townhouse	1.92	1.82	1.49	11.4	0.03	0.02	2.37	2.39	0.02	0.60	0.62	—	2,499	2,499	0.11	0.12	3.45	2,542
Regional Shopping Center	3.81	3.66	2.16	16.1	0.03	0.02	2.66	2.69	0.02	0.67	0.70	—	2,895	2,895	0.19	0.17	3.86	2,955
Strip Mall	3.14	2.96	2.55	19.6	0.05	0.04	4.17	4.21	0.03	1.06	1.09	—	4,377	4,377	0.18	0.21	6.06	4,451
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	9.73	9.23	6.89	52.5	0.12	0.09	10.3	10.4	0.08	2.62	2.70	—	10,958	10,958	0.52	0.57	15.0	11,156

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	3,000	3,000	0.22	0.03	—	3,014
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	3,740	3,740	0.27	0.03	—	3,757
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	4,438	4,438	0.32	0.04	—	4,458
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	3,539	3,539	0.26	0.03	—	3,555
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	14,718	14,718	1.06	0.13	—	14,783
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	3,000	3,000	0.22	0.03	—	3,014
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	3,740	3,740	0.27	0.03	—	3,757
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	4,438	4,438	0.32	0.04	—	4,458
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	3,539	3,539	0.26	0.03	—	3,555
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	14,718	14,718	1.06	0.13	—	14,783
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	497	497	0.04	< 0.005	—	499

Condo/T	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.04	0.01	—	622
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	735	735	0.05	0.01	—	738
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	586	586	0.04	0.01	—	589
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,437	2,437	0.18	0.02	—	2,448

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	3,005	3,005	0.22	0.03	—	3,018
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	3,754	3,754	0.27	0.03	—	3,771
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	4,447	4,447	0.32	0.04	—	4,466
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	3,542	3,542	0.26	0.03	—	3,557
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	14,747	14,747	1.07	0.13	—	14,812

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	3,000	3,000	0.22	0.03	—	3,014
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	3,740	3,740	0.27	0.03	—	3,757
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	4,438	4,438	0.32	0.04	—	4,458
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	3,539	3,539	0.26	0.03	—	3,555
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	14,718	14,718	1.06	0.13	—	14,783
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	497	497	0.04	< 0.005	—	499
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	620	620	0.04	0.01	—	623
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	735	735	0.05	0.01	—	739
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	586	586	0.04	0.01	—	589
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,439	2,439	0.18	0.02	—	2,450

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.41	0.20	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Consumer Products	15.1	15.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.65	2.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	5.48	5.11	0.38	41.9	< 0.005	0.04	—	0.04	0.03	—	0.03	—	139	139	0.01	< 0.005	—	140
Total	23.6	23.0	3.84	43.4	0.02	0.32	—	0.32	0.31	—	0.31	0.00	4,534	4,534	0.09	0.01	—	4,539
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.41	0.20	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Consumer Products	15.1	15.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.65	2.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	18.1	17.9	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.57	8.57	< 0.005	< 0.005	—	8.58
Consumer Products	2.75	2.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.48	0.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.49	0.46	0.03	3.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.4	11.4	< 0.005	< 0.005	—	11.4
Total	3.73	3.70	0.04	3.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	19.9	19.9	< 0.005	< 0.005	—	20.0

4.3.2. Mitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.41	0.20	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Consumer Products	15.1	15.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.65	2.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	18.1	17.9	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Hearths	0.41	0.20	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Consumer Products	15.1	15.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.65	2.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	18.1	17.9	3.46	1.47	0.02	0.28	—	0.28	0.28	—	0.28	0.00	4,395	4,395	0.08	0.01	—	4,400
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.57	8.57	< 0.005	< 0.005	—	8.58
Consumer Products	2.75	2.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.48	0.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.24	3.24	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.57	8.57	< 0.005	< 0.005	—	8.58

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	7.29	24.1	31.4	0.75	0.02	—	55.5
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	35.0	119	154	3.60	0.09	—	269

Regiona Shopping Center	—	—	—	—	—	—	—	—	—	—	—	34.5	115	149	3.54	0.09	—	263
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	9.30	28.8	38.0	0.96	0.02	—	68.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	7.29	24.1	31.4	0.75	0.02	—	55.5
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	35.0	119	154	3.60	0.09	—	269
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	34.5	115	149	3.54	0.09	—	263
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	9.30	28.8	38.0	0.96	0.02	—	68.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	1.21	3.99	5.20	0.12	< 0.005	—	9.18
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	5.80	19.6	25.4	0.60	0.01	—	44.6
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	5.71	19.0	24.7	0.59	0.01	—	43.5

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.54	4.76	6.30	0.16	< 0.005	—	11.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	14.3	47.3	61.6	1.47	0.04	—	109

4.4.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	7.29	24.1	31.4	0.75	0.02	—	55.5
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	35.0	119	154	3.60	0.09	—	269
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	34.5	115	149	3.54	0.09	—	263
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	9.30	28.8	38.0	0.96	0.02	—	68.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	7.29	24.1	31.4	0.75	0.02	—	55.5
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	35.0	119	154	3.60	0.09	—	269

Regiona Shopping Center	—	—	—	—	—	—	—	—	—	—	—	34.5	115	149	3.54	0.09	—	263
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	9.30	28.8	38.0	0.96	0.02	—	68.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	286	372	8.85	0.21	—	657
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	1.21	3.99	5.20	0.12	< 0.005	—	9.18
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	5.80	19.6	25.4	0.60	0.01	—	44.6
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	5.71	19.0	24.7	0.59	0.01	—	43.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.54	4.76	6.30	0.16	< 0.005	—	11.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	14.3	47.3	61.6	1.47	0.04	—	109

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	44.3	0.00	44.3	4.42	0.00	—	155

Condo/T	—	—	—	—	—	—	—	—	—	—	—	163	0.00	163	16.2	0.00	—	569
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	138	0.00	138	13.7	0.00	—	481
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	44.3	0.00	44.3	4.42	0.00	—	155
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	163	0.00	163	16.2	0.00	—	569
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	138	0.00	138	13.7	0.00	—	481
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	7.33	0.00	7.33	0.73	0.00	—	25.6
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	26.9	0.00	26.9	2.69	0.00	—	94.2

Regional Shopping	—	—	—	—	—	—	—	—	—	—	—	22.8	0.00	22.8	2.28	0.00	—	79.7
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	6.14	0.00	6.14	0.61	0.00	—	21.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.31	0.00	—	221

4.5.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	44.3	0.00	44.3	4.42	0.00	—	155
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	163	0.00	163	16.2	0.00	—	569
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	138	0.00	138	13.7	0.00	—	481
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	44.3	0.00	44.3	4.42	0.00	—	155

Condo/T	—	—	—	—	—	—	—	—	—	—	—	163	0.00	163	16.2	0.00	—	569
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	138	0.00	138	13.7	0.00	—	481
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,334
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	7.33	0.00	7.33	0.73	0.00	—	25.6
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	26.9	0.00	26.9	2.69	0.00	—	94.2
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	22.8	0.00	22.8	2.28	0.00	—	79.7
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	6.14	0.00	6.14	0.61	0.00	—	21.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.31	0.00	—	221

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	192	192
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.96	1.96
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.17	1.17
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	192	192
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.96	1.96
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.17	1.17
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	31.8	31.8
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.32	0.32

Regional	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.4	32.4

4.6.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	192	192
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.96	1.96
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.17	1.17
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	192	192
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.96	1.96

Regional Shopping	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.17	1.17
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196	196
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	31.8	31.8
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.32	0.32
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.4	32.4

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	2/1/2026	6/30/2026	5.00	107	—
Building Construction	Building Construction	7/1/2026	6/30/2028	5.00	523	—
Paving	Paving	7/1/2028	10/31/2028	5.00	87.0	—
Architectural Coating	Architectural Coating	4/1/2028	10/31/2028	5.00	152	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37

Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	23.4	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	444	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	114	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	88.8	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	23.4	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

Building Construction	—	—	—	—
Building Construction	Worker	444	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	114	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	88.8	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	833,782	277,927	705,300	235,100	35,284

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	20,000	0.00	318	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Hotel	0.00	0%
Condo/Townhouse	—	0%
Regional Shopping Center	0.00	0%
Strip Mall	0.00	0%
Parking Lot	0.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	457	0.03	< 0.005
2027	0.00	457	0.03	< 0.005
2028	0.00	457	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Hotel	1,199	1,199	1,199	437,635	8,824	8,824	8,824	3,220,746

Condo/Townhouse	2,750	2,750	2,750	1,003,750	18,529	18,529	18,529	6,763,148
Regional Shopping Center	5,935	5,935	5,935	2,166,275	20,098	22,460	22,460	7,581,986
Strip Mall	4,423	4,423	4,423	1,614,395	32,551	32,551	32,551	11,881,032
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Hotel	1,199	1,199	1,199	437,635	8,824	8,824	8,824	3,220,746
Condo/Townhouse	2,750	2,750	2,750	1,003,750	18,529	18,529	18,529	6,763,148
Regional Shopping Center	5,935	5,935	5,935	2,166,275	20,098	22,460	22,460	7,581,986
Strip Mall	4,423	4,423	4,423	1,614,395	32,551	32,551	32,551	11,881,032
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	224
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0

Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	224
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	184
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
833781.6	277,927	705,300	235,100	35,284

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Hotel	2,398,832	457	0.0330	0.0040	0.00
Condo/Townhouse	2,990,290	457	0.0330	0.0040	0.00
Regional Shopping Center	3,548,174	457	0.0330	0.0040	0.00
Strip Mall	2,829,743	457	0.0330	0.0040	0.00
Parking Lot	0.00	457	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Hotel	2,398,832	457	0.0330	0.0040	0.00
Condo/Townhouse	2,990,290	457	0.0330	0.0040	0.00
Regional Shopping Center	3,548,174	457	0.0330	0.0040	0.00
Strip Mall	2,829,743	457	0.0330	0.0040	0.00
Parking Lot	0.00	457	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Hotel	3,805,016	383,422
Condo/Townhouse	18,290,354	2,527,294
Regional Shopping Center	17,999,623	1,961,670
Strip Mall	4,851,750	0.00
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Hotel	3,805,016	383,422
Condo/Townhouse	18,290,354	2,527,294
Regional Shopping Center	17,999,623	1,961,670
Strip Mall	4,851,750	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Hotel	82.1	—
Condo/Townhouse	302	—
Regional Shopping Center	255	—
Strip Mall	68.8	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Hotel	82.1	—

Condo/Townhouse	302	—
Regional Shopping Center	255	—
Strip Mall	68.8	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Hotel	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Hotel	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Hotel	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Condo/Townhouse	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Hotel	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Hotel	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Hotel	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Condo/Townhouse	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	32.0	annual days of extreme heat
Extreme Precipitation	0.15	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	37.8
AQ-PM	38.4
AQ-DPM	42.8
Drinking Water	54.9
Lead Risk Housing	38.5
Pesticides	85.9
Toxic Releases	11.8
Traffic	35.0
Effect Indicators	—
CleanUp Sites	72.4
Groundwater	79.7
Haz Waste Facilities/Generators	72.6
Impaired Water Bodies	99.5
Solid Waste	75.7

Sensitive Population	—
Asthma	97.7
Cardio-vascular	87.3
Low Birth Weights	44.8
Socioeconomic Factor Indicators	—
Education	52.9
Housing	8.04
Linguistic	72.8
Poverty	67.4
Unemployment	96.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	53.52239189
Employed	49.83959964
Median HI	47.38868215
Education	—
Bachelor's or higher	41.42178878
High school enrollment	100
Preschool enrollment	36.10932888
Transportation	—
Auto Access	57.21801617
Active commuting	27.13974079
Social	—
2-parent households	53.20159117
Voting	66.38008469

Neighborhood	—
Alcohol availability	57.11535994
Park access	53.86885667
Retail density	22.84101116
Supermarket access	60.97780059
Tree canopy	15.86038753
Housing	—
Homeownership	57.34633646
Housing habitability	87.03965097
Low-inc homeowner severe housing cost burden	74.83639163
Low-inc renter severe housing cost burden	97.6774028
Uncrowded housing	56.30694213
Health Outcomes	—
Insured adults	54.83125882
Arthritis	0.0
Asthma ER Admissions	1.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	32.9
Cognitively Disabled	8.5
Physically Disabled	12.7
Heart Attack ER Admissions	17.9
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0

Obesity	0.0
Pedestrian Injuries	45.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	56.6
Elderly	26.5
English Speaking	39.0
Foreign-born	28.6
Outdoor Workers	44.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	71.2
Traffic Density	25.6
Traffic Access	23.0
Other Indices	—
Hardship	56.8
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	85.0

Healthy Places Index Score for Project Location (b)	55.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Residential square footage based on site plan. Land use acreage based on lot size Total retail square footage of 431,405 sf Parking based on retail surface parking (1890) plus residential surface parking (620) Landscape area assumed to be 10% of acreage.
Construction: Construction Phases	Per Construction Schedule
Construction: Architectural Coatings	ICAPCD Rule 424
Operations: Vehicle Data	Per trip generation table. Pass-by trips reduction accounted for in total number of trips.
Operations: Hearths	Per applicant, no natural gas usage on-site
Operations: Architectural Coatings	Per ICAPCD Rule 424
Construction: On-Road Fugitive Dust	Project site located adjacent to highway State Route 86, therefore all haul roads and worker commute routes are paved.
Operations: Energy Use	Per project applicant, no natural gas usage on-site.

Operations: Road Dust	Project site located adjacent to highway State Route 86, and all future access roads to the project site will be paved.
Construction: Dust From Material Movement	Per earthwork numbers

November 1, 2024

David Wang
Senior Project Manager
Pacific Anchor Holdings, LLC
9680 Flair Drive, Suite 101
El Monte, CA 91731

Subject: **Biological Resources Assessment for the Brawley Mixed-Use Master Plan Project in Brawley, Imperial County, California**

Dear Mr. Wang,

Michael Baker International, Inc. (Michael Baker) is pleased to submit this technical letter report documenting the results of a biological resources assessment for the proposed Brawley Mixed-Use Master Plan Project (project) located in the City of Brawley, Imperial County, California. The project proposes an amendment to the previously approved Gateway Specific Plan to allow future multifamily residential and commercial uses on the subject property. This report is intended to satisfy the requirements of the California Environmental Quality Act (CEQA).

1.0 PROJECT LOCATION

The approximately 66-acre project site is located in the southern portion of the City of Brawley (City) in south-central Imperial County, California. The Cities of Imperial and El Centro lie approximately 9 miles and 13 miles, respectively, to the southwest. The international United States/Mexico border is approximately 22 miles to the south. Regional access to the project vicinity is provided via Interstate 8, located approximately 14 miles to the south. Specifically, the project site is south of (future) Legion Road, east of Brawley Avenue/State Route 86 (SR-86), and north of Rockwood Canal (Attachment A, Figure 1, Regional Vicinity Map). The project site occurs on County Assessor Parcel Number (APN) 048-440-001 and is within Section 05, Township 14 South, Range 14 East of the *Brawley, California* 7.5-minute US Geological Survey (USGS) topographic quadrangle map (Attachment A, Figure 2, Site Vicinity Map).

2.0 PROJECT DESCRIPTION

The project proposes to subdivide the western portion of the project site into 12 lots for future commercial development, with primary access planned from Brawley Avenue/SR-86 to the west and (future) Legion Road to the north. The eastern portion of the project site (approximately 29 acres) would be subdivided to allow development of 408 multifamily residential units having varying floor plans, with an estimated

836 parking spaces (via two-car garages and surface parking stalls). The residential area would offer community amenities including a dog park, clubhouse, pool, and fire pit as well as several community parks and green space for resident use. Primary access is planned from (future) Legion Road to the north, with secondary access from a future road along the eastern boundary. Future access from the south into the proposed commercial area would require the construction of a new roadway over the existing canal (Rockwood Canal) along the extent of the southern project boundary. Construction would occur in coordination with the Imperial Irrigation District, which owns and operates the canal. Such improvements would be undertaken consistent with Imperial Irrigation District requirements and appropriate approvals. However, specific roadway design details are not available at this time. The project as proposed will require City approval of a Specific Plan Amendment, zone change, and tentative tract map (Attachment A, Figure 3, Project Site Map).

3.0 EXISTING SITE CONDITIONS

The project site is located within the Imperial Valley, in an agricultural area that is immediately southwest of Brawley. The project site consists primarily of an active agricultural field, with a compacted dirt lot along the northern boundary, agricultural canals within the eastern and southern boundaries, and a stand of ornamental palms along the western boundary. The site is bounded by West Legion Road to the north, SR-86 to the west, and agricultural fields to the east and west. Elevations on-site range from approximately 100 feet above mean sea level (amsl) in the northwest along West Legion Road and SR-86 and 106 feet amsl in the southeast of the site. Refer to Attachment B for representative photographs taken throughout the project site.

4.0 METHODS

4.1 Literature Review

Prior to conducting the field survey, Michael Baker conducted a thorough literature review and records search to characterize existing site conditions and assess the potential for special-status biological resources that might pose a constraint on the proposed project. A query of the California Natural Diversity Database (CNDDB; CNDDB 2024a) and California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (CNPS 2024) was conducted to obtain a list of special-status plant and wildlife species occurrence records within the USGS Brawley, California 7.5-minute quadrangle map and surrounding eight quadrangles (*Brawley Northwest, Seeley, El Centro, Holtville West, Alamorio, Wiest, Westmoreland,* and *Calipatria Southwest*). The US Fish and Wildlife Service (USFWS) IPaC online database was also reviewed to identify special-status species and other resources, such as Critical Habitat, known or expected to occur on the project site or within the immediate vicinity (USFWS 2024b). Due to the results listed in the IPaC report, the USFWS Critical Habitat for Threatened & Endangered Species mapping tool (USFWS 2024a) was accessed to determine the location of designated Critical Habitat in relation to the project site. Other sources of information about the project site and surrounding area include the US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA

NRCS 2024) and the USFWS National Wetlands Inventory (USFWS 2024c). All the information obtained informed the understanding of the project site and assisted with the field survey and subsequent analysis. The results presented in this report provide a detailed assessment of the suitability of the habitat on-site to support special-status plant and wildlife species and other sensitive natural resources.

4.2 Habitat Assessment/Field Survey

Michael Baker biologists John Parent and Samantha Martinez conducted a general biological resources survey and habitat assessment on August 20, 2024, between 0800 and 0900 hours to document existing conditions; determine habitat suitability for special-status plant and wildlife species; and determine the presence of sensitive natural communities or aquatic resources within the project site. Weather conditions were sunny and temperatures ranged from 89 to 93 degrees Fahrenheit with wind speeds ranging from 3 to 10 miles per hour. Classification of the on-site vegetation communities and other land uses is based on the descriptions of terrestrial vegetation classification systems described in *A Manual of California Vegetation* (Sawyer et al. 2009). In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site vegetation communities, and the presence of potentially regulated jurisdictional features were noted. A formal aquatic resources delineation was not conducted. Michael Baker used Geographic Information Systems (GIS) ArcView software to digitize the mapped vegetation communities and overlaid the data onto an aerial photograph to further analyze existing conditions and quantify the acreages of each vegetation community on-site.

All plant and wildlife species observed during the field survey were recorded in a field notebook. Plant species observed were identified by visual characteristics and morphology in the field while unusual and less familiar plant species were photographed and later identified using taxonomic guides. Plant species nomenclature and taxonomy follow *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012) and scientific names are provided immediately following common names of plant species (first reference only). Wildlife detections were made through aural and visual detection, as well as observation of sign including scat, trails, tracks, burrows, and nests. Field guides used to assist with identification of species during the field survey included *The Sibley Guide to Birds* (Sibley 2014) for birds, *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003) for herpetofauna, and *A Field Guide to Mammals of North America* (Reid 2006) for mammals. Wildlife species taxonomy follows the North American Butterfly Association (NABA; NABA 2024) for butterflies, the Society for the Study of Amphibians and Reptiles (Crother et al. 2017) for herpetofauna, the American Ornithological Society for birds (Chesser et al. 2023), and Wilson and Reeder (2005) for mammals. Scientific names are provided immediately following common names of wildlife species (first reference only).

5.0 RESULTS

5.1 Vegetation Communities and Land Covers

The project site supports the following land cover types: agricultural, disturbed, non-native ornamental, quailbush scrub, and other land uses. Table 1, Vegetation Communities and Land Cover Types, summarizes

the extent of each land cover type on the project site. Attachment A, Figure 5, Vegetation Communities and Other Land Uses, illustrates the extent of each vegetation community and land cover on the project site. The surrounding area consists of agricultural, disturbed, and developed land uses. A total of eight species of native or naturalized plants, three native (38%) and five non-native (63%), were recorded on the site. Attachment C, Species Compendiums, contains a list of observed plant species.

TABLE 1. VEGETATION COMMUNITIES AND LAND COVER TYPES

Vegetation Community/Land Cover	Project Site (Acres)
Agricultural	49.71
Disturbed	14.87
Non-Native Ornamental	1.29
Quailbush Scrub	0.43
TOTAL	**66.3**

Agricultural

Agricultural fields comprise approximately 49.71 acres, the majority of the project site and consist primarily of agricultural crops. Located across the site, these areas have been physically disturbed by anthropogenic activities (e.g., discing, tilling, planting, etc.) and are no longer recognized as a native vegetation community. Vegetation within the site consists of an evenly spaced monoculture.

Disturbed

Disturbed habitat areas comprise approximately 14.87 acres of the project site and consist primarily of bare ground. Located primarily along the northern portion of the site and surrounding the entire perimeter, these areas have been physically disturbed by anthropogenic activities (e.g., compaction, driving of vehicles, recreational land uses) and are no longer recognized as a native vegetation community. Surface soils within these areas are heavily compacted and eroded. Vegetation that is present is sparse and consists of ruderal/weedy plant species including ripgut brome (*Bromus diandrus*) and cheeseweed mallow (*Malva parviflora*).

Non-Native Ornamental

Non-native ornamental habitat areas comprise approximately 1.29 acres of the project site and consist of a row of Mexican fan palms (*Washingtonia robusta*) near the western border of the project site. The palms generally run from northeast to southwest from West Legion Road in the north to the Rockwood Canal in the south. Homeless encampments were observed within the bottoms of some of the stands of palms.

Quailbush Scrub- Atriplex lentiformis Shrubland Alliance

Quailbush scrub-*Atriplex lentiformis* shrubland alliance, the only natural vegetation community on-site, makes up approximately 0.43 acre of the project site and consists of several small patches of quailbush (*Atriplex lentiformis*) located in the northern portion of the project site and within the disturbed habitat along West Legion Road.

5.2 General Floral Inventory

A total of eight plant species were observed during the field survey, three native (38%) and five non-native (63%): quailbush, cheeseweed mallow, silverleaf nightshade (*Solanum elaegnifolium*), tamarisk (*Tamarix ramosissima*), mesquite mistletoe (*Phoradendron californicum*), Mexican fan palm, ripgut brome, and salt grass (*Distichlis spicata.* Attachment C, Species Compendiums, contains a list of observed plant species.

5.3 General Wildlife Inventory

A total of 10 wildlife species were observed during the field survey, 8 native (80%) and 2 non-native (20%): great-tailed grackle (*Quiscalus mexicanus*), American crow (*Corvus brachyrhynchos*), great blue heron (*Ardea herodias*), cattle egret (*Bubulcus ibis*), turkey vulture (*Cathartes aura*), killdeer (*Charadrius vociferus*), Eurasian collared-dove (*Streptopelia decaocto*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), and American bullfrog (*Lithobates catesbeianus*). Attachment C, Species Compendiums, contains a list of observed wildlife species.

5.4 Special-Status Biological Resources

Sensitive Natural Communities

There are no natural communities considered sensitive by the California Department of Fish and Wildlife (CDFW) as reported in the CNDDB database search (CNDDB 2024a) for the regional vicinity.

There are no sensitive natural communities present on-site.

Special-Status Plant Species

Seven special-status plant species have been previously recorded in the USGS *Brawley, Brawley Northwest, Seeley, El Centro, Holtville West, Alamorio, Wiest, Westmoreland,* and *Calipatria Southwest, California* 7.5-minute quadrangles by the CNDDB, CNPS Online Inventory of Rare and Endangered Plants of California, and IPaC online database for the project site. After a review of specific habitat preferences, known distributions, and elevation ranges, none of the potentially occurring special-status plant species registered to the CNPS Inventory of Rare Plants are expected to occur due to a lack of suitable habitat and site disturbances. Additionally, historical imagery shows the project site has been an agricultural field for more than 50 years (HistoricAerials.com 2024; Google Earth 2024) and is unlikely to have supported

special-habitat species in recent history. Attachment D contains a summary of the special-status species with their potential to occur on the project site.

Special-Status Wildlife Species

Twenty-nine special-status wildlife species have been previously recorded in the USGS *Brawley, Brawley Northwest, Seeley, El Centro, Holtville West, Alamorio, Wiest, Westmoreland,* and *Calipatria, California* 7.5-minute quadrangles by the CNDDB and IPaC online database for the project site. Biologists reviewed the specific habitat preferences, known distributions, and elevation ranges for the 29 special-status species.

Mexican fan palms along the western boundary of the project site may be used as a maternity or roosting site for special-status bats, such as yellow bat (*Lasiurus xanthinus*; state species of special concern) and other common bat species.

Although no suitable burrow habitat or burrowing owl (*Athene cunicularia*; state candidate threatened) were observed during the site visit, Imperial County contains the largest population of breeding burrowing owl in California. There is a potential for the species to forage on the project site and breed in the project vicinity. Since this species is highly mobile, there is a potential for the species to be present prior to construction.

No other special-status species are expected to occur and no special-status wildlife species were observed during the field survey. Attachment D contains a summary of the special-status species with their potential to occur on the project site.

Critical Habitat

Under the US Endangered Species Act (ESA), Critical Habitat is designated at the time of listing of a species. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. In the event that a project may result in take or adverse modification to a listed species' designated Critical Habitat, a project proponent may be required to engage in suitable mitigation. However, consultation for impacts to Critical Habitat is only required when a project has a federal nexus. This may include projects that occur on federal lands, require federal permits (e.g., Clean Water Act [CWA] Section 404 permit), or receive any federal oversight or funding. If there is a federal nexus, then the federal agency that is responsible for providing funds or permits would be required to consult with the USFWS under the ESA.

The project site and adjacent areas do not occur within a Critical Habitat area.

State and Federal Jurisdictional Aquatic Features

There are three agencies that regulate activities within streams, wetlands, and riparian areas in California. The US Army Corps of Engineers (USACE) Regulatory Branch regulates discharge of dredged or fill material into "waters of the U.S." pursuant to the CWA Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Of the state agencies, the Regional Water Quality Control Board (RWQCB) regulates discharges to surface waters pursuant to Section 401 of the CWA and Section 13263 of the California Porter-Cologne Water Quality Control Act, and the CDFW regulates alterations to streambed and associated riparian habitat under Section 1600 et seq. of the California Fish and Game Code (CFGC).

Based on a review of aerial photographs, USGS 7.5-minute quadrangle maps, USFWS National Wetland Inventory maps, and observations made during the field survey, there are several drainage features within and in the immediate vicinity of the project site that could potentially be jurisdictional. Imperial Valley drains occur in two segments, one segment each along the western and southern edges of the project site along with two unnamed agricultural channels. The National Wetlands Inventory map shows a riverine feature along the southern edge of the project site (Rockwood Canal).

The Web Soil Survey shows that the project site supports two soil types (Attachment A, Figure 4, USDA Soils Map):

- 110: Holtville silty clay, wet
- 115: Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

The site visit confirmed the presence of three aquatic features, all of which may be subject to the jurisdiction of the USACE, RWQCB, or CDFW. A formal aquatic resources delineation is recommended.

5.5 Wildlife Corridors and Habitat Linkages

Wildlife corridors link areas of suitable habitat that are otherwise separated by areas of non-suitable habitat such as rugged terrain, changes in vegetation, or human disturbance. Wildlife corridors are essential to the regional ecology of a species because they provide avenues of genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities. Fragmentation of open space areas by urbanization creates "islands" of wildlife habitat that are more or less isolated from each other. Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk of catastrophic events (such as fire or disease) that could lead to local extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and shelter. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species. Although it

is commonly used as a synonym for wildlife corridor, a habitat linkage refers to a more substantial, or wider, land connection between two habitat areas. Habitat linkages allow for the periodic exchange of animals between habitat areas, which is essential to maintain adequate gene pools.

The project site is considered to have limited connectivity opportunity due to the broad agricultural uses within the Imperial Valley and development in the city of Brawley. Off-site and to the west lies the New River, which provides potential riparian wildlife connectivity due to presence of riparian habitats and is likely a significant travel route for many wildlife species in the area. Because the project site is within a large landscape of developed and agricultural land, it does not serve as a habitat linkage or wildlife corridor.

6.0 IMPACT ANALYSIS

The following discussion examines the impacts to biological resources that may occur as a result of the proposed project. The determination of impacts is based on both the features of the proposed project and the biological values of the habitat and sensitivity of plant and wildlife species potentially affected. A project description was supplied by Pacific Anchor Holdings. Michael Baker interpreted the project description and hand-digitized the study area into ArcGIS Pro.

Impacts to biological resources are assessed using impact significance threshold criteria, which mirror the policy statement contained in CEQA Section 21001(c) of the California Public Resources Code. The questions below model those included in the checklist of questions listed in Appendix G of the CEQA guidelines and which are used to determine if the project would have significant impacts to biological resources.

6.1 Impacts to Special-Status Species

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

Less than significant impact with mitigation incorporated. The project site primarily supports active agricultural and disturbed areas which do not generally support suitable habitat for special-status plant or wildlife species. The patch of quailbush scrub at the northwestern corner would not support any special-status species. Based on a review of the special-status species which occur regionally, the project site provides suitable roosting habitat for yellow bat and suitable foraging habitat for burrowing owl. No suitable burrow habitat was observed during the site visit; therefore, no breeding burrowing owls are expected. However, there is a potential for burrowing owl to occupy areas adjacent to the project site prior to construction. Any direct or indirect impacts to yellow bat maternity roost or burrowing owl would constitute a significant impact. Any impacts to burrowing owl, would also require acquisition of an incidental take permit from CDFW. Implementation of **Mitigation Measures BIO-1** and **BIO-2**, described

in Section 7.0, would ensure impacts to these species are fully avoided and/or minimized so that impacts are less than significant.

6.2 Impacts to Sensitive Natural Communities

b) Would the project 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 Game or U.S. Fish and Wildlife Service?

No impact. The project site supports agriculture, disturbed, and ornamental landscaping. Quailbush scrub is not a sensitive natural vegetation community, nor is it associated with riparian habitats. There are no riparian habitats or other sensitive natural communities present within the project site boundaries. Therefore, the project would have no impact on riparian habitats or other sensitive natural communities.

6.3 Impacts to State or Federal Wetlands

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

No impact. The project site does not contain any state or federally protected wetlands. There are several canals adjacent to the project site, including an agricultural ditch north of the agricultural field and Rockwood Canal just south of the project site. Although these canals provide the hydrological conditions, there is no hydrophytic vegetation or soils present that would indicate state or federally protected wetlands are present. Therefore, there would be no impact to state or federally protected wetlands.

6.4 Impacts to Wildlife Movement or Wildlife Corridors

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than significant impact with mitigation incorporated. The project site is developed and highly disturbed, and surrounded on all sides by existing development and disturbance. The project site has no connectivity to any natural habitats that would serve as migration corridors, nor do adjacent areas. There would be no impact to native wildlife movement or wildlife corridors. Nesting birds are protected pursuant to the Federal Migratory Bird Treaty Act (MBTA) of 1918 and the CFGC.[1] To maintain compliance with the MBTA and CFGC, clearance surveys are typically required during the breeding season (generally February

[1] Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by CFGC or any regulation made pursuant thereto; Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey); and Section 3513 makes it unlawful to take or possess any migratory non-game bird except as provided by the rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA, as amended (16 U.S.C. § 703 et seq.).

1 to August 31 but as early as January 1 for raptors) prior to any ground disturbance or vegetation removal activities to avoid direct and indirect impacts to active bird nests and/or nesting birds. Consequently, if an active bird nest is destroyed or if project activities result in indirect impacts to nesting birds (e.g., nest abandonment, loss of reproductive effort), it is considered "take" and is potentially punishable by fines and/or imprisonment. The vegetation within and adjacent to the project site provides suitable nesting opportunities for a variety of bird species. However, no nests were observed during the survey.

The project site has the potential to support nesting songbirds and raptors within the agricultural and ornamental landscaped areas. Nesting activity typically occurs from February to August. Disturbing or destroying active nests is a violation of the MBTA. In addition, nests and eggs are protected under CFGC Section 3503. The removal of vegetation during the breeding season is considered a potentially significant impact. Mitigation Measure **BIO-3**, provided below, would reduce this impact to a less than significant level.

Bat maternity roosts are protected pursuant to CGFC 4150. The project site has the potential to support maternity roosting bats in the Mexican palm trees along the western boundary of the project site. Maternity roosts provide a safe environment for pregnant female bats and their pups and if these trees are occupied by bats during the maternity season, this would be a potentially significant impact. Implementation of Mitigation Measure **BIO-2** would ensure no tree removal occurs prior to establishing the use by bats and would reduce this impact to less than significant.

6.5 Conflicts with Local Policies or Ordinances

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

No Impact. Due to existing conditions on-site and the project design as proposed, the proposed improvements to the subject site are not anticipated to conflict with any local policies or ordinances. No impact would occur.

6.6 Conflicts with Adopted Habitat Conservation Plan

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No impact. The project site is not within any known or proposed Habitat Conservation Plan/Natural Community Conservation Plan reserve areas. No impact would occur in this regard.

7.0 MITIGATION MEASURES

BIO-1: Burrowing Owl Focused Survey. A focused survey for burrowing will be required during the species breeding season (February 15 – July 15) prior to construction activities following the CDFW Staff Guidelines on Burrowing Owl Mitigation (2012) to determine if the species is present within 500-feet of the project site. If the species is present, consultation with CDFW will be necessary and an incidental take permit may be required prior to project implementation. Avoidance and minimization measures will be necessary to reduce impacts on this species and will be finalized during consultation with the California Department of Fish and Wildlife (CDFW).

If burrowing owl are present within the 500 feet of the project site, a Burrowing Owl Plan will be prepared for the project. The Burrowing Owl Plan will describe the actions that will be necessary prior to the start of construction activities such the preconstruction surveys, timing of activities, avoidance buffer zones, monitoring requirements, and any other mitigation requirements based on coordination and guidance with the CDFW. The Burrowing Owl Plan must be approved by CDFW prior to construction activities.

BIO-2: Tree Removal. Tree trimming/removal activities shall be performed outside the bat maternity season (April 1–August 31) to avoid direct impacts to non-volant (flightless) young that may roost in trees within the project site. This period also coincides with the typical bird nesting season. If trimming or removal of trees during the bat maternity season cannot be avoided, a qualified biologist shall monitor tree trimming and removal activities.

BIO-3: Preconstruction Nesting Bird Survey. Within 30 days of ground-disturbing activities associated with project implementation that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the project region, or as determined by a qualified biologist), the applicant shall have weekly surveys conducted by a qualified biologist to determine if active nests of bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present on the project site. The surveys shall continue on a weekly basis, with the last survey being conducted no more than seven days prior to initiation of disturbance work. If ground-disturbing activities are delayed, then additional pre-disturbance surveys shall be conducted such that no more than seven days will have elapsed between the survey and ground-disturbing activities.

If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors) shall be postponed or halted, at the discretion of the biologist in consultation with CDFW, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting.

8.0 SUMMARY OF FINDINGS

With inclusion of the three mitigation measures outlined above, the proposed project would not result in any significant adverse impacts to biological resources. Please feel free to contact me at (949) 472-3432 or at john.parent@mbakerintl.com with any questions you may have regarding the results and/or conclusions of this report.

Sincerely,

John R. Parent

John Parent
Senior Biologist

Attachments

A. Figures
B. Site Photographs
C. Species Compendium
D. Special-Status Species Potential to Occur Tables

REFERENCES

Baldwin, Bruce G., Douglas Goldman, David J Keil, eds. 2012. *The Jepson Manual: Vascular Plants of California, Thoroughly Revised and Expanded,* 2nd ed.

Chesser, R. T., S. M. Billerman, K. J. Burns, C. Cicero, J. L. Dunn, B. E. Hernández-Baños, et al. 2023. Checklist of North American Birds (online). American Ornithological Society. https://checklist.americanornithology.org/taxa/.

CNDDB (California Natural Diversity Database). 2024a. RareFind 5 [Internet]. California Department of Fish and Wildlife [Augus 12, 2024].

CNPS (California Native Plant Society). 2024. Rare Plant Program. Rare Plant Inventory (online edition, v9.5). Accessed August 12, 2024. https://www.rareplants.cnps.org.

Crother, B. I., ed. 2017. "Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding." Herpetological Circular, no. 43. 8th ed. Shoreview, Minnesota: Society for the Study of Amphibians and Reptiles. https://ssarherps.org/wp-content/uploads/2017/10/8th-Ed-2017-Scientific-and-Standard-English-Names.pdf.

Google (Google, Inc.). 2024. Google Earth Pro, version 7.3.6.9345. Historical aerial imagery from 1985 to 2024.

HistoricAerials.com. 2024. Historic aerial image from 1962. http://www.historicaerials.com.

NABA (North American Butterfly Association). 2024. *Checklist of North American Butterflies, Butterflies Occurring North of Mexico, Edition 2.3*. Accessed August 12, 2024. https://naba.org/butterfly-names-checklist/.

Reid, F. A. 2006. *A Field Guide to Mammals of North America,* 4th ed. Houghton Mifflin Company.

Sawyer, J.O., T. Keeler-Wolf, and J. Evens. 2009. *A Manual of California Vegetation,* 2nd ed. California Native Plant Society.

Sibley, D.A. 2014. *The Sibley Guide to Birds,* 2nd ed. Alfred A. Knopf, Inc.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians,* 3rd ed. Houghton Mifflin Company.

USDA NRCS (US Department of Agriculture, Natural Resources Conservation Service). 2024. Web Soil Survey. Accessed August 12, 2024. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

USFWS (US Fish and Wildlife Service). 2024a. Critical Habitat for Threatened & Endangered Species. Accessed August 12, 2024. https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77.

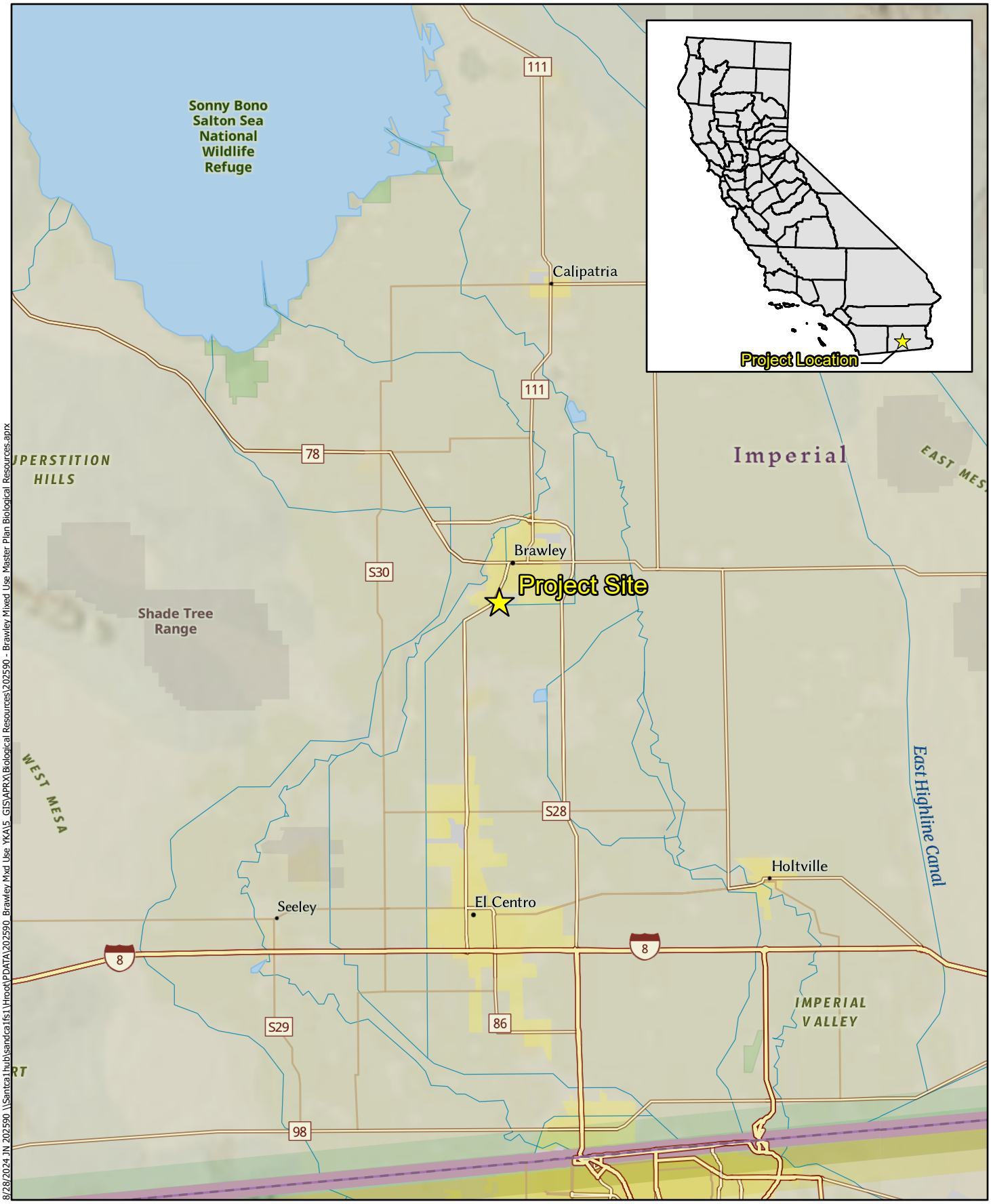
USFWS (US Fish and Wildlife Service). 2024b. Information for Planning and Consultation (IPaC). Accessed August 12, 2024. https://ipac.ecosphere.fws.gov/location/index.

USFWS (US Fish and Wildlife Service). 2024c. National Wetlands Inventory. Accessed August 12, 2024. https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/.

Wilson, D. E., and D. M. Reeder, eds. 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference,* 3rd ed. Online version. Johns Hopkins University Press. http://www.bucknell.edu/msw3/.

ATTACHMENT A

Figures



8/28/2024 JN 202590 \\Santca1fs1\hroot\PDATA\202590_Brawley Mxd Use YKA\5_GIS\APRX\Biological Resources\202590 - Brawley Mixed Use Master Plan Biological Resources.aprx

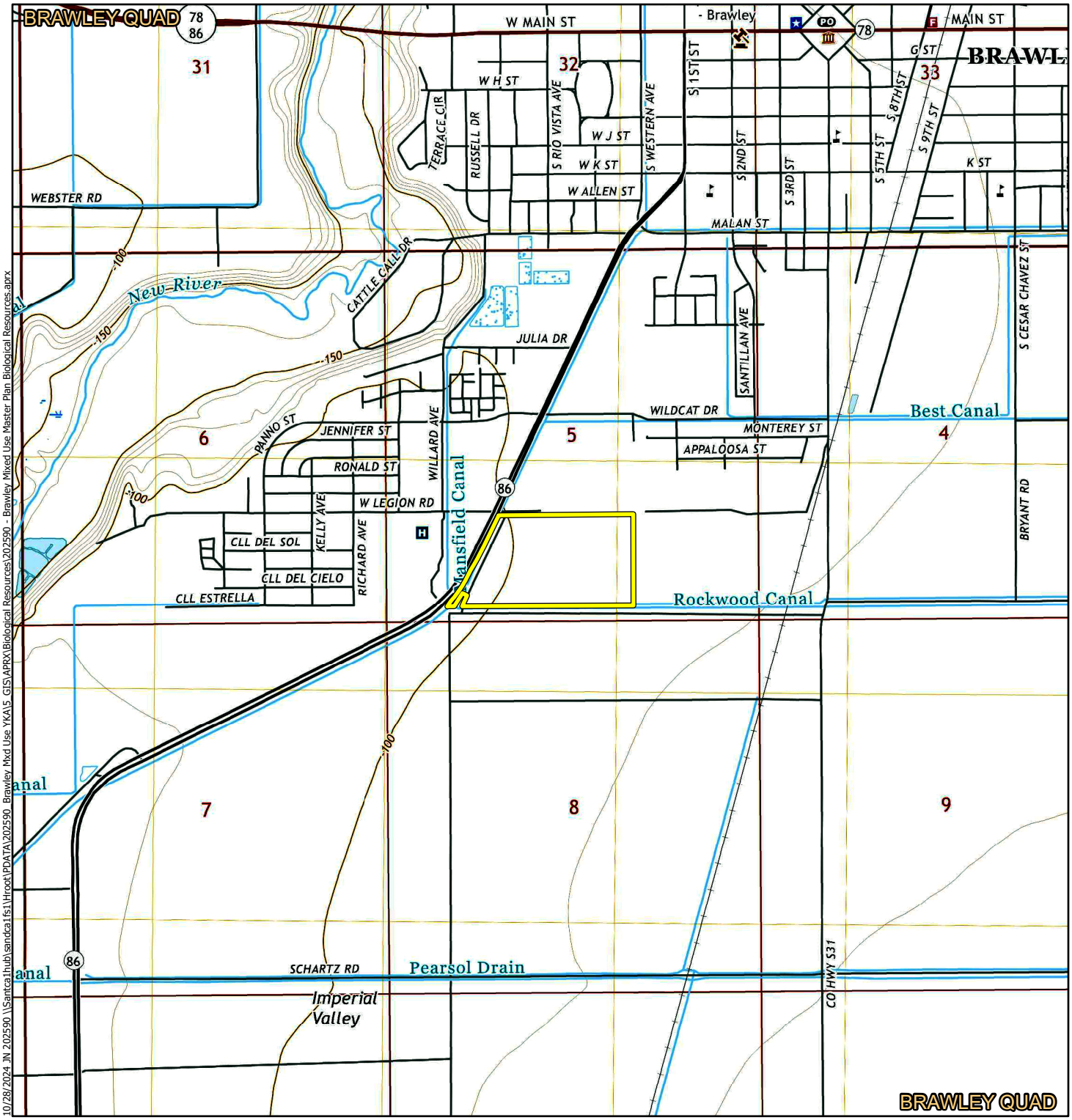
Michael Baker INTERNATIONAL

Source: ESRI, USGS, Imperial County

BRAWLEY MIXED USE MASTER PLAN PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

Regional Vicinity

Figure 1



10/28/2024 JN 202590 \\Santca1hub\sandca1fs1\Hroot\PDATA\202590_Brawley Mxd Use YKA\5_GIS\APRX\Biological Resources\202590 - Brawley Mixed Use Master Plan Biological Resources.aprx

Legend

Project Site

BRAWLEY MIXED USE MASTER PLAN PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

Site Vicinity

Michael Baker INTERNATIONAL

0 1,000 2,000 US Feet

Source: USGS 7.5-Minute topographic quadrangle maps: *Brawley, California (2021)*

Figure 2



Legend

- Reference Point
- Project Site (66.3 Acres)
- Study Area (100-ft)

Michael Baker INTERNATIONAL

0 250 500 US Feet

Source: ESRI, Imperial County, 2024 Nearmap Imagery.

BRAWLEY MIXED USE MASTER PLAN PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

Project Site

Figure 3



Legend

- Reference Point
- Project Site (66.3 Acres)
- Study Area (100-ft)
- 110 Holtville silty clay, wet
- 115 Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

Michael Baker INTERNATIONAL

0 250 500 US Feet

Source: ESRI, USDA, Imperial County, 2024 Nearmap Imagery.

BRAWLEY MIXED USE MASTER PLAN PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

USDA Soils

Figure 4



Legend

- Reference Point
- Project Site (66.3 Acres)
- Study Area (100-ft)
- Agricultural (49.71 Acres)
- Disturbed (14.87 Acres)
- Non-Native Ornamental (1.29 Acres)
- Quailbush Scrub (0.43 Acres)

BRAWLEY MIXED USE MASTER PLAN PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

Michael Baker INTERNATIONAL

0 250 500 US Feet

Source: ESRI, Imperial County, 2024 Nearmap Imagery.

Vegetation Communities and Other Land Uses

Figure 5

ATTACHMENT B

Site Photographs



Photograph 1. Southwest-facing view from the northeast boundary of the project site.



Photograph 2. View facing northwest from southeast boundary of project site.



Photograph 3. View of Western cattle egret in biological study area.



Photograph 4. View facing northeast from southwest portion of project site.



Photograph 5. West-facing view of irrigation canal within the biological study area.



Photograph 6. View facing east of Mexican fan palms within the western portion of the project site.



Photograph 7. View facing south at project site.



Photograph 8. View of saltbush within the northern portion of the project site.

ATTACHMENT C

Species Compendiums

PLANT COMPENDIUM

VASCULAR SPECIES

EUDICOTS

CHENOPODIACEAE— Goosefoot Family

Atriplex lentiformis— quailbush

MALVACEAE— Mallow Family

Malva parviflora— cheeseweed mallow*

SOLANACEAE— Nightshade Family

Solanum elaeagnifolium— silverleaf nightshade*

TAMARICACEAE— Tamarisk Family

Tamarix ramosissima— tamarisk*

VISCACEAE— Mistletoe Family

Phoradendron californicum— mesquite mistletoe

MONOCOTS

ARECACEAE— Palm Family

Washingtonia robusta— Washington fan palm*

POACEAE— Grass Family

Bromus diandrus— ripgut brome*

Distichlis spicata— salt grass

*signifies introduced (non-native) species

WILDLIFE COMPENDIUM

BIRDS

ICTERIDAE— BLACKBIRDS

Quiscalus mexicanus— great-tailed grackle

CORVIDAE— CROWS & JAYS

Corvus brachyrhynchos— American crow

ARDEIDAE— HERONS, BITTERNS, & ALLIES

Ardea herodias— great blue heron

Bubulcus ibis— cattle egret

CATHARTIDAE— NEW WORLD VULTURES

Cathartes aura— turkey vulture

CHARADRIIDAE— LAPWINGS & PLOVERS

Charadrius vociferus— killdeer

COLUMBIDAE— PIGEONS & DOVES

Streptopelia decaocto— Eurasian collared-dove*

Zenaida macroura— mourning dove

TYRANNIDAE— TYRANT FLYCATCHERS

Sayornis nigricans— black phoebe

AMPHIBIANS

RANIDAE— TRUE FROGS

Lithobates catesbeianus— American bullfrog*

*signifies introduced (non-native) species

ATTACHMENT D

Special-Status Species Potential to Occur Tables

Table D-1. Special-Status Plant Species and Sensitive Vegetation Communities

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur on the Project Site
Abronia villosa var. aurita chaparral sand-verbena	1B.1 G5T2 S2	Annual herb. Found in chaparral, coastal scrub, desert dunes within sandy substrates. Blooms from January – March and occasionally September Found at elevations ranging from 245–5250 amsl.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Euphorbia abramsiana Abrams' spurge	2B.2 G4 S2	Annual herb. Found in Mojavean desert scrub, Sonoran desert scrub habitats within sandy substrates. Blooms as early as August, and generally from September-November. Found at elevations ranging from 15–4300 amsl.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Johnstonella costata Ribbed cryptantha	4.3 G4G5 S4	Annual herb. Found in desert dunes, Mojavean desert scrub, and Sonoran desert scrub habitats within sandy substrates/ Blooms from February–May. Found at elevations ranging from 195–1640 amsl.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Juncus acutus ssp. leopoldii Southwestern spiny rush	4.2 G5T5 S4	Perennial rhizomatous herb. Found in coastal dunes (mesic), coastal scrub, marshes and swamps (coastal salt), meadows and seeps (alkaline seeps) habitats. Blooms occasionally in March, and generally from May–June. Founda t elevations ranging from 10–2955 amsl.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Nama stenocarpa mud nama	2B.2 G4G5 S1S2	Perennial herb. Found in marshes and swamps (lake margins, riverbanks) habitats. Blooms from January–July. Found at elevations ranging from 15–1640 amsl.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Pholisma sonorae sand food	1B.2 G2 S2	Perennial herb (parasitic). Found in desert dunes and Sonoran desert scrub (sandy) habitats. Blooms occasionally in Mar, though generally April–June. Found at elevations ranging from 0–655 amsl.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur on the Project Site
Pilostyles thurberi Thurber's pilostyles	4.3 G5 S4	Perennial herb (parasitic). Found in Sonoran desert scrub habitats. Blooms from December–April. Found at elevations ranging from 0–1200 amsl.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.

STATUS

California Department of Fish and Wildlife (CDFW)

CSE Candidate Endangered – The classification provided to a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of endangered species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of endangered species.

California Native Plant Society (CNPS) California Rare Plant Rank

1B Plants rare, threatened, or endangered in California and elsewhere.

2B Plants rare, threatened, or endangered in California but more common elsewhere.

3 Plant that lack the necessary information to assign them to one of the other ranks or to reject them.

4 Plants of limited distribution – Watch List.

Threat Ranks

.1 Seriously threatened in California (over 80% of occurrences threatened/high degree any immediacy of threat).

.2 Moderately threatened in California (20 to 80 percent of occurrences threatened/moderate degree and immediacy of threat).

.3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

NatureServe Conservation Status Rank

The Global Rank (G#) reflects the overall condition and imperilment of a species throughout its global range. The Infraspecific Taxon Rank (T#) reflects the global situation of just the subspecies or variety. The State Rank (S#) reflects the condition and imperilment of an element throughout its range within California. (G#Q)

reflects that the element is very rare but there are taxonomic questions associated with it; the calculated G rank is qualified by adding a Q after the G#). Adding a "?" to a rank expresses uncertainty about the rank.

- G1/T1 Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- G2/T2 Imperiled— At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3/T3 Vulnerable— At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4/T4 Apparently Secure— Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5/T5 Secure – Common; widespread and abundant.
- S1 Critically Imperiled – Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the State.
- S2 Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or State.
- S3 Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

Table D-2. Special-Status Wildlife Species

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur on the Project Site
Asio flammeus short-eared owl	SSC G5 S2	Great Basin grassland | Marsh & swamp | Meadow & seep | Valley & foothill grassland | Wetland; Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields.		**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Athene cunicularia burrowing owl	CSE SSC G4 S2	Yearlong resident of California. Inhabit open, treeless areas with low, sparse vegetation, typically with sloping terrain. Habitats include grasslands, deserts, and steppe environments, but can also be found on golf courses. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	No	**Not Expected**: Though habitats suitable for this species are present in the project vicinity, no burrows suitable for the species were observed; substrates consist of active agriculture or heavily compacted soils. There is a low potential for species to forage in the area.
Bombus crotchii Crotch bumble bee	CSE G2 S2	Found from coastal California east to the Sierra-Cascade crest and south into Mexico. Primarily occurs in California, including the Mediterranean region, Pacific coast, western desert, great valley, and adjacent foothills through most of southwestern California. Has also been recorded in Baja California, Baja California Sur, and in southwest Nevada. Inhabits open grassland and scrub habitats. Primarily nests underground. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	No	**Not Expected:** Food plant genera preferred by this species were not observed on-site.
Charadrius montanus mountain plover	SSC G3 S2	Uncommon winter resident in southern California, primarily from September to mid-March, with peak numbers from December through February. At all seasons, mountain plovers are strongly associated with short-grass prairie habitats, or their equivalents, that are flat and nearly devoid of vegetation. Overall, it avoids high and dense cover. Within southern California, the largest numbers occur in grasslands and agricultural areas in the interior. Does not nest in California.	No	**Not Expected:** Suitable habitats preferred by this species are not present within the project site.

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur on the Project Site
Cyprinodon macularius desert pupfish	FE SE G1 S1	Aquatic | Artificial flowing waters | Artificial standing waters | Colorado River basin flowing waters | Colorado River basin standing waters; Desert ponds, springs, marshes and streams in Southern California.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Dasypterus xanthinus western yellow bat		Desert wash; Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	No	**Moderate:** Suitable habitats for this species are present on-site in the form of the Mexican fan palms, a preferred roosting habitat for this species.
Incilius alvarius Sonoran desert toad	SSC G5	Aquatic | Artificial flowing waters | Desert wash | Wetland; Breeds in temporary pools and irrigation ditches along the Colorado River and southern Imperial Valley.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Laterallus jamaicensis coturniculus California black rail	ST FP G3 S2	Brackish marsh | Freshwater marsh | Marsh & swamp | Salt marsh | Wetland; Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Lithobates pipiens northern leopard frog	SSC G5 S2	Freshwater marsh | Great Basin flowing waters | Great Basin standing waters | Marsh & swamp | Wetland; Native range is east of Sierra Nevada-Cascade Crest. Near permanent or semi-permanent water in a variety of habitats.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Lithobates yavapaiensis lowland leopard frog	SSC G4 SX	Streams, river side channels, springs, and artificial and natural ponds in desert scrub, grassland, woodland, and pinyon–juniper woodland; Were found along the Colorado River and in streams near the Salton Sea.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Melanerpes uropygialis Gila woodpecker	SE G5 S2	Riparian forest | Riparian woodland; In California, inhabits cottonwoods and other desert riparian trees, shade trees, date palms, and palm oasis.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur on the Project Site
Nyctinomops macrotis big free-tailed bat	SSC G5 S3	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water ; Low-lying arid areas in Southern California.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Perognathus langimembris bangsi Palm Springs pocket mouse	SSC G5T2 S1	Desert wash | Sonoran desert scrub; Desert riparian, desert scrub, desert wash and sagebrush habitats. Most common in creosote-dominated desert scrub.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Phyrosoma ncallii flat-tailed horned lizard	SSC G3 S3	Desert dunes | Mojavean desert scrub | Sonoran desert scrub; Restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Pyrocephalus rubinus vermilion flycatcher	SSC G5 S2S3	Marsh & swamp | Riparian forest | Riparian scrub | Riparian woodland | Wetland; During nesting, inhabits desert riparian adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Rallus obsoletus yumanensis Yuma Ridgway's rail	FE ST FP G5 S2S3	Freshwater marsh | Marsh & swamp | Wetland; Nests in freshwater marshes along the Colorado River and along the south and east ends of the Salton Sea.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Rynchops niger black skimmer	SSC G5 S2	Alkali playa | Sand shore; Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Sigmodon hispidus eremicus Yuma hispid cotton rat	SSC G5 S3	Backwater sloughs, marshy areas adjacent to Colorado River; Along the Colorado River and in grass and agricultural areas near irrigation waters.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur on the Project Site
Taxidea taxus American badger	SSC G5 S3	Occupies a wide variety of habitats including dry, open grassland, sagebrush, and woodland habitats. Require dry, friable, often sandy soil to dig burrows for cover, food storage, and giving birth. Occasionally found in riparian zones and open chaparral with less than 50% plant cover.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Toxostoma crissale crissal thrasher	SSC G5 S2	Riparian woodland; Resident of southeastern deserts in desert riparian and desert wash habitats.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Uma notata Colorado Desert fringe-toed lizard	SSC G3 S2	Wind-blown sand dunes, dry lakebeds, sandy beaches, riverbanks, desert washes, and sparse desert scrub.	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.
Xyrauchen texanus razorback sucker	FE SE FP G1 S2	Found in the Colorado River bordering California	No	**Not Expected:** This species is not expected to occur within the study area due to the lack of suitable habitat.

***STATUS**

U.S. Fish and Wildlife Service (USFWS)

FE Endangered – any species which is in danger of extinction throughout all or a significant portion of its range.

FT Threatened – any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

FC Candidate – any species which is currently designated a candidate for listing under the Endangered Species Act.

California Department of Fish and Wildlife (CDFW)

SE Endangered – any native species subspecies of bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

ST Threatened – any native or subspecies of bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required under the California Endangered Species Act.

SC Candidate – any species which is currently designated a candidate for listing under the California Endangered Species Act.

FP Fully Protected – any native species or subspecies of bird, mammal, fish, amphibian, or reptile that were determined by the State of California to be rare or face possible extinction.

SSC Species of Special Concern – any species, subspecies, or distinct population of fish, amphibian, reptile, bird, or mammal native to California that currently satisfies one or more of the following criteria: is extirpated from California or, in the case of birds, in its primary seasonal or breeding role; is listed as Federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed; is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; or has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.

WL Watch List – taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

CSE Candidate Endangered – The classification provided to a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of endangered species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of endangered species.

NatureServe Conservation Status Rank

The Global Rank (G#) reflects the overall condition and imperilment of a species throughout its global range. The Infraspecific Taxon Rank (T#) reflects the global situation of just the subspecies or variety. The State Rank (S#) reflects the condition and imperilment of an element throughout its range within California. (G#Q) reflects that the element is very rare but there are taxonomic questions associated with it; the calculated G rank is qualified by adding a Q after the G#). Adding a ? to a rank expresses uncertainty about the rank.

G1/T1 Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2/T2 Imperiled— At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

G3/T3 Vulnerable— At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.

G4/T4 Apparently Secure— Uncommon but not rare; some cause for long-term concern due to declines or other factors.

G5/T5 Secure – Common; widespread and abundant.

S1 Critically Imperiled – Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the State.

S2 Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or State.

S3 Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

April 22, 2025

Cynthia Mancha
City of Brawley
Development Services, Planning Division
383 Main Street
Brawley, CA 92227

Subject: **Brawley Mixed Use Master Plan Project, Brawley, California – Biological Resources Evaluation (Revised Conceptual Site Plan)**

PURPOSE

This memorandum serves to evaluate changes made to the Conceptual Site Plan for the proposed Brawley Mixed Use Master Plan Project (proposed Project) located in the City of Brawley (City), California. The Site Plan was recently revised, subsequent to preparation of the *Biological Resources Assessment for the Brawley Mixed Use Master Plan Project in Brawley, Imperial County, California*, dated November 1, 2024. The minor changes to the Conceptual Site Plan are the basis for this memorandum which is intended to evaluate potential short- and long-term impacts on biological resources that would result from construction and operation of the proposed Project, pursuant to California Environmental Quality Act requirements. The evaluation is aimed at determining whether the significance findings identified in the original biological resources assessment remain valid, or if new or substantially increased impacts would result.

REVISED PROJECT DESCRIPTION

The proposed Project would require City approval of an amendment to the Brawley Gateway Specific Plan to subdivide the subject property and allow for future commercial and multi-family residential uses; refer to Figure 1, Conceptual Site Plan. As currently proposed, the western portion of the property (approximately 37 acres) would still be subdivided for future commercial development, including strip retail plaza and larger retail shopping center uses. As compared to the original Site Plan, the revised Site Plan would reduce the square footage of the proposed retail shopping plaza uses from approximately 85,000 square feet (SF) to 65,500 SF (Pads 1 to 8); the square footage of the retail shopping center uses would be increased from approximately 240,000 SF (originally Pads 10 thru 12) to 243,000 SF (now Pads 10 and 11). The revised Site Plan would also increase the number of rooms proposed for the commercial hotel from approximately 100 rooms to 150 rooms (Pad 9). Proposed access to the commercial use area would still be from (future) Legion Road to the north, with secondary access occurring from the south along a future/unnamed road.

Under the revised Site Plan, the eastern portion of the property (approximately 29 acres) would still be subdivided to allow for future development of 408 multi-family residential units and associated community amenities, with an estimated 836 parking spaces. Total square footage of the residential uses would be reduced from approximately 411,744 SF to 273,288 SF with the revised Site Plan. Proposed primary and secondary access to the residential area

would remain from (future) Legion Road to the north (to be improved to centerline of roadway); secondary access would still be via a future road along the eastern boundary.

EVALUATION

No change to the development footprint (limits of disturbance) as originally proposed would result with the revised Conceptual Site Plan. Although minor changes to design of the internal building pads and mixture and/or intensity of the proposed land uses would occur, the development footprint (total of approximately 66 acres) as evaluated in the November 2024 *Biological Resources Assessment* would remain the same. As a result, no updates to the previously completed literature review and records search; habitat assessment/field survey; or impact analysis prepared as part of the *Biological Resources Assessment* are required to evaluate new land areas or biological resources not already considered.

As the extent of the land area affected by the proposed Project has not changed, potential impacts resulting with future development of the site and associated mitigation measures to reduce such impacts to less than significant, as identified in the November 2024 *Biological Resources Assessment,* remain applicable to the Project as currently proposed.

CONCLUSION

No new or substantially increased significant impacts relative to biological resources would result with the revised Conceptual Site Plan. The significance findings and associated mitigation measures identified in the original *Biological Resources Assessment* (November 2024) remain appropriate and applicable to the proposed Project.

Please feel free to contact me at (949) 472-3432 or at John.Parent@mbakerintl.com with any questions you may have regarding the results and/or conclusions of this memorandum.

Sincerely,

John R. Parent

John Parent, Senior Biologist

COMMERCIAL PAD SUMMARY TABLE

SITE AREA	36 ACRES		
PAD SUMMARY			
PAD NUMBER	**LOT SIZE (SF)**	**TOTAL BUILDING AREA (SF)**	**NO. OF PARKING PROVIDED**
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL / FOOD 30%)	48,534	6,500	42
#6 (RETAIL/ FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	*13,400*	*60*
#8 (RETAIL / SHOP)	77,770	15,600	80
#9 (HOTEL, **150 KEYS**)	197,790	122,905	194
#4 ('BIG BOX' RETAIL)	520,942	148,000	762
#4 ('BIG BOX' RETAIL)	420,755	95,000	499
TOTAL	**1,568,971**	**431,405**	**1890**

APARTMENT SUMMARY TABLE

SITE AREA	**28.77 ACRES**
TOTAL UNITS	**408 UNITS**
DENSITY	**14.2 DU/AC**

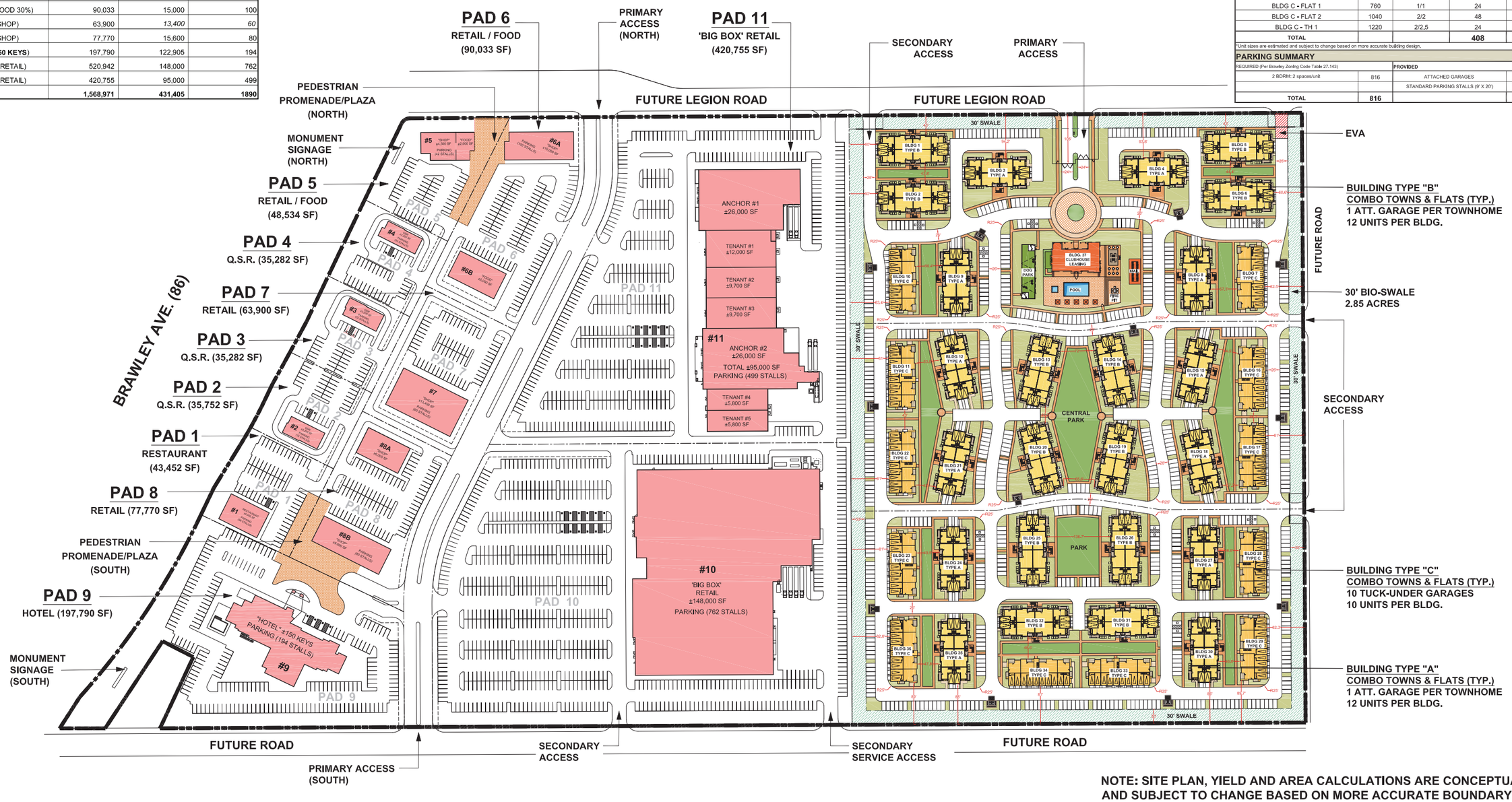
APARTMENT UNIT SUMMARY

UNIT PLAN	SQ. FT.*	BD/BA	# UNITS	TOTAL S.F.
BLDG A - UNIT 1	760	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2,5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2,5	48	57,600
BLDG C - CARRIAGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	760	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	49,920
BLDG C - TH 1	1220	2/2,5	24	29,280
TOTAL			**408**	**273,288**

*Unit sizes are estimated and subject to change based on more accurate building design.

PARKING SUMMARY

REQUIRED (Per Brawley Zoning Code Table 27.143)		PROVIDED	
2 BDRM: 2 spaces/unit	816	ATTACHED GARAGES	216
		STANDARD PARKING STALLS (9' X 20')	620
TOTAL	**816**		**836**



NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

Michael Baker INTERNATIONAL

File: 202590Figures.indd

0 50 100 200

Source: W Design & Architects, 03/09/2025

BRAWLEY MIXED USE MASTER PLAN PROJECT

Conceptual Site Plan

Figure 1

TRANSMITTAL

To:	City of Brawley 180 S. Western Ave Brawley CA 92227	**Date:**	3/24/2026
		Project:	YK America – Retention Basin
Attn:	Cristhian Barajas	**Project/PC #:**	24-0001644.00/44
CC:		**From:**	NV5

The following items are being forwarded: Choose an item.

Item	Quantity	For Your Use	As Requested	For Your Review
YK America – Retention Basin Recommendations	1 EA	✓	✓	☐

I. Rezoning:

The sizing of the basin is based on 3" across the entire project area and is not dependent on land use (it's very conservative). Therefore, the original sizing calculations for the basin should be adequate regardless of change in land use.

II. Conformance with Specific Plan:

NV5 recommends that the developer provide an update with regards to conformance to the Specific Plan, confirming whether the Wal-Mart basin was constructed in accordance with the Specific Plan design capacity or whether it was built only to accommodate runoff associated with the Wal-Mart development. If the basin was built and sized according to the specific plan requirements, then a shared retention basin can be considered for approval.

III. 100-year detention volume and sizing - 3 options as suggested by City:

1. If the proposed uses generate *equal or less* runoff and the basin was constructed to serve the full Gateway Specific Plan area, then no additional detention improvements may be necessary, and the project could connect under a shared-use agreement.
   Engineer of work for YK America shall calculate the required 100-year detention volume for YK America and provide calculations indicating the percentage of the total detention volume of the existing basin that the development will contribute to. City and Owner shall enter into a written agreement from Owner that they understand that runoff from YK America will be routed to the shared basin and the Owner of the Basin is required to provide O&M for perpetuity.

2. If YK America development results in more runoff than the basin for designed for, the applicant could either pursue improvements to the existing basin (subject to feasibility analysis) or partially route runoff to the basin while addressing any additional capacity needs through on-site detention.
   Similar to the 1st option, the Engineer shall document these with calculations and an agreement with the owner shall be required for O&M.

3. Provide full on-site detention within the project limits of YK America.

IV. **Phase II Water Quality requirements:**

Project is subject to Phase II permit water quality requirements. Engineer of Work shall use the LID sizing tool to comply with water quality requirements on-site. The site plan shows landscaping areas which could be modified and utilized for water quality.
https://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.html

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Cynthia Mancha, City of Brawley, Development Services - Planning Division

From: Dennis Dinh, Michael Baker International
Zhe Chen, Michael Baker International

Date: April 22, 2025

Subject: **Brawley Mixed Use Master Plan Project – Noise and Vibration Assessment**

PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term noise and vibration impacts that would result from the construction and operation of the proposed Brawley Mixed Use Master Plan Project (project), located in the City of Brawley (City), California.

PROJECT LOCATION

The approximately 66-acre project site is located in the northern portion of the City of Brawley in south-central Imperial County (County), California; refer to Exhibit 1, *Regional Vicinity Map*. The Cities of Imperial and El Centro lie approximately 9 miles and 13 miles, respectively, to the southwest. The international United States/Mexico border is located approximately 22 miles to the south.

The project site is located south of (future) Legion Road, east of Brawley Avenue/State Highway 86, and north of Rockwood Canal; refer to Exhibit 2, *Site Vicinity*. The affected County Assessor Parcel Number is 048-440-001. The site currently supports agricultural use. Regional access to the project vicinity is provided via Interstate 8, located approximately 14 miles to the south.

PROJECT DESCRIPTION

The project proposes an amendment to the Brawley Gateway Specific Plan to subdivide the property and allow for future commercial and multi-family residential uses; refer to Exhibit 3, *Site Plan*. Specifically, the western portion of the project site (approximately 36 acres) would be subdivided into 11 pads for future commercial uses. Pads 1-8 would include commercial buildings ranging from approximately 3,200 square feet (SF) to approximately 15,600 SF and are intended to support strip retail plaza uses. Pads 1-8 would have a combined building square footage totaling approximately 65,500 SF. Pads 10-11 would have a combined building square footage totaling approximately 243,000 SF and would support larger retail shopping center uses. Additionally, Pad 9 is anticipated to support a commercial hotel with approximately 150 rooms and an estimated building square footage of approximately 122,905 SF. Onsite parking would be provided for the proposed uses in conformance with City Zoning Ordinance requirements. Specifically, the commercial component of the proposed project would provide a total of 1,890 standard surface parking spaces.

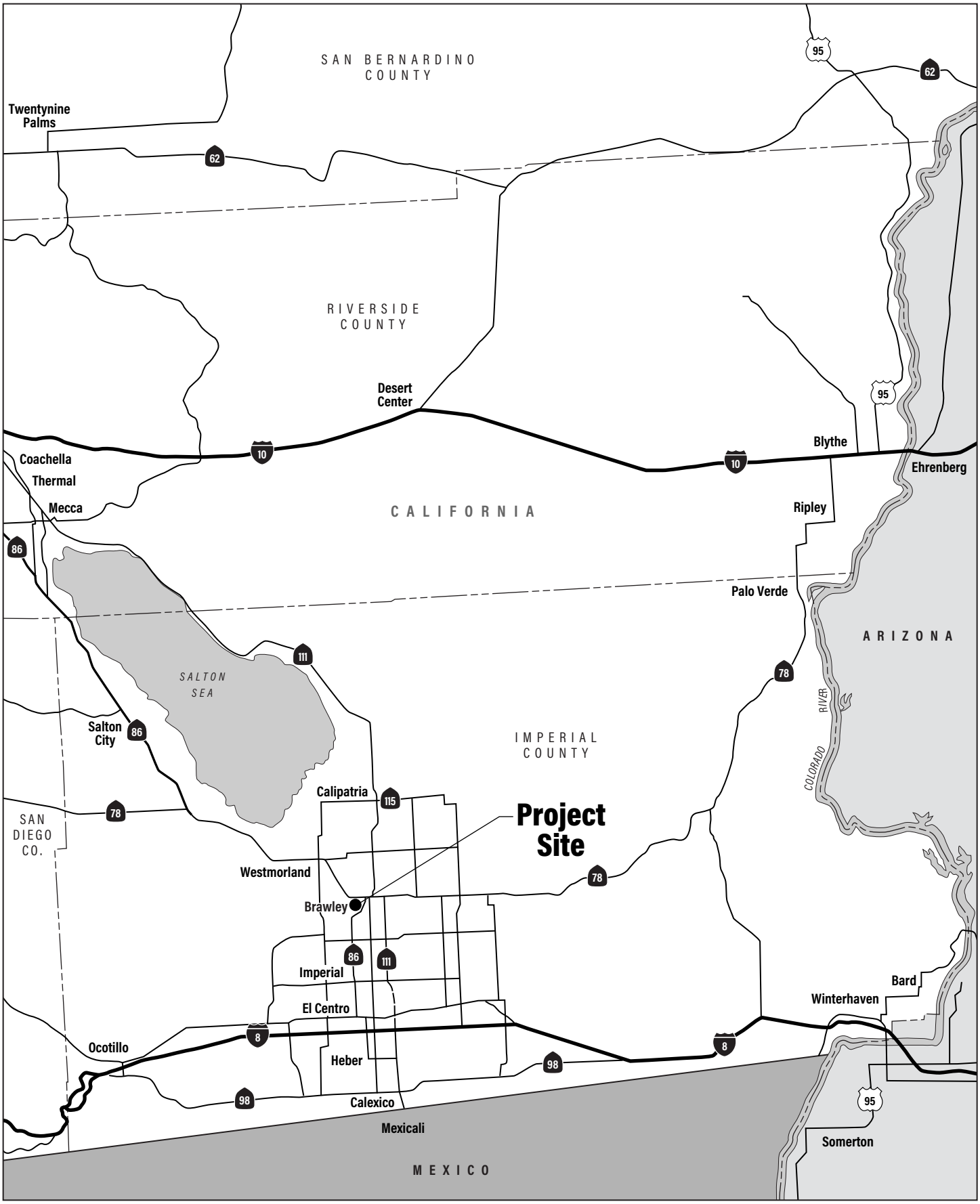
The eastern portion of the project site (approximately 29 acres) would be subdivided for the development of 408 multi-family residential units with varying floor plans. The residential component of the proposed project would provide a total of 836 parking spaces, including 216 attached garage spaces and 620 standard surface parking spaces. The residential area would offer community amenities including a dog park, clubhouse, pool, and fire pit as well as several community parks and green space for resident use and would provide opportunities for passive and active outdoor recreation.

Primary access to the commercial component of the proposed project would be provided via (future) Legion Road to the north; secondary access would be provided via a future/unnamed road to the south. Access from the north would require improvement of Legion Road to the centerline along the northern property boundary. The new access road along the southern boundary would be constructed above the existing canal (Rockwood Canal). Construction of this roadway would occur in coordination with the Imperial Irrigation District which owns and operates the canal.

Access to the proposed residential uses would be provided via (future) Legion Road to the north; secondary access would be provided via a future road along the eastern boundary of the project site.

Operation of the proposed project would include the proposed 408 multi-family residential units on the eastern portion of the project site and future commercial uses on the western portion of the project site. The future commercial uses would operate consistent with the applicable zone, zoning regulations, and conform with allowed business hours. However, it should be noted that operating hours may vary depending on the specific use proposed (i.e., retail shopping center versus commercial hotel use). All parking demands generated by the residential and commercial components of the project would be accommodated on-site. The need for any off-site parking (i.e., street parking) would not be anticipated or proposed.

Construction activities would include grading, building construction, paving, and the application of architectural coatings. Construction activities would occur over approximately 33 months. The proposed earthwork would result in approximately 20,000 cubic yards of soil import.



BRAWLEY MIXED USE MASTER PLAN PROJECT – NOISE AND VIBRATION ASSESSMENT

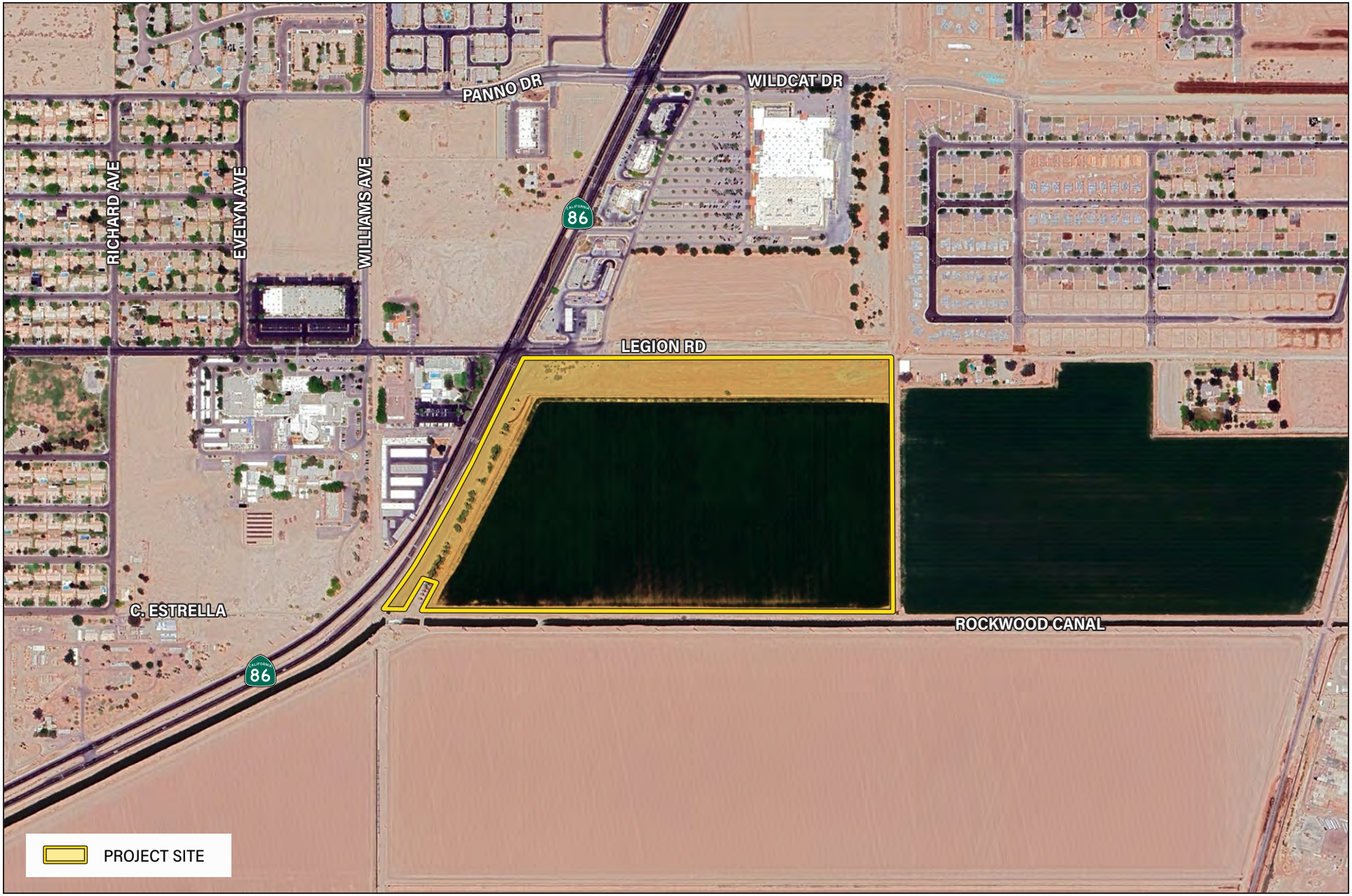
Regional Vicinity Map

Michael Baker INTERNATIONAL

NOT TO SCALE

10/2024 • JN 202590

Exhibit 1



Source: Google Earth Pro, October 2024

Michael Baker INTERNATIONAL

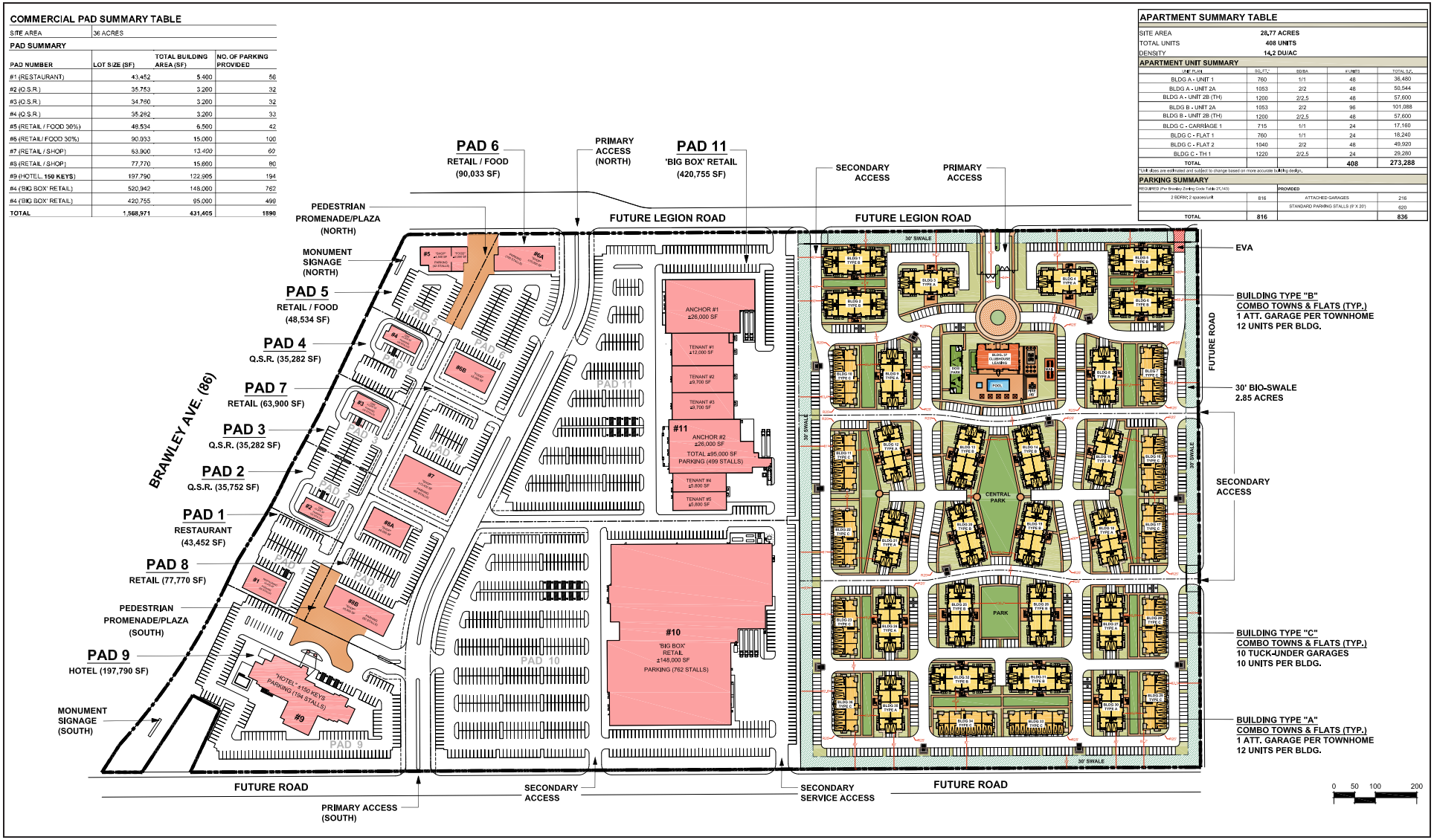
NOT TO SCALE

10/2024 • JN 202590

BRAWLEY MIXED USE MASTER PLAN PROJECT – NOISE AND VIBRATION ASSESSMENT

Site Vicinity

Exhibit 2



Source: W Design & Architects, April 2025

Michael Baker INTERNATIONAL

NOT TO SCALE

04/2025 • JN 202590

BRAWLEY MIXED USE MASTER PLAN PROJECT – NOISE AND VIBRATION ASSESSMENT

Site Plan

Exhibit 3

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air and is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has been developed. Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner like the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud and 20 dBA higher is perceived to be four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA.

Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity. Noise can be generated by several sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3 dBA and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate between 6 dBA and about 7.5 dBA per doubling of distance.

There are several metrics used to characterize community noise exposure, which fluctuate constantly over time. One such metric, the equivalent sound level (L_{eq}), represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound. This is commonly used to describe the "average" noise levels within the environment. Noise exposure over a longer period is often evaluated based on the Day-Night Sound Level (L_{dn}). This is a measure of 24-hour noise levels that incorporates a 10-dBA penalty (or an additional 10 dBA) for sounds occurring between 10:00 p.m. and 7:00 a.m. when sounds seem to be louder. The penalty is intended to reflect the increased human sensitivity to noises occurring during nighttime hours, particularly at times when people are sleeping and there are lower ambient (background) noise conditions. Typical L_{dn} noise levels for light- and medium-density residential areas range from 55 dBA to 65 dBA. Similarly, Community Noise Equivalent Level (CNEL) is a measure of 24-hour noise levels, not an actual sound level heard at any time, that incorporates a 5-dBA penalty for sounds occurring between 7:00 p.m. and 10:00 p.m. and a 10-dBA penalty for sounds occurring between 10:00 p.m. and 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.[1]

FUNDAMENTALS OF ENVIRONMENTAL GROUNDBORNE VIBRATION

Ground vibration consists of oscillatory (i.e., rapidly fluctuating) motions or waves with an average motion of zero (i.e., no net movement of the vibration element). Sources of earth-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

[1] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. Vibration decibels (VdB) is commonly used to measure the RMS vibration velocity level. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 1, *Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels*, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

Table 1
Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception.	Vibrations unlikely to cause damage of any type.
0.08	87	Vibrations readily perceptible.	Recommended upper level to which ruins and ancient monuments should be subjected.
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities.	Virtually no risk of architectural damage to normal buildings.
0.2	94	Vibrations may begin to annoy people in buildings.	Threshold at which there is a risk of architectural damage to normal dwellings.
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Architectural damage and possibly minor structural damage.

Source: California Department of Transportation, *Transportation Related Earthborne Vibrations,* 2002.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as pile driving and vibratory compacting activities which require the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (inch/second) is used to evaluate construction-generated vibration for building damage and human complaints.

EXISITNG SETTING

Noise Sensitive Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Potentially sensitive land uses in the City include residences (including residences for the elderly), schools, churches, and libraries.

The nearest sensitive receptors to the project site are the existing church (Gateway Church of Brawley) located to the west across Brawley Avenue/Highway 86, approximately 130 feet away when measured from the property line. It should be noted that a residential community comprised of single-family residences is currently being constructed approximately 75 feet northeast of the project site when measured from the property line. While these single-family residences have not been fully constructed, the residences are most likely to be constructed and occupied prior to the construction completion of the proposed project. As such, they are analyzed as the closest sensitive receptors as a conservative analysis.

Stationary Sources

The project site is in a suburban area with the surrounding land uses consisting of commercial, agricultural, institutional, and residential uses. The primary sources of stationary noise in the project vicinity are urban-related activities (i.e., mechanical equipment). The noise associated with these sources may represent a single-event noise occurrence, short-term, or long-term/continuous noise.

Mobile Sources

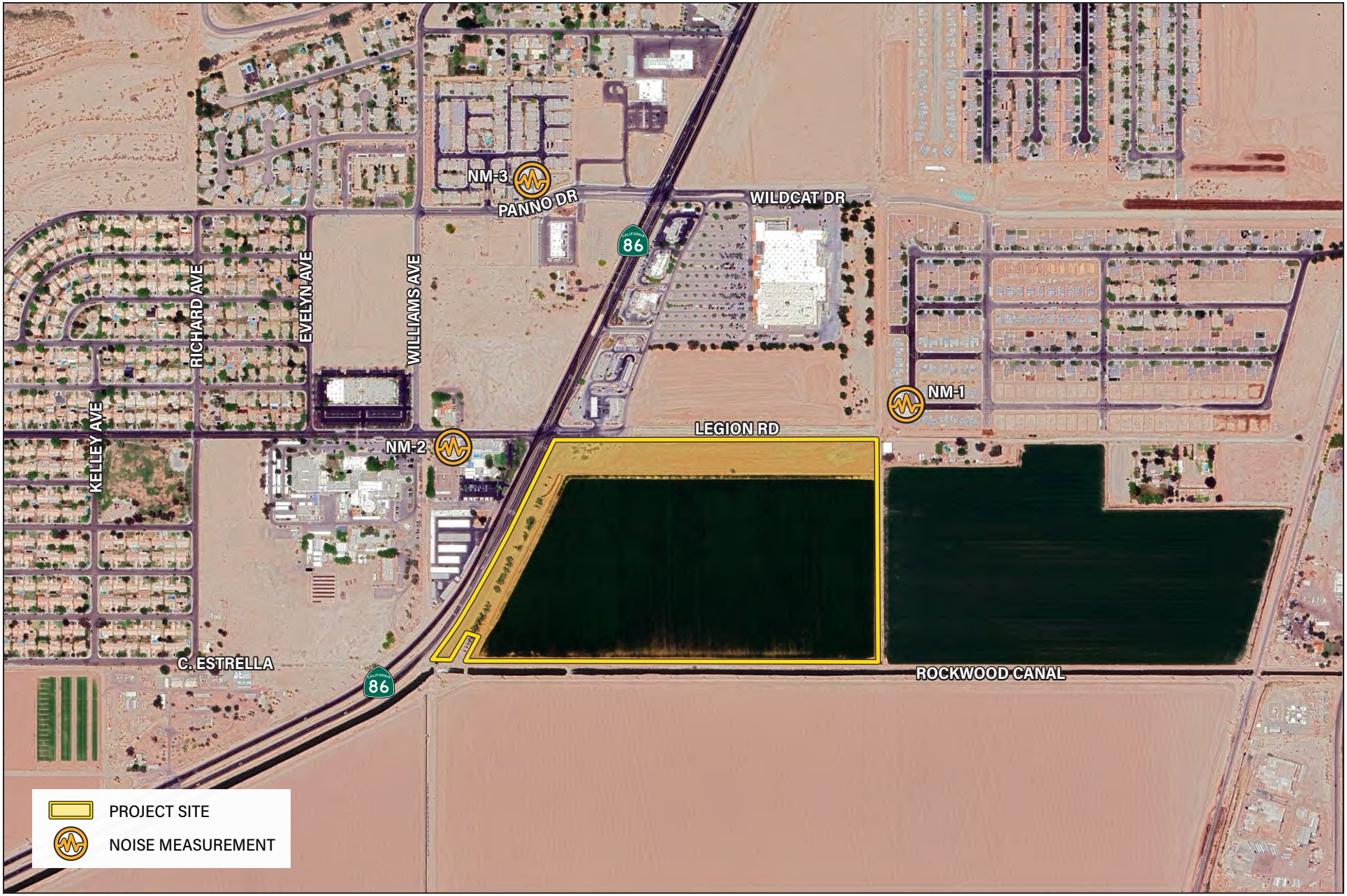
Most of the existing noise in the project area is generated from traffic along surrounding roadways including Highway 86 and West Legion Road.

Existing Ambient Noise Levels

To quantify existing ambient noise levels in the project area, Michael Baker International conducted three short-term noise measurements in the project vicinity on September 12, 2024. Exhibit 4, *Noise Measurement Locations,* displays the locations where these noise measurements were conducted. The noise measurement locations are representative of typical existing noise exposure at the nearest sensitive receptors. The 10-minute measurements were taken between 12:00 p.m. and 1:00 p.m.

Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. The noise measurements were taken during "off-peak" (9:00 a.m. through 3:00 p.m.) traffic noise hours as this provides a more conservative baseline. During rush hour traffic, vehicle speeds and heavy truck volumes are often low. Free-flowing traffic conditions just before or after rush hour often yield higher noise levels.[2] The noise levels measured are identified in Table 2, *Short-Term Noise Measurements*.

[2] California Department of Transportation*, Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.



Source: Google Earth Pro, October 2024

Michael Baker INTERNATIONAL

NOT TO SCALE

10/2024 • JN 202590

BRAWLEY MIXED USE MASTER PLAN PROJECT – NOISE AND VIBRATION ASSESSMENT

Noise Measurement Locations

Exhibit 4

Table 2
Short-Term Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Start Time
NM-1	In front of 102 Riata Street	49.3	40.9	70.8	12:10 p.m.
NM-2	Southwest corner of the West Legion Road and Williams Avenue intersection	62.2	45.9	78.6	12:31 p.m.
NM-3	Approximately 600 feet west of the Highway 86 and Panno Drive intersection	60.0	39.6	75.3	12:47 p.m.
Notes: dBA = A-weighted decibels; L_{eq} = Average Sound Level; L_{min} = Lowest time-weighted sound level measured; L_{max} = Highest time-weighted sound level measured					
Refer to Appendix A, *Noise Data*, for the results of the field measurements.					

Further description of each noise measurement location is discussed below:

- Noise Measurement Location 1 (NM-1): NM-1 was located in front of a future single-family residence at 102 Riata Street. This noise measurement location collects data of the ambient noise levels at this receptor, which is the nearest sensitive receptor to the project site. It should be noted that this location is within a residential community comprised of single-family residences that is currently being constructed. As of September 12, 2024, 102 Riata Street has not been constructed but a foundation pad for a future single-family residence is present.

- Noise Measurement Location 2 (NM-2): NM-2 was located at the southwest corner of West Legion Road and Williams Avenue intersection. It should be noted that NM-2 is representative of multiple nearby sensitive land uses, including the Gateway Church of Brawley, Pioneers Memorial Hospital, Pioneers Memorial Wound Care, etc.

- Noise Measurement Location 3 (NM-3): NM-3 was located approximately 600 feet west of the Highway 86 and Panno Drive intersection, near multi-family residences at 321 Panno Drive. This noise measurement location collects data of the ambient noise levels at this receptor, which is the next closest residential receptor to the proposed project.

Meteorological conditions were clear, hot temperatures (98 degrees Fahrenheit [°F]), and wind speeds of approximately 5 miles per hour. As shown in Table 2, noise levels in the project vicinity range from 49.3 to 62.2 dBA L_{eq}. Major noise sources during the measurements include vehicular movements along unpaved roads directly south and west of the project site and along the perimeter of the farmland bordering the site, West Legion Road, or Panno Drive. Noise monitoring equipment used for the short-term noise survey consisted of a Brüel & Kjær Hand-held Analyzer Type 2250 equipped with a Type 4189 pre-polarized microphone. The monitoring equipment complies with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters. Refer to Appendix A, *Noise Data*, for the results of the field measurements.

REGULATORY SETTING

State

State Office of Planning and Research

The State Office of Planning and Research's (OPR) *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The *Noise Element Guidelines* contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Local

City of Brawley

City of Brawley General Plan 2030

The *City of Brawley General Plan 2030* (General Plan) was adopted in September 2008. The *Public Safety and Noise Element* is a comprehensive program to limit the exposure of the community to excessive noise levels. Noise sensitive receptors identified by the City include residential uses, schools, and hospitals. The City identifies noise-sensitive land uses and noise sources (i.e., transportation, construction, and stationary) with the intent of separating these uses. The following goals and policies are applicable to the project:

Public Safety and Noise Element

PSNE Goal 7: Protect People Living and Working in the City from Excessive Transportation Noise

PSNE Policy 7.2.3: Require developers to construct noise abatements that meet Caltrans's acoustical criteria if new developments cause increases in traffic volumes that result in roadway noise levels greater than 65 dB CNEL at existing dwellings.

PSNE Goal 8: Protect People Living and Working in the City from Excessive Non-Transportation Noise

PSNE Policy 8.1.2: Minimize the impacts of non-transportation construction noise on adjacent land uses through limiting the permitted hours of activity.

PSNE Goal 9: Incorporate Noise Considerations into Land Use Planning Decisions

PSNE Policy 9.1.6: Require commercial uses from a mixed-use project (including residential) to comply with the Noise Ordinance. Design mixed-use structures to prevent transfer of noise from the commercial to the residential use.

PSNE Policy 9.1.7: Require new commercial/industrial operations located in proximity to existing or proposed residential areas to incorporate noise mitigation into project design, to comply with Noise Ordinance.

The General Plan also includes noise standards for various land use categories in the City as show in Table 3, *City of Brawley Interior and Exterior Noise Standard*.

Table 3
City of Brawley Interior and Exterior Noise Standard

Land Use Category	Noise Standard[1]	
	Interior[2,3]	Exterior
Residential - Single family, multi-family, duplex, mobile home	CNEL 45 dB	CNEL 65 dB[4]
Residential - Transient lodging, hotels, motels, nursing homes, hospitals	CNEL 45 dB	CNEL 65 dB[4]
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	L_{eq}(12) 45 dBA	-
Schools	L_{eq}(12) 45 dBA	L_{eq}(12) 67 dBA
General offices, reception, clerical, etc.	L_{eq}(12) 50 dBA	-
Bank lobby, retail store, restaurant, typing pool, etc.	L_{eq}(12) 55 dBA	-
Manufacturing, kitchen, warehousing, etc.	L_{eq}(12) 65 dBA	-
Parks, playgrounds, etc.	-	CNEL 65 dB[5]
Golf courses, outdoor spectator sports, amusement parks, etc.	-	CNEL 70 dB[5]

Notes:
CNEL = community noise equivalent level; NA = not applicable
1. L_{eq}(12): The A-weighted equivalent sound level averaged over a 12-hour period (usually the hours of operation).
2. Noise standard with windows closed.
3. Indoor environment excluding bathrooms, toilets, closets and corridors.
4. Outdoor environment limited to rear yard of single-family homes, multifamily patios and balconies.
5. Outdoor environment limited to playground areas, picnic areas, and other areas of frequent human use.

Sources: City of Brawley, *City of Brawley General Plan 2030, Table PSNE-3*, September 2008.

City of Brawley Noise Ordinance

The Noise Ordinance, *Chapter 18*, *Noise*, Sections 18.1 through 18.5, contain the City's noise regulations. It should be noted that the adopted Noise Ordinance does not include noise standards or numerical thresholds for noise sources within the City. As of March 2024, the City of Brawley City Council has reviewed and discussed the second reading draft ordinance designed to address noise concerns within the City's limit.[3] While this draft Noise Ordinance has not been formally adopted, applicable contents of the draft Noise Ordinance have been used to analyze the proposed project. It should be noted that the draft Noise Ordinance contains more stringent regulations on noise than what is currently adopted. Specifically, the draft Noise Ordinance would amend the currently adopted Noise Ordinance to include Sections 18.1 through 18.25. These sections would address a wide range of noise concerns (construction noise, motor vehicles, signal alarms, noise thresholds, and general noise regulations). The draft Noise Ordinance sections that would be applicable to the proposed project are discussed below:

Section 18.4, *Sound Level Limits*, of the draft Noise Ordinance contains new exterior noise thresholds for residential uses. Table 4, *Exterior Noise Limits,* displays the noise thresholds for single-family residential and residential medium density zones. It should be noted that the exterior noise limits do not apply to construction noise.

[3] City of Brawley, *Brawley City Council & Successor Agency to Brawley Community Redevelopment Agency Regular Meeting Agenda March 19, 2024 at 6:00 p.m., https://www.brawley-ca.gov/assets/meetings/03192024-agenda-march-19,-2024.pdf,* accessed April 10, 2025.

Table 4
Exterior Noise Limits

Zone	Time of Day	One-Hour Average Sound Level, dB
Single Family Residential Zones	7:00 a.m. to 10:00 p.m.	45
	10:00 p.m. to 7:00 a.m.	40
Residential Medium Density Zone	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	40

Sources: City of Brawley, *Brawley City Council & Successor Agency to Brawley Community Redevelopment Agency Regular Meeting Agenda March 19, 2024, at 6:00 p.m., https://www.brawley-ca.gov/assets/meetings/03192024-agenda-march-19,-2024.pdf,* accessed September 17, 2024.

Section 18.7, *Construction Equipment*, of the draft Noise Ordinance contains noise regulations governing the use of construction equipment. No person shall operate construction equipment at any construction site on Sundays and on days appointed by the president, governor, or the City Council for a public holiday. A person may only operate construction equipment at construction sites on days not listed above between the hours of 6:00 a.m. and 7:00 p.m. on Monday through Saturday. Additionally, no equipment shall be operated in a manner that would result in noise in excess of 75 dBA when measured at any bordering residential properties.

Section 18.10, *General Noise Regulations*, of the draft Noise Ordinance contains general noise regulations governing a multitude of noise sources (i.e., horns, radios, musical instruments, etc.). For heating, ventilation, and air conditioning (HVAC) units, a noise violation would occur if these stationary sources would result in a five dBA increase over the ambient noise levels at sensitive receptors.

CALIFORNIA ENVIRONMENTAL QUALITY ACT THRESHOLDS

The environmental analysis in this memorandum is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may have a significant adverse impact related to noise and vibration if it would result in any of the following:

- 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 (refer to Impact Statement NOI-1);

- Generation of excessive groundborne vibration or groundborne noise levels (refer to Impact Statement NOI-2); and/or

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels (refer to Impact Statement NOI-3).

METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE

Methodology

Noise levels from construction equipment and activities were modeled using the Federal Highway Administration's Roadway Construction Noise Model (RCNM); refer to Appendix A for results of the RCNM modeling. Project construction equipment is based on the *Brawley Mixed Use Master Plan Project - Air Quality Assessment* prepared by Michael Baker International, dated April 2025. As the proposed project contains a mix of land uses including residential and commercial uses, operational noise from the development would be comprised of operational mobile noise, stationary equipment noise (heating, air conditioning, etc.), crowd noise from gatherings of large numbers of people (e.g., neighborhood events, other social gatherings, etc.), and semi-truck noise (loading docks, vehicular movement, and back-up alarms). Operational noise sources are based on reference data contained in noise databases and calculated to determine noise levels at nearby sensitive receptors; refer to Appendix A for the calculation formula.

Thresholds of Significance

Construction Noise

As discussed above, the City of Brawley does not have a formally adopted numerical threshold for construction noise impacts. However, the draft Noise Ordinance contains a numerical threshold of 75 dBA when measured at a receptor's property line. While the draft Noise Ordinance has not been formally adopted by the City of Brawley, the following discussion utilizes the 75 dBA threshold as a conservative analysis. Additionally, the current Noise Ordinance does not contain permitted hours of construction. However, the draft Noise Ordinance allows the use of construction equipment at construction sites between the hours of 6:00 a.m. to 7:00 p.m. during weekdays and Saturdays, not including Sunday and recognized holidays. As such, a significant impact would result if construction would occur outside the hours of 6:00 a.m. to 7:00 p.m. during weekdays and Saturdays and/or exceed the numerical threshold of 75 dBA when measured at a receptor's (i.e., schools, residential uses, church, etc.) property line.

Operational Noise

The General Plan contains exterior noise standards by land use; refer to Table 3. However, the draft Noise Ordinance contains more stringent regulations and thresholds than what was listed in the General Plan for residential land uses, refer to Table 4. While the draft Noise Ordinance has not been formally adopted by the City of Brawley, the following discussion utilizes the more stringent requirements contained in the draft Noise Ordinance. As discussed above, the closest sensitive receptors are the Gateway Church of Brawley located west of the project site and the future residential community comprised of single-family residential buildings to be located to the northeast. Currently, the draft Noise Ordinance does not contain any numerical threshold for churches. The future single-family residences planned to the northeast of the project site would be located closer to operational noise from the proposed project than the church. Thus, as a conservative analysis, operational noise has been analyzed at the future single-family residences. Pursuant to Section 18.4 of the draft Noise Ordinance, a significant impact would occur at the (future) adjacent single-family residential uses if exterior noise levels exceed 45 dB between the hours of 7:00 a.m. to 10 p.m. or 40 dB between the hours of 10:00 p.m. and 7:00 a.m.

According to the draft Noise Ordinance, it is unlawful for mechanical equipment (HVAC units) to increase ambient noise levels at the property line by 5 dBA or more. However, the draft Noise Ordinance does not have a threshold of significance for other noise sources (crowd noise). As a conservative analysis, operational noise sources were analyzed utilizing the numerical threshold shown in Table 4. As such, a significant increase in noise levels would occur if HVAC units from the project would increase the ambient noise levels by 5 dBA and/or if other operational noise sources would exceed the numerical thresholds shown in Table 4 at the property line.

Vibration

The California Department of Transportation's (Caltrans) *Transportation and Construction Vibration Manual* identifies various vibration damage criteria for different building classes. This evaluation uses the Caltrans architectural damage criterion for continuous vibrations at residential buildings of 0.3 inch-per-second (inch/second) PPV and commercial buildings of 0.5 inch/second PPV. The types of construction vibration impacts include human annoyance and building damage. As such, a significant impact would occur if vibration from project construction and/or operation would exceed 0.3 inch/second PPV at the sensitive receptors (future single-family residential buildings) to the northeast.

IMPACT ANALYSIS

NOI-1 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?

Level of Significance: Less Than Significant Impact.

Construction Noise Impacts

Ground-borne noise and other types of construction-related noise impacts typically occur during the initial grading phase, which has the potential to create the highest levels of noise. Construction equipment produces maximum noise levels when equipment is operating under full power conditions (i.e., the equipment engine at maximum speed). However, equipment used on construction sites typically operates under less than full power conditions, or part power. To characterize construction-period noise levels more accurately, the average (L_{eq}) noise level associated with each construction stage is calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction stage. These noise levels are typically associated with multiple pieces of equipment simultaneously operating on part power.

The estimated construction noise levels at the nearest noise-sensitive receptors are presented in Table 5, *Construction Noise Levels at the Nearest Receptors.* Noise levels from construction equipment and activities were modeled using the Federal Highway Administration's RCNM. To present a conservative impact analysis, the estimated noise levels were calculated for a scenario in which all heavy construction equipment was assumed to operate simultaneously.

Table 5
Construction Noise Levels at the Nearest Receptors

Phase	Estimated Exterior Construction Noise Level at 1,205 feet (Center of the Site to Property Line of Gateway Church of Brawley to the West) (dBA L_{eq})[1]	Estimated Exterior Construction Noise Level at 1,405 feet (Center of the Site to Property Line of Future Residential Uses to the Northeast) (dBA L_{eq})[1]
Grading	60.6	59.2
Building Construction	57.3	58.6
Paving	54.0	52.7
Architectural Coating	46.1	44.7

Notes:
1. Modeled noise levels conservatively assume the simultaneous operation of all heavy construction equipment at the same precise location. Modeled heavy construction equipment includes excavator, grader, rubber tired dozer, scrapers, and tractors during the grading phase; crane, forklifts, generator, tractors, and welders during the building construction phase; pavers, paving equipment and rollers during the paving phase; and air compressors during the architectural coating phase.

Source: Federal Highway Administration, *Roadway Construction Noise Model (RCNM)*, 2006 (see Appendix A).

The nearest existing sensitive use (Gateway Church of Brawley) is located to the west of the project site, approximately 130 feet away when measured at the property line. Additionally, a residential community comprised of single-family residences is currently being constructed approximately 75 feet to the northeast of the property line. While these single-family residences have not been fully constructed, the residences are anticipated to be constructed and occupied prior to construction completion of the proposed project. As a conservative analysis, the following analyzes the project's construction noise impacts on existing and future sensitive receptors.

Construction activities would occur throughout the project site, and it should also be noted that construction noise levels would intermittently occur for a few days when construction equipment is operating closest to the nearest sensitive uses. The remainder of the time, the construction noise levels would be much lower because the equipment would be working in an area farther away from the existing sensitive uses. The General Noise Assessment methodology prescribed in the FTA *Transit Noise and Vibration Impact Assessment Manual* recommends evaluating construction noise from the center of the site, stating under the variable distance in its construction noise calculation to "assume that all equipment operates at the center of the project." As such, the construction noise levels shown in Table 5 are estimated using the distance from the center of the project site to the property line of the existing sensitive receptors, which is approximately 1,205 feet from the Gateway Church of Brawley and 1,405 feet from the future residences to the northeast.

It should be noted that modeling of construction noise levels in Table 5 assumes that construction equipment would operate simultaneously and represents a worse-case scenario. As shown in Table 5, construction-generated noise levels would range from 46.1 dBA L_{eq} to 60.6 dBA L_{eq} at the nearest existing sensitive receptor (Gateway Church of Brawley) property boundary. Additionally, as shown in Table 5, construction-generated noise levels would range from 44.7 dBA L_{eq} to 59.2 dBA L_{eq} at the nearest future sensitive receptors (residential community) property boundary. According to the draft Noise Ordinance Section 18.7, a significant impact would occur if construction equipment exceeded a maximum noise level of 75 dBA when measured at a receptor's property line. As shown in Table 5, noise levels during each phase would not have the potential to exceed the applicable noise threshold; impacts would be less than significant.

According to the draft Noise Ordinance Section 18.7, construction would only be permitted between the hours of 6:00 a.m. and 7:00 p.m. on weekdays and Saturdays, and construction shall not occur on Sunday or a public holiday. As such, noise generated from project construction activities would only occur during the hours of 6:00 a.m. and 7:00 p.m. on weekdays and Saturdays and would not occur on a Sunday or public holiday. However, it should be noted that the draft Noise Ordinance has not been formally adopted and as such, the permitted hours of construction may be subject to change. Nevertheless, the proposed project would be required to comply with the hours of construction to be formally adopted in the Noise Ordinance. As such, construction noise impacts would be less than significant upon compliance with applicable hours of construction.

Construction Trips Noise Impacts

Construction activities would also cause increased noise along access routes along Highway 86 and West Legion Road due to movement of equipment and workers, as well as haul trips. According to Caltrans, a doubling of traffic (100 percent increase) on a roadway would result in a perceptible increase in traffic noise levels (3 dBA).[4] As such, a significant impact would occur if construction-related trips double existing traffic volumes.

It is anticipated that project construction would generate a maximum of 24 hauling trips per day, 444 worker trips per day, and 114 vendor trips per day. Based on the City's General Plan, Highway 86 to the southern City limit has a projected 2025 Average Daily Trips (ADT) of 30,700.[5] The combined total of project-related construction trips (582 trips) would not result in a doubling of existing traffic volumes along Highway 86. Construction-related trips (vendor, work, and hauling trips) would primarily travel along Highway 86; therefore, the project's construction-related trips have been compared to traffic volumes along Highway 86. As construction-related trips would not double existing traffic volumes along Highway 86, there would not be a perceptible increase (3 dBA) in traffic noise. Additionally, mobile traffic noise from construction trips would be temporary and would cease upon project completion. Impacts in this regard would be less than significant.

Long-Term Operational Noise Impacts

Off-Site Mobile Noise

Future development resulting with implementation of the proposed project would result in some additional traffic on adjacent roadways, thereby potentially increasing vehicular noise in the vicinity of existing and proposed land uses. The most prominent source of mobile traffic noise in the project vicinity is along Highway 86 and West Legion Road.

According to the project's transportation analysis (Michael Baker 2025), the project would generate approximately 14,307 ADT based on the proposed land use types. For the purpose of this analysis, the 14,307 ADT from the proposed project has been compared to existing traffic volumes. According to Caltrans, a doubling of traffic (100 percent increase) on a roadway would result in a perceptible increase in traffic noise levels (3 dBA). Based on the City's General Plan, Highway 86 to the southern City limit has a projected 2025 Average Daily Trips (ADT) of 30,700.[6] As such, the project's 14,307 ADT would not double

[4] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol,* September 2013.

[5] City of Brawley, *City of Brawley Final General Plan 2030, Table PSNE-4*, September 2008.

[6] City of Brawley, *City of Brawley Final General Plan 2030, Table PSNE-4*, September 2008.

existing traffic volumes along Highway 86. While there is traffic along West Legion Road, it should be noted that there is no traffic count study conducted along West Legion Road to quantify existing traffic volumes. It should be noted that the existing West Legion Road east of Highway 86 is currently only used to access the ARCO gas station.

As part of the project, the proposed development would extend West Legion Road to serve the project site; refer to Exhibit 3. As such, project operation would utilize the newly extended West Legion Road. It should be noted that no existing sensitive receptors are located along the existing (or planned future extension of West Legion Road) east of Highway 86. Similarly, the proposed project would include two new roads that would be utilized as secondary access points to the project site. Specifically, a new road would run along the eastern boundary of the project site and a new road would run along the southern boundary of the project site; refer to Exhibit 3. However, similar to the extension of West Legion Road, construction of these two new roads would not be located near existing sensitive receptors. Additionally, the proposed project would have various primary and secondary access points, which would ensure that the 14,307 daily trips generated from the project would be distributed amongst multiple roadways and not concentrated along a single roadway. As such, traffic noise would not be a concern as there are no sensitive receptors that would be exposed to project-generated traffic noise. Additionally, some project-generated trips would come from West Legion Road west of Highway 86. However, project trip distribution along West Legion Road west of Highway 86 would be low, and therefore is not expected to double existing traffic volumes. As such, a less than significant impact would occur in this regard.

Stationary Noise

Stationary noise sources associated with the project would include the operation of mechanical equipment, delivery trucks (slow-moving trucks and back-up alarms), and outdoor gathering areas.

Mechanical Equipment Noise

HVAC units would be installed on the roof or on the side of the proposed buildings associated with the proposed Master Plan. Typically, mechanical equipment noise is approximately 66 dBA at 3 feet from the source.[7] Based upon the Inverse Square Law, sound levels decrease by 6 dBA for each doubling of distance from the source.[8] The closest HVAC units to nearby sensitive receptors would be the units on top of the most northeastern building, located approximately 250 feet from the future single-family residential buildings to the northeast. At this distance, noise levels from a single HVAC unit would be approximately 28 dBA at the nearest sensitive receptor. Based on Exhibit 3, the closest building to the sensitive receptors to the northeast would be comprised of 12 dwelling units. This analysis assumes approximately 12 HVAC units (one HVAC unit for each dwelling unit) would be present, which would generate a combined noise level of approximately 39 dBA at 250 feet when operating simultaneously. Thus, mechanical equipment from the proposed project would not increase noise levels by more than 5 dBA (pursuant of Section 18.10 of the draft Noise Ordinance) over the existing ambient noise levels of 49.3 dBA at the future sensitive receptors to the northeast; refer to Table 2. Additionally, mechanical equipment noise from the proposed project (approximately 39 dBA) would not exceed the applicable numerical threshold of 45 dBA for daytime and 40 dBA for nighttime (refer to Table 4). Impacts would be less than significant in this regard.

[7] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.

[8] Cyril M. Harris, *Noise Control in Buildings*, 1994.

Outdoor Gathering Area Noise

The project would include two parks and an open-air courtyard with amenities (i.e., dog park, pool, fire pit, etc.) located centrally on the residential portion of the project site. The closest outdoor gathering area with the potential to generate crowd noise is the open-air courtyard located as close as 650 feet from the (future) residential receptors to the northeast. The courtyard has the potential to be accessed by groups of people intermittently for various occasions. Noise generated by groups of people (i.e., crowds) is dependent on several factors including vocal effort, impulsiveness, and the random orientation of the crowd members. Crowd noise is estimated at 60 dBA at one meter (3.28 feet) away for raised normal speaking.[9] This noise level would have a +5 dBA adjustment for the impulsiveness of the noise source, and a -3 dBA adjustment for the random orientation of the crowd members.[10] Therefore, crowd noise would be approximately 62 dBA at one meter from the source (i.e., open-air courtyard).

At approximately 650 feet, crowd noise levels generated by the proposed project would be approximately 16 dBA at the property line. It should be noted that the proposed residential buildings onsite would block the line-of-sight from the parks located centrally on the residential portion of the project site and would help further reduce noise levels. As such, crowd noise from the two parks and open-air courtyard would be lower than 16 dBA. Also, it should be noted that the proposed townhomes closest to the future residential community to the northeast would include backyards and patios which have the potential to generate crowd noise. The backyards and/or patios from the proposed townhomes would be located as close as 300 feet from the future sensitive receptor to the northeast. At this distance, crowd noise would be approximately 23 dBA.

Crowd noise from the proposed project would not exceed the applicable numerical threshold of 45 dBA for daytime and 40 dBA for nighttime (refer to Table 4). Additionally, crowd noise from the proposed project would be lower than the existing ambient noise levels of 49.3 dBA at the future sensitive receptors to the northeast; refer to Table 2. Thus, noise from crowds gathering at the open-air courtyard would not be audible to the nearby sensitive receptors. Impacts would be less than significant.

Slow-Moving Trucks

On-site operations would also include noise from on-site truck movements and idling. Per information provided by the project Applicant, there would be an estimated 20 truck deliveries per week for the commercial component of the proposed project. Typically, slow movements from these trucks can generate a maximum noise level of approximately 79 dBA at 50 feet.[11] The nearest sensitive receptor to a commercial component of the proposed project is the Gateway Church of Brawley, located approximately 130 feet to the west of the boundary of Pad 4; refer to Exhibit 3. The next closest sensitive receptor is the future residential community located approximately 75 feet to the northeast of the boundary of residential component of the proposed project; refer to Exhibit 3. However, the future residential community is located as close as 800 feet from the closest proposed commercial use (Pad 12) where delivery trucks would be present. Based on the draft Noise Ordinance, there is no exterior noise standard for churches within the City. Similarly, based on the currently adopted exterior noise thresholds for the City, churches do not have an exterior noise threshold; refer to Table 3. The following analysis

[9] M.J. Hayne, et al, *Prediction of Crowd Noise*, Acoustics, November 2006.

[10] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.

[11] Ibid.

therefore only analyzes the potential impact of truck noise on the future sensitive receptors (residences) to the northeast.

The closest commercial component to the residential receptors to the northeast is Pad 11, which is planned to support larger retail shopping center uses and is located approximately 800 feet away. As previously discussed, there is no current or proposed exterior noise standard for churches within the City. As such, only potential impact of commercial truck noise on the future sensitive receptors (single-family residences) to the northeast was analyzed. It should be noted that deliveries from semi-trucks servicing commercial uses are anticipated to occur during the late evening or nighttime hours. At approximately 800 feet, noise levels from slow-moving tricks would be approximately 55 dBA. However, the buildings within the residential component of the proposed project would block the line-of-sight between the truck-movement area and the closest sensitive receptors, which would provide a minimum attenuation of 15 dBA.[12] As such, noise from slow-moving trucks would be reduced to 40 dBA and would not exceed the nighttime noise standard of 40 dBA for single-family residential zones (pursuant of Section 18.10 of the draft Noise Ordinance); refer to Table 3. Further, slow-moving truck activity noise currently exists in the project vicinity from the Walmart Supercenter to the north and project operations would therefore not represent a new source of noise. Additionally, noise from slow-moving trucks onsite would be lower than the existing ambient noise levels of 49.3 dBA at the future residential sensitive receptors to the northeast; refer to Table 2. Impacts would be less than significant in this regard.

Back-Up Alarms

It is anticipated that loading docks would be provided with the commercial component of the proposed project to support operations. Medium- and heavy-duty trucks reversing into truck loading docks and parking stalls would produce noise from back-up alarms (also known as back-up beepers). Back-up beepers produce a typical volume of 97 dBA at one meter (i.e., 3.28 feet) from the source.[13] The nearest sensitive receptor to a commercial component of the proposed project is the Gateway Church of Brawley, located approximately 130 feet west of Pad 4; refer to Exhibit 3. The next closest sensitive receptor is the future residential community located approximately 800 feet to the northeast of the boundary of Pad 11, the closest commercial use; refer to Exhibit 3. As shown in Exhibit 3, it is anticipated that loading docks associated with the commercial development on Pad 11 would be located along the western portion of the building. As a conservative analysis, the following evaluation analyzes noise impacts at the site boundary. As discussed above, the City does not have an exterior noise standard for churches in the adopted or draft Noise Ordinance. As such, the following analysis only analyzes the impact of back-up alarms to the future sensitive receptors (residential) to the northeast.

At approximately 800 feet, noise levels from back-up beepers would be approximately 49 dBA. It should be noted that noise from slow-moving trucks would be intermittent throughout the day and night and would not present a constant source of noise. The residential component of the proposed project would block the line-of-sight between the truck-movement area and the closest sensitive receptors, which would provide a minimum attenuation of 15 dBA.[14] Therefore, noise levels from slow-moving trucks would be reduced to approximately 34 dBA at the nearest sensitive receptors. Noise from the back-up alarms would not exceed the draft Noise Ordinance's daytime exterior (45 dBA) and nighttime exterior (40 dBA) noise standards at the sensitive receptors; refer to Table 3. Additionally, back-up alarm noise would be lower

[12] Federal Highway Administration, *Roadway Construction Noise Model User's Guide Appendix A*, January 2006.

[13] Environmental Health Perspectives, *Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/, accessed April 10, 2025.

[14] Federal Highway Administration, *Roadway Construction Noise Model User's Guide Appendix A*, January 2006.

than the existing ambient noise levels of 49.3 dBA at the future sensitive receptors to the northeast; refer to Table 2. Impacts would be less than significant in this regard.

Mitigation Measures: No mitigation is required.

NOI-2 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Short-Term Construction Vibration Impacts

Level of Significance: Less Than Significant Impact.

Project construction can generate varying degrees of groundborne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

The Caltrans *Transportation and Construction Vibration Manual* identifies various vibration damage criteria for different building classes. This evaluation uses the Caltrans architectural damage criterion for continuous vibrations at residential buildings of 0.3 inch-per-second (inch/second) PPV and commercial buildings of 0.5 inch/second PPV. The types of construction vibration impacts include human annoyance and building damage. Human annoyance is assessed based on levels of perception, with a PPV of 0.08 inch/second being considered "readily perceptible," 0.1 inch/second being perceptible and may begin to annoy receptors, 0.2 inch/second being perceptible and may annoy people within buildings, and 0.4 to 0.6 inch/second as "unpleasant;" refer to Table 1. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Construction of the proposed project would occur over approximately 33 months and would include grading, building construction, paving, and architectural coatings. Typical vibration produced by construction equipment is illustrated in Table 6, *Typical Vibration Levels for Construction Equipment*.

Table 6
Typical Vibration Levels for Construction Equipment

Equipment	Approximate peak particle velocity at 25 feet (inch/second)	Approximate peak particle velocity at 225 feet (inch/second)[1]	Approximate peak particle velocity at 165 feet (inch/second)[1]
Large bulldozer	0.089	0.0033	0.0052
Loaded trucks	0.076	0.0028	0.0045
Small bulldozer	0.003	0.0001	0.0002

Notes:
1. Calculated using the following formula:
$PPV_{equip} = PPV_{ref} \times (25/D)^{1.1}$
where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance
PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the FTA *Transit Noise and Vibration Impact Assessment Guidelines*
D = the distance from the equipment to the receiver

Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

Vibration velocities from typical heavy construction equipment operation would range from 0.003 to 0.089 inch/second PPV at 25 feet from the source of activity. The nearest structure to the project site occupied by sensitive receptors is the existing Gateway Church of Brawley located approximately 225 feet to the west when measured from the project site property line to the sensitive receptor's building façade. Vibration level during operation of construction equipment would be approximately 0.0001 inch/second PPV to 0.0033 inch/second PPV at 225 feet; refer to Table 6. Additionally, a residential community comprised of single-family residential homes is currently being constructed approximately 165 feet to the northeast when measured from the project site property line to the receptor's foundation pad. Vibration level during operation of project construction equipment would be approximately 0.0002 inch/second PPV to 0.0052 inch/second PPV at 165 feet; refer to Table 6. As a result, construction groundborne vibration would not exceed the 0.3 inch/second PPV significance threshold for vibration to the nearest residential structures and 0.5 inch/second PPV significance threshold for vibration to the nearest commercial structure (Gateway Church of Brawley). Thus, a less than significant impact would occur in this regard.

As indicated in Table 6, vibration velocities from heavy construction equipment operation would be below the 0.2 inch/second factor for human annoyance within buildings. As discussed above, 0.2 inch/second factor is the threshold in which receptors within buildings may begin to experience annoyance due to vibration velocities. It should also be noted that vibration velocities would only occur when construction equipment are operational closer to the sensitive receptors and would diminish as they move away. Additionally, construction equipment would only be operational for short periods of time, further limiting the overall vibration velocities felt by nearby sensitive receptors. Equipment would not be operational at peak vibration velocities for extended periods of time. Impacts would be less than significant in this regard.

Long-Term Operational Vibration Impacts

Level of Significance: No Impact.

The project would involve the future construction of various land uses including multi-family residential, commercial retail (strip retail plaza and shopping center), and hotel uses. These land uses are not generally associated with high levels of vibration. As such, the project would not generate substantial groundborne vibration during operation that would be felt by surrounding land uses. Additionally, the

project operation would not involve railroads or substantial heavy truck operations and therefore would not result in vibration impacts at surrounding uses. Thus, no impact would occur in this regard.

Mitigation Measures: No mitigation is required.

NOI-3 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?

Level of Significance: No Impact.

The nearest public use airport to the project site is the Brawley Municipal Airport which lies approximately 2.8 miles to the northeast of the project site. According to Exhibit 3a, *Brawley Municipal Airport Compatibility Map*, of the Brawley Municipal Airport Land Use Compatibility Map, the project site is not located within the airport CNEL contours.[15] The project site is not in the vicinity of a private airstrip. Therefore, no impact related to airport land use compatibility relative to noise would occur.

Mitigation Measures: No mitigation is required.

[15] Imperial County Planning and Development Services, *Brawley Municipal Airport Land Use Compatibility Map,* https://www.icpds.com/assets/planning/brawley-municipal-airport.pdf, accessed April 10, 2025.

REFERENCES

Documents

1. California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol,* September 2013.

2. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

3. California Department of Transportation, *Transportation Related Earthborne Vibrations*, 2002.

4. City of Brawley, *Brawley City Council & Successor Agency to Brawley Community Redevelopment Agency Regular Meeting Agenda March 19, 2024 at 6:00 p.m.,* https://www.brawley-ca.gov/assets/meetings/03192024-agenda-march-19,-2024.pdf, accessed April 10, 2025.

5. City of Brawley, *City of Brawley General Plan 2030, Table PSNE-3*, September 2008.

6. Cyril M. Harris, *Noise Control in Buildings*, 1994.

7. Imperial County Planning and Development Services, *Brawley Municipal Airport Land Use Compatibility Map,* https://www.icpds.com/assets/planning/brawley-municipal-airport.pdf, accessed April 10, 2025.

8. Cyril M. Harris, *Noise Control in Buildings*, 1994.

9. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.

10. Environmental Health Perspectives, *Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/, accessed April 10, 2025.

11. Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054)*, January 2006.

12. Federal Highway Administration, *Roadway Construction Noise Model User's Guide Appendix A*, January 2006.

13. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

14. Michael Baker International, *Brawley Mixed Use Master Plan Project - Air Quality Assessment,* April 2025.

15. Michael Baker International, *Brawley Mixed Use Master Plan Development - Traffic Analysis Update Memorandum,* , April 2025.

16. M.J. Hayne, et al, *Prediction of Crowd Noise*, Acoustics, November 2006.

Websites / Programs

1. Google Earth, 2025.

2. Roadway Construction Noise Model (Version 1.1), 2008.

Appendix A
Noise Data

Site Number: NM-1	
Recorded By: Dennis Dinh, Oscar Escobar	
Job Number: 202590	
Date: 9/12/2024	
Time: 12:10 p.m.	
Location: In front of 102 Riata Street	
Source of Ambient Noise: Traffic along Riata Street and Western Avenue	

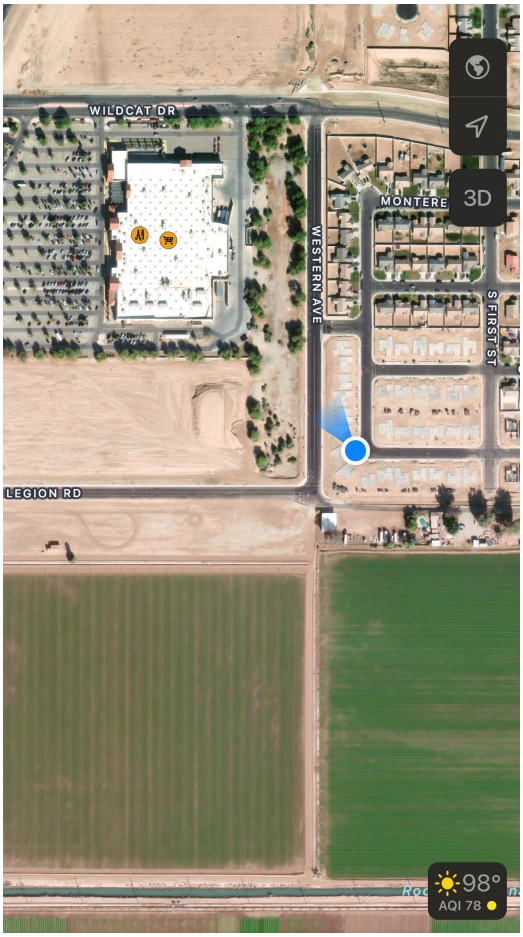
Noise Data		
L_{eq} (dB)	L_{max}(dB)	L_{min} (dB)
49.3	70.8	40.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**06/04/2023**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**06/04/2023**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**06/04/2023**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**06/04/2023**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset = 0.03		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	5	98	29.57

Photo of Measurement Location





2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		09/12/2024 12:10:29
End Time:		09/12/2024 12:20:29
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.23

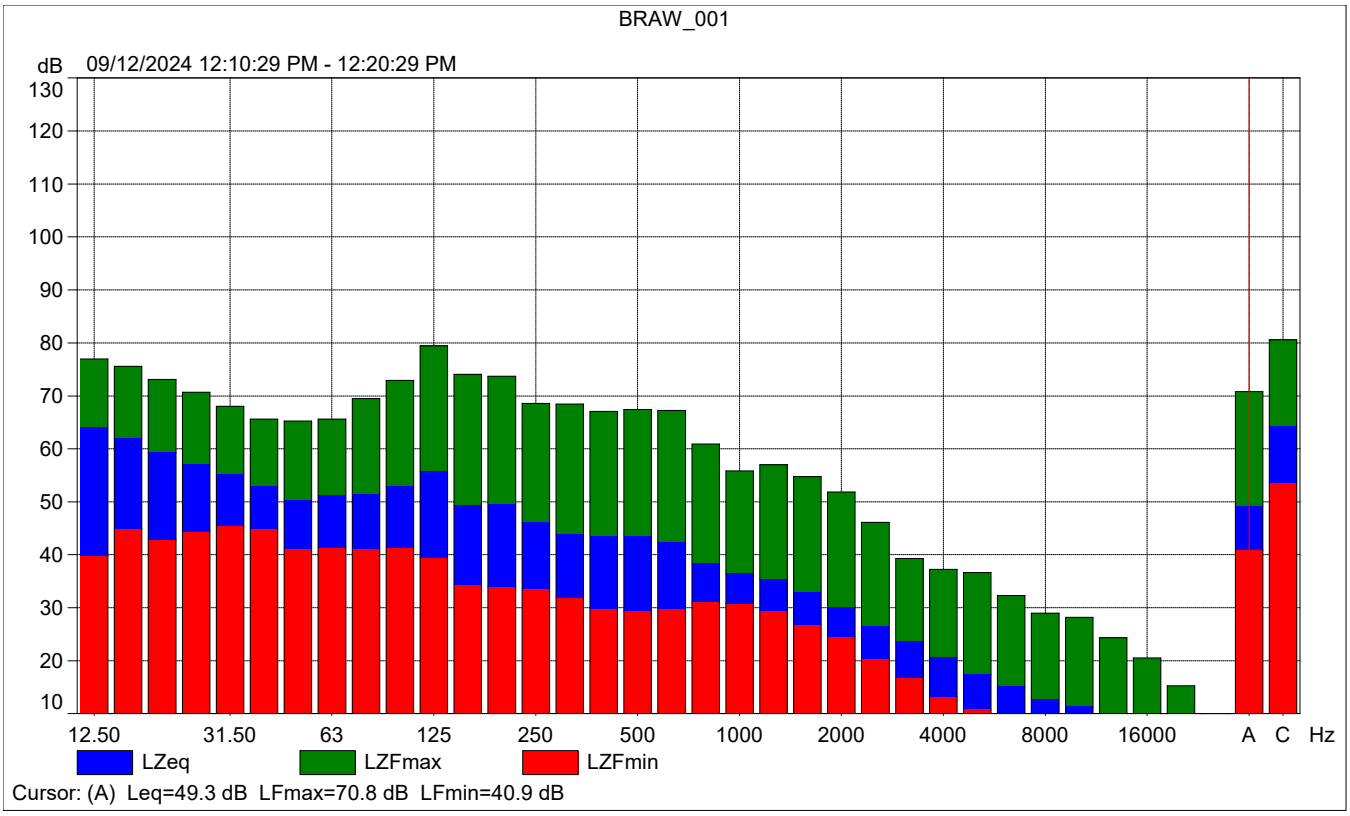
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

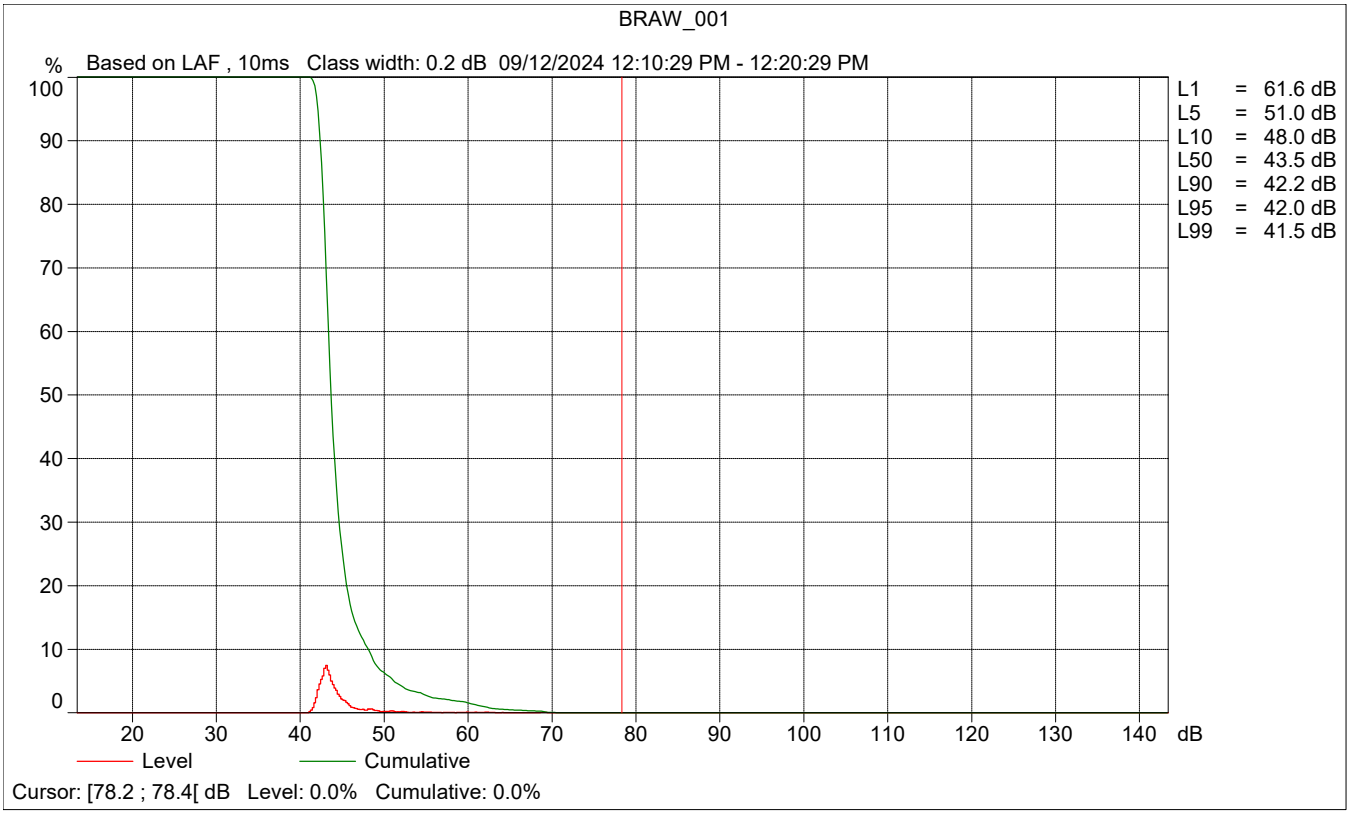
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

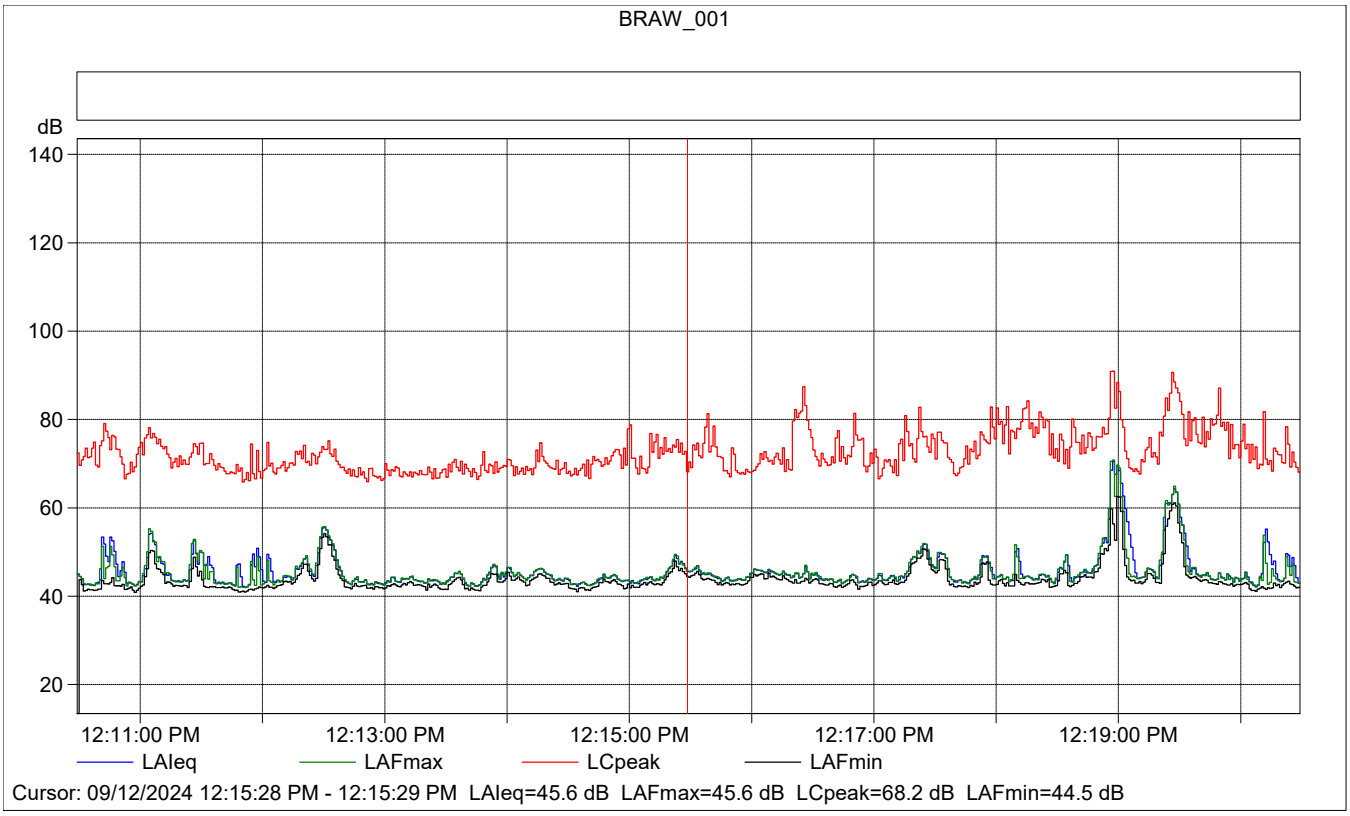
Calibration Time:		09/12/2024 12:01:56
Calibration Type:		External reference
Sensitivity:		43.0958047509193 mV/Pa

BRAW_001

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	49.3	70.8	40.9
Time	12:10:29 PM	12:20:29 PM	0:10:00				
Date	09/12/2024	09/12/2024					

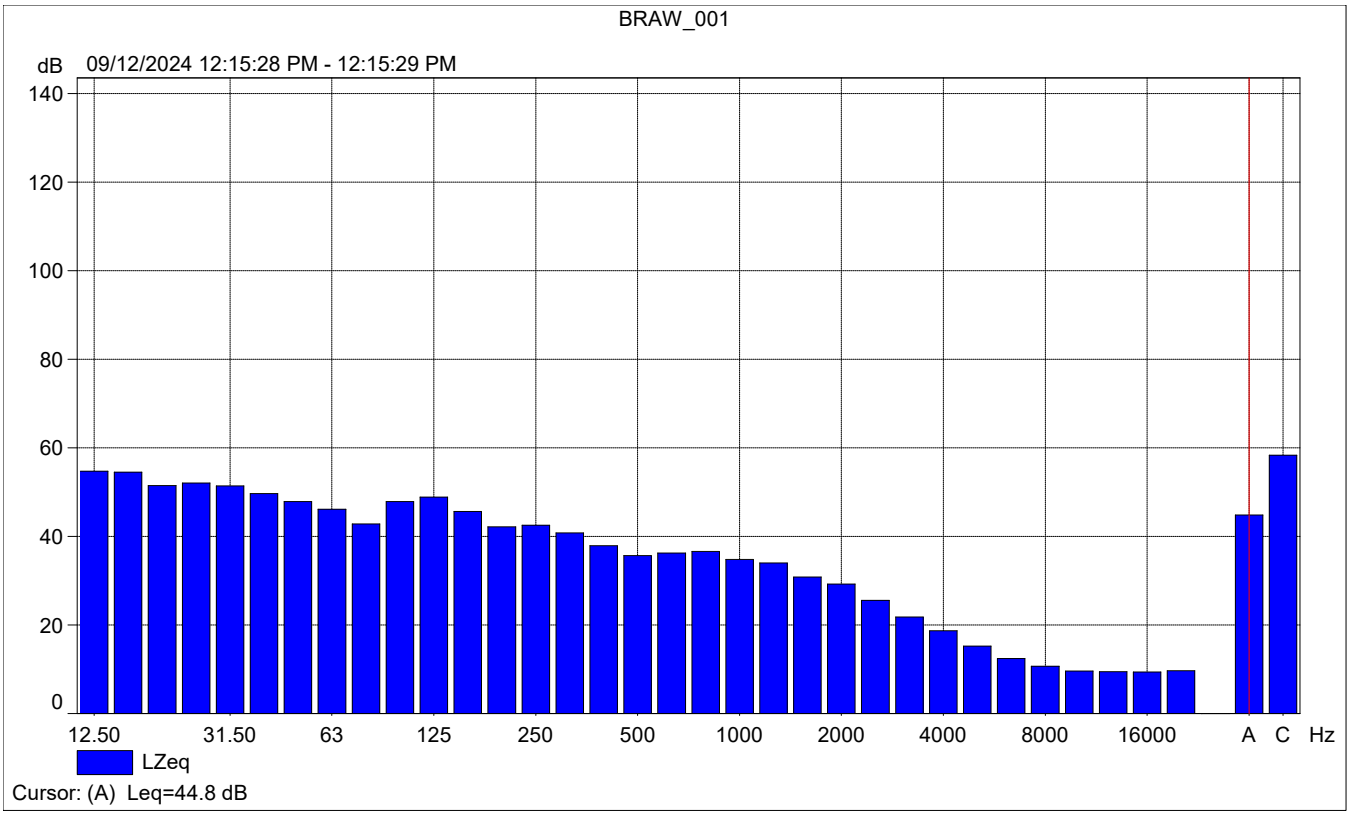

BRAW_001
dB
09/12/2024 12:10:29 PM - 12:20:29 PM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=49.3 dB LFmax=70.8 dB LFmin=40.9 dB

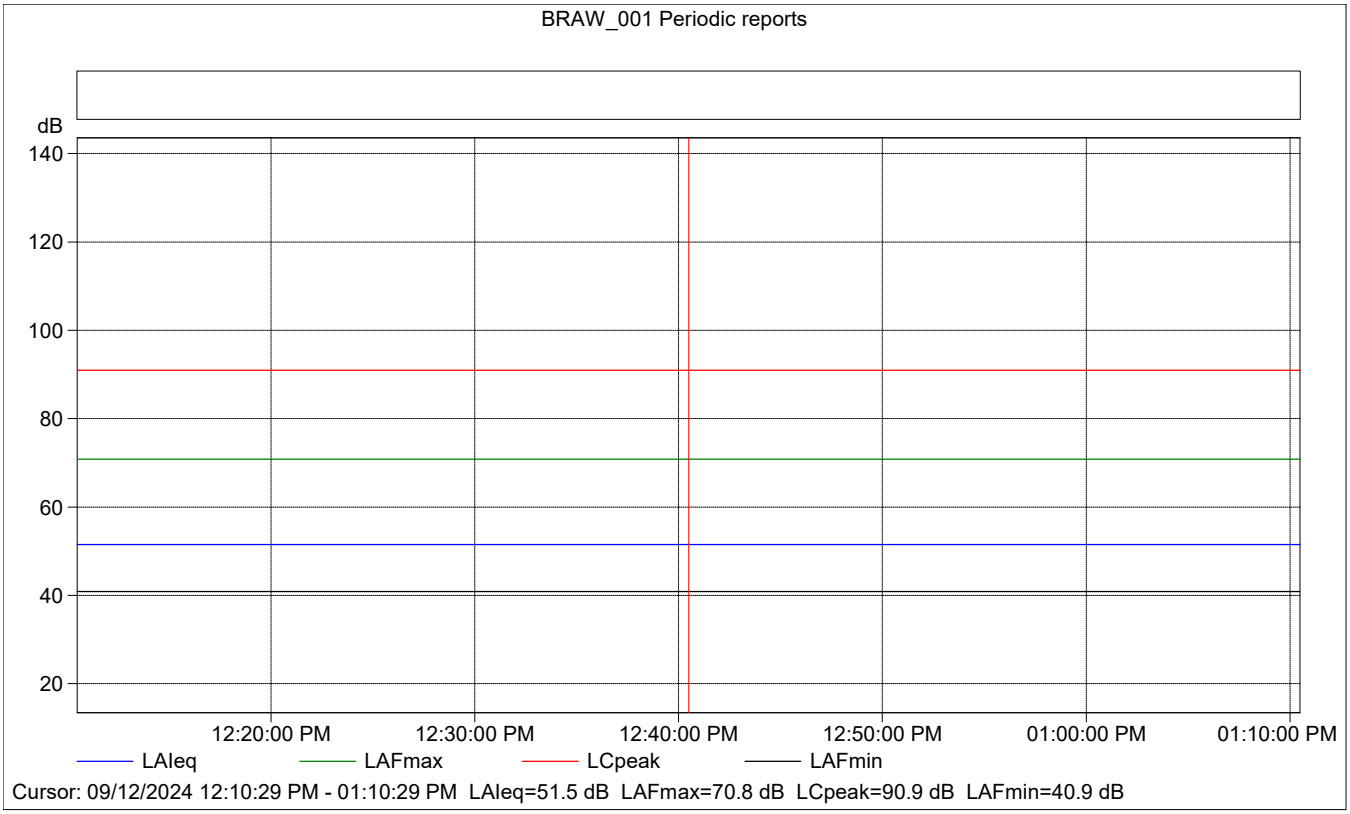

BRAW_001
%
Based on LAF , 10ms Class width: 0.2 dB 09/12/2024 12:10:29 PM - 12:20:29 PM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 61.6 dB
L5 = 51.0 dB
L10 = 48.0 dB
L50 = 43.5 dB
L90 = 42.2 dB
L95 = 42.0 dB
L99 = 41.5 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%



BRAW_001

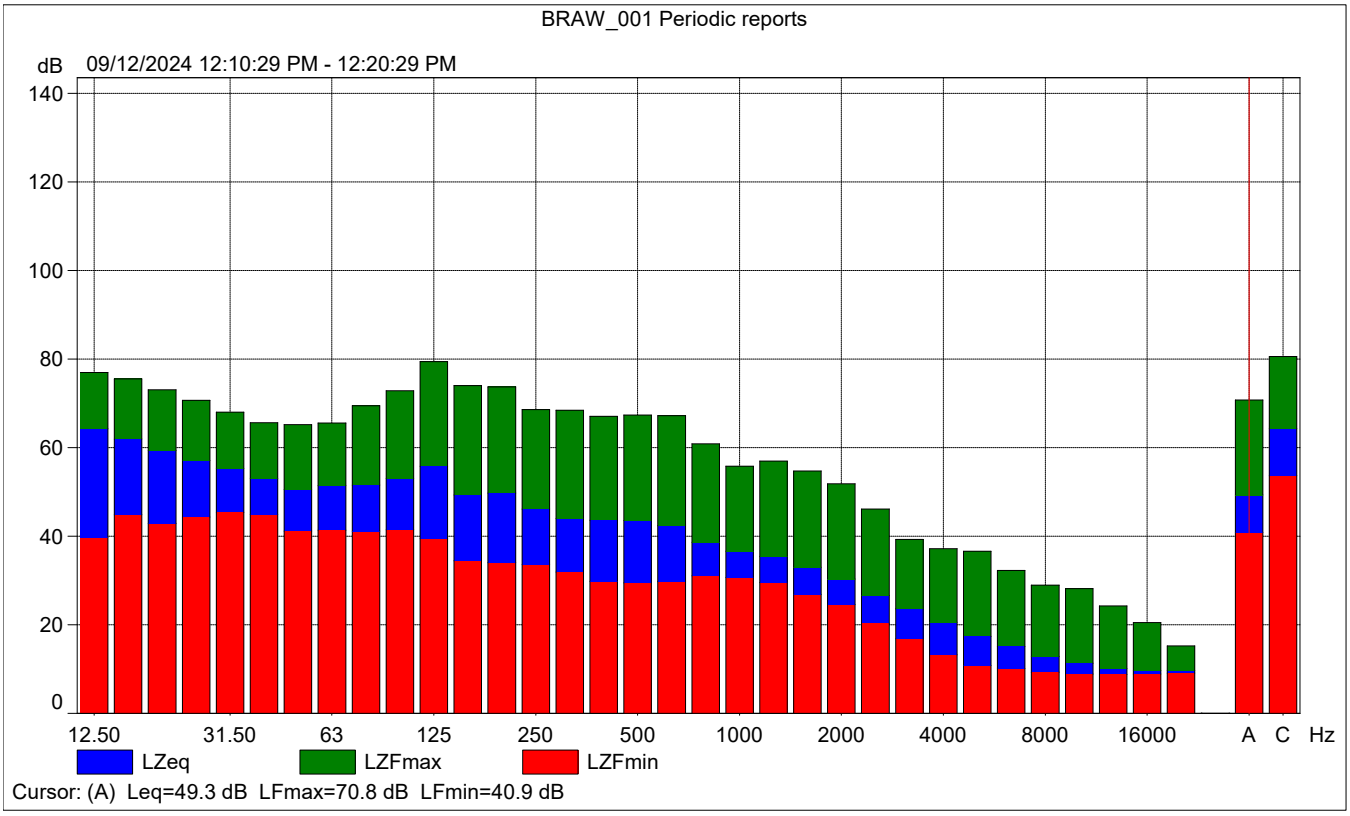
	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	45.6	45.6	44.5
Time	12:15:28 PM	0:00:01				
Date	09/12/2024					

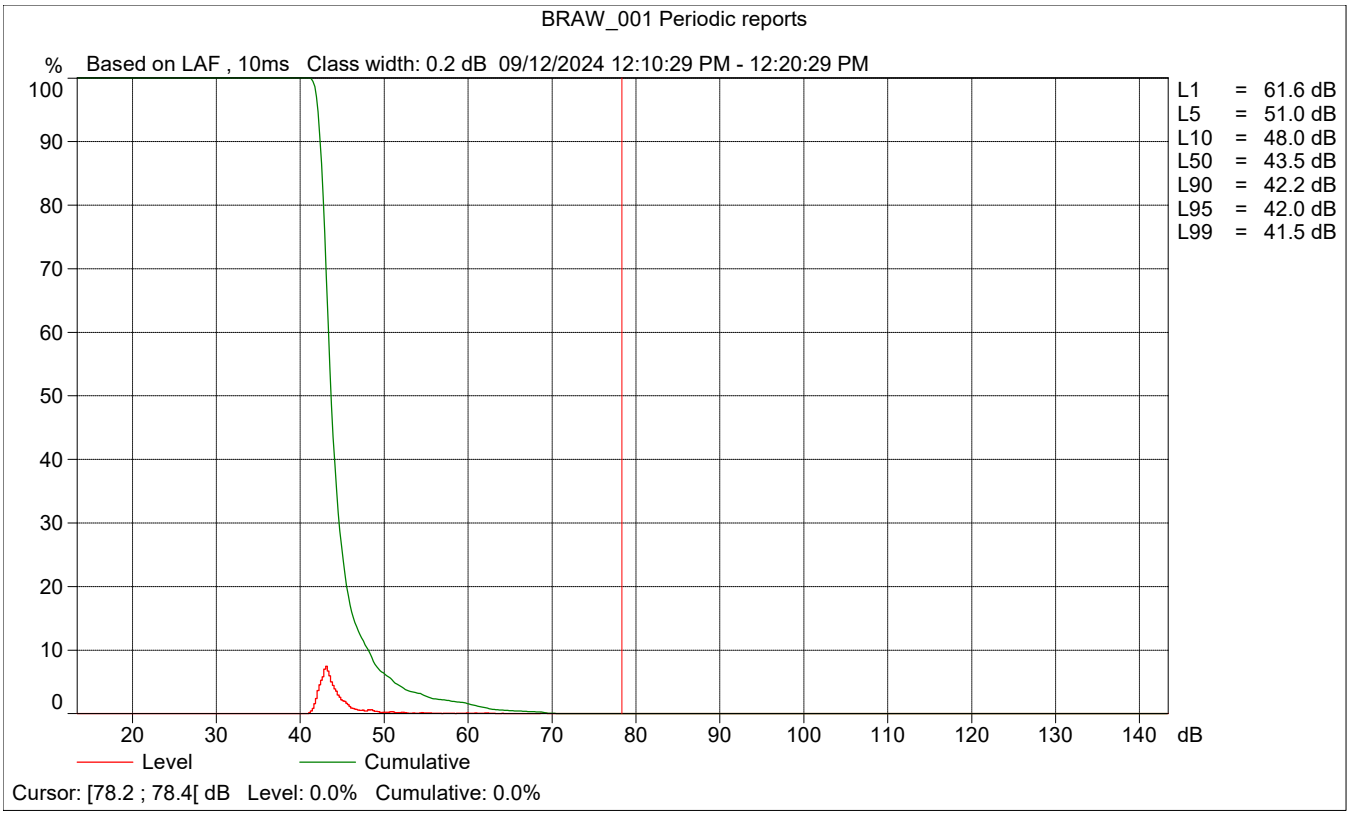

BRAW_001
dB
09/12/2024 12:15:28 PM - 12:15:29 PM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=44.8 dB


BRAW_001 Periodic reports
dB
140
120
100
80
60
40
20
12:20:00 PM
12:30:00 PM
12:40:00 PM
12:50:00 PM
01:00:00 PM
01:10:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 09/12/2024 12:10:29 PM - 01:10:29 PM LAIeq=51.5 dB LAFmax=70.8 dB LCpeak=90.9 dB LAFmin=40.9 dB

BRAW_001 Periodic reports

	Start time	Elapsed time	Overload [%]	LAleq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	51.5	70.8	40.9
Time	12:10:29 PM	0:10:00				
Date	09/12/2024					




BRAW_001 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 09/12/2024 12:10:29 PM - 12:20:29 PM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 61.6 dB
L5 = 51.0 dB
L10 = 48.0 dB
L50 = 43.5 dB
L90 = 42.2 dB
L95 = 42.0 dB
L99 = 41.5 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%

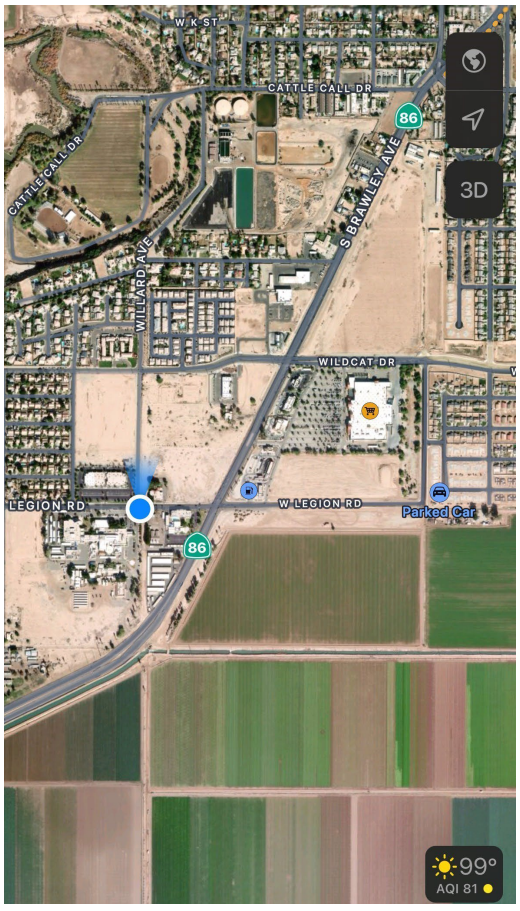
Site Number: NM-2		
Recorded By: Dennis Dinh, Oscar Escobar		
Job Number: 202590		
Date: 9/12/2024		
Time: 12:31 p.m.		
Location: Southwest corner of the West Legion Road and Williams Avenue intersection		
Source of Ambient Noise: Traffic along West Legion Road		
Noise Data		
L_{eq} (dB)	**L_{max}(dB)**	**L_{min} (dB)**
62.2	78.6	45.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**06/04/2023**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**06/04/2023**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**06/04/2023**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**06/04/2023**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset = 0.03		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	5	98	29.57

Photo of Measurement Location





2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		09/12/2024 12:31:07
End Time:		09/12/2024 12:41:07
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.23

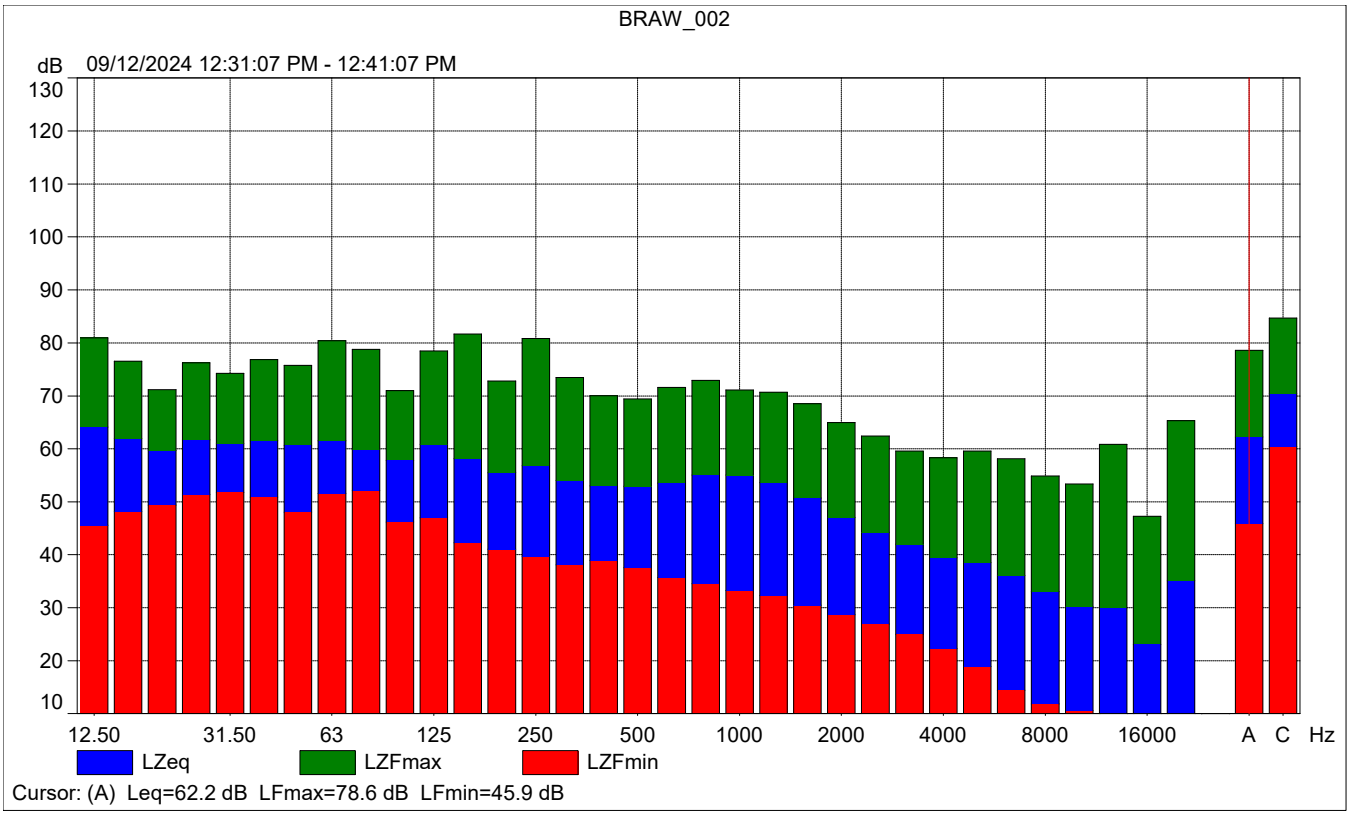
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

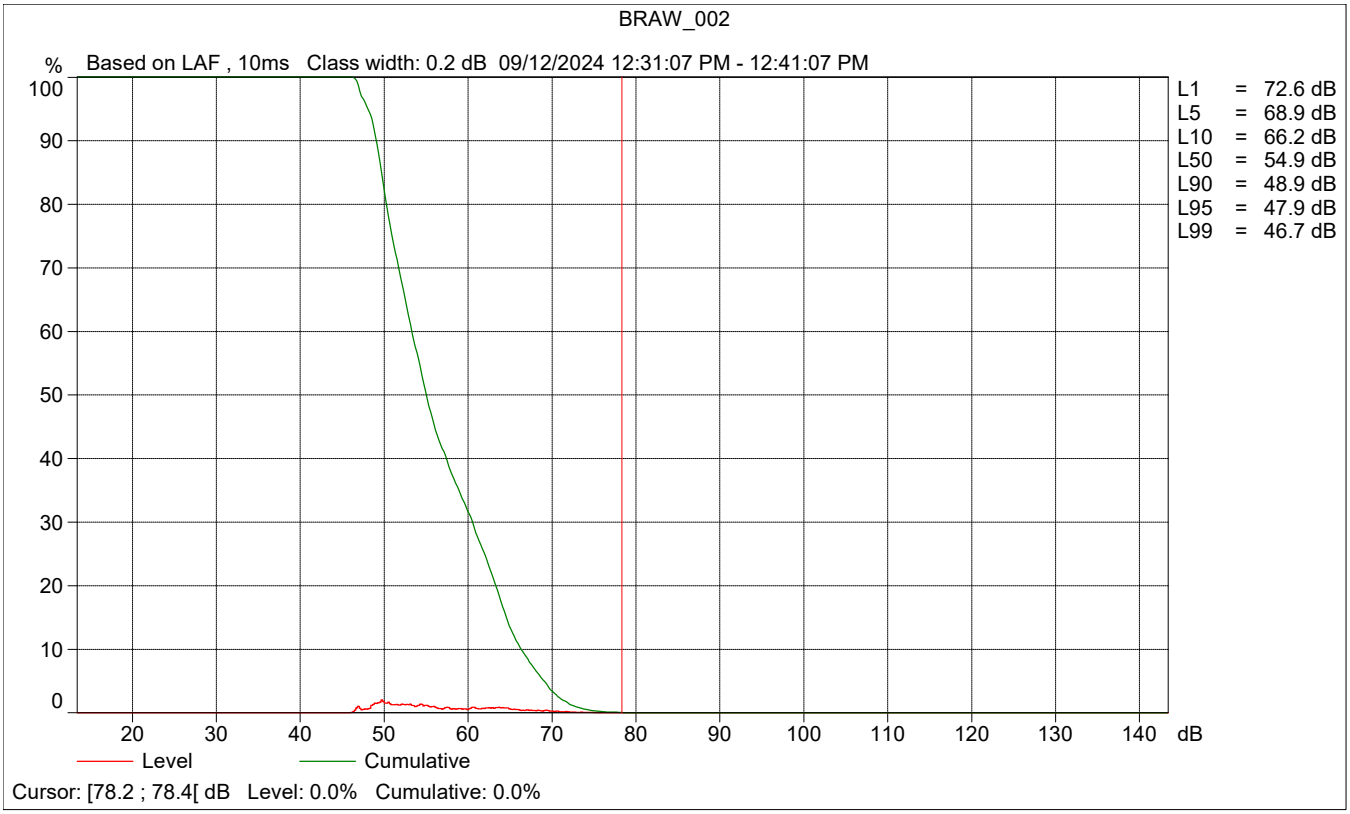
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

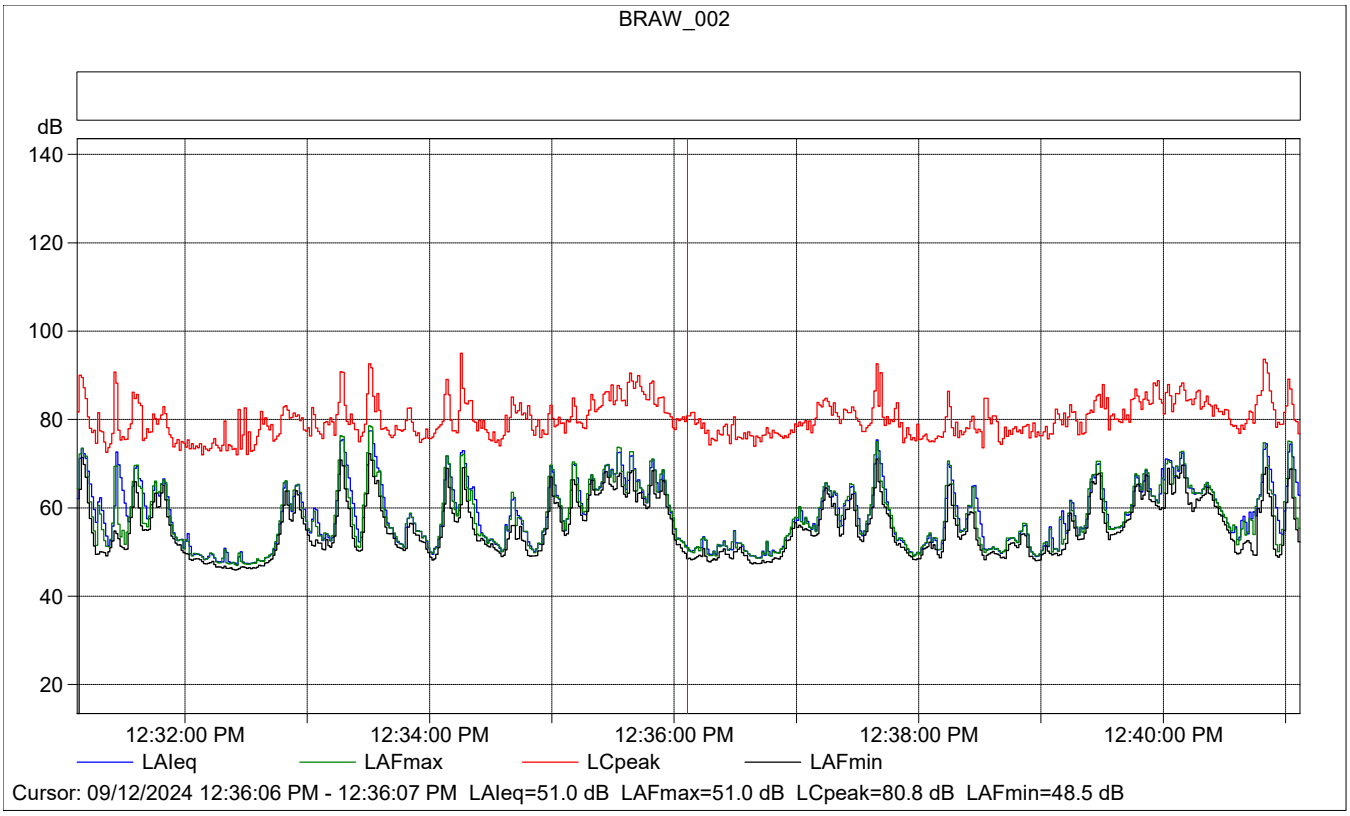
Calibration Time:		09/12/2024 12:01:56
Calibration Type:		External reference
Sensitivity:		43.0958047509193 mV/Pa

BRAW_002

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	62.2	78.6	45.9
Time	12:31:07 PM	12:41:07 PM	0:10:00				
Date	09/12/2024	09/12/2024					

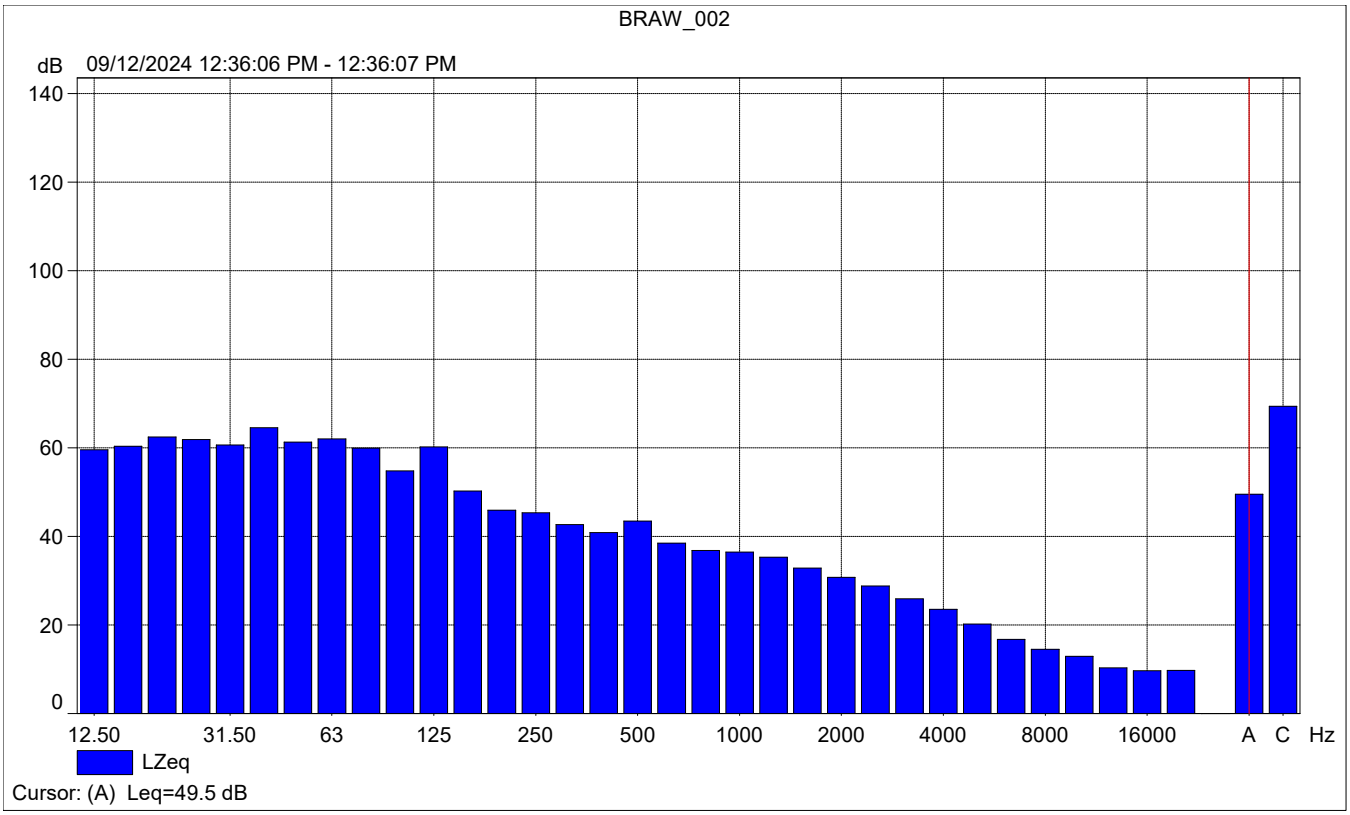

BRAW_002
dB
09/12/2024 12:31:07 PM - 12:41:07 PM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=62.2 dB LFmax=78.6 dB LFmin=45.9 dB

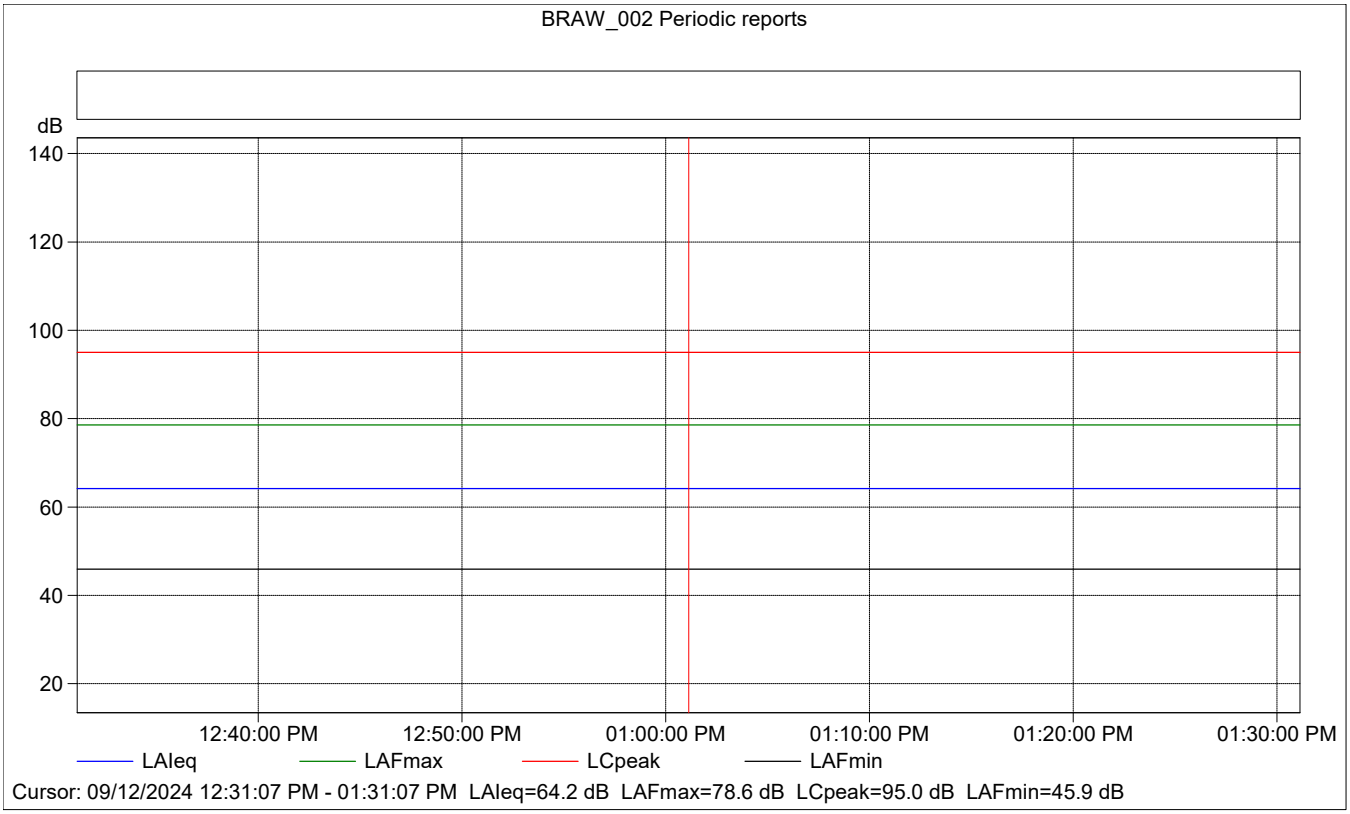

BRAW_002
%
Based on LAF , 10ms Class width: 0.2 dB 09/12/2024 12:31:07 PM - 12:41:07 PM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 72.6 dB
L5 = 68.9 dB
L10 = 66.2 dB
L50 = 54.9 dB
L90 = 48.9 dB
L95 = 47.9 dB
L99 = 46.7 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%



BRAW_002

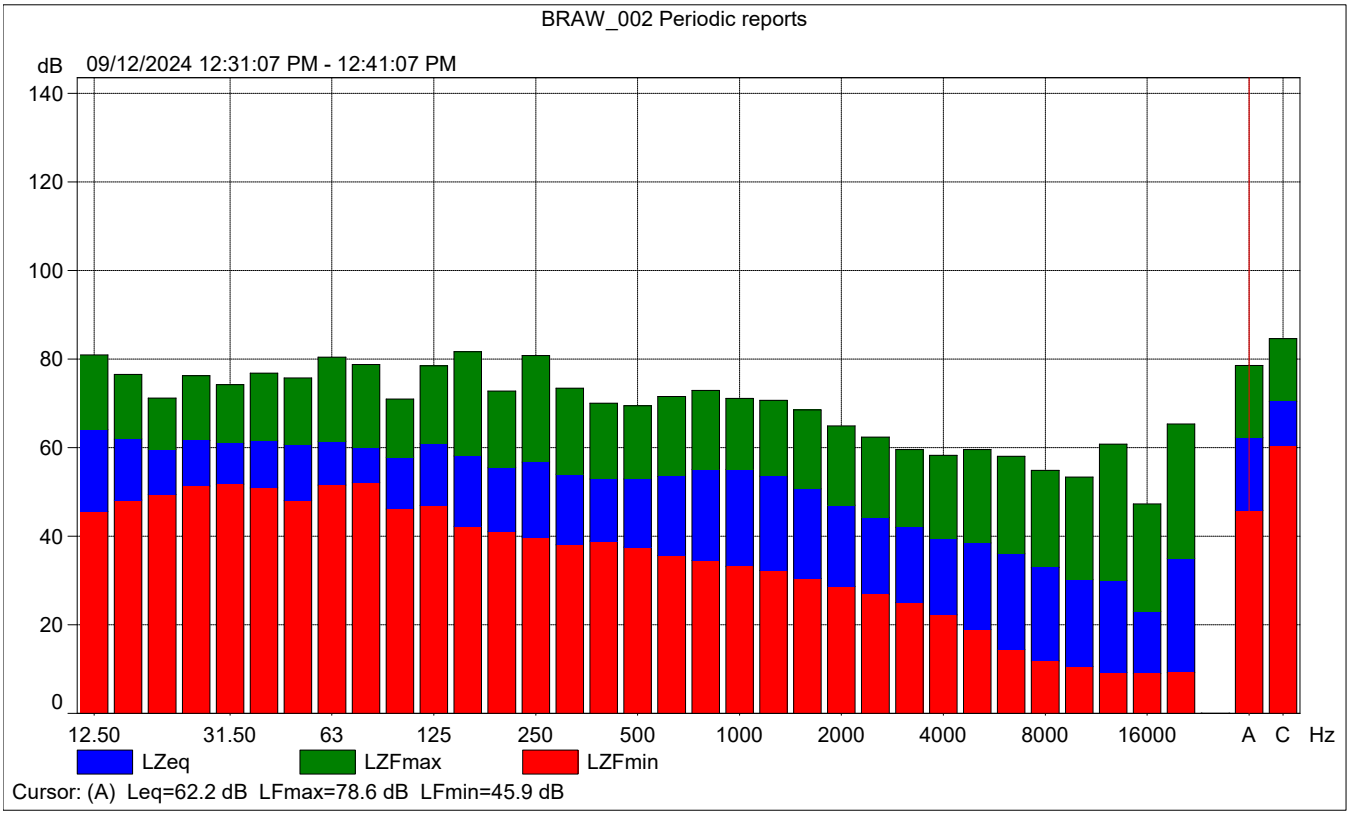
	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	51.0	51.0	48.5
Time	12:36:06 PM	0:00:01				
Date	09/12/2024					

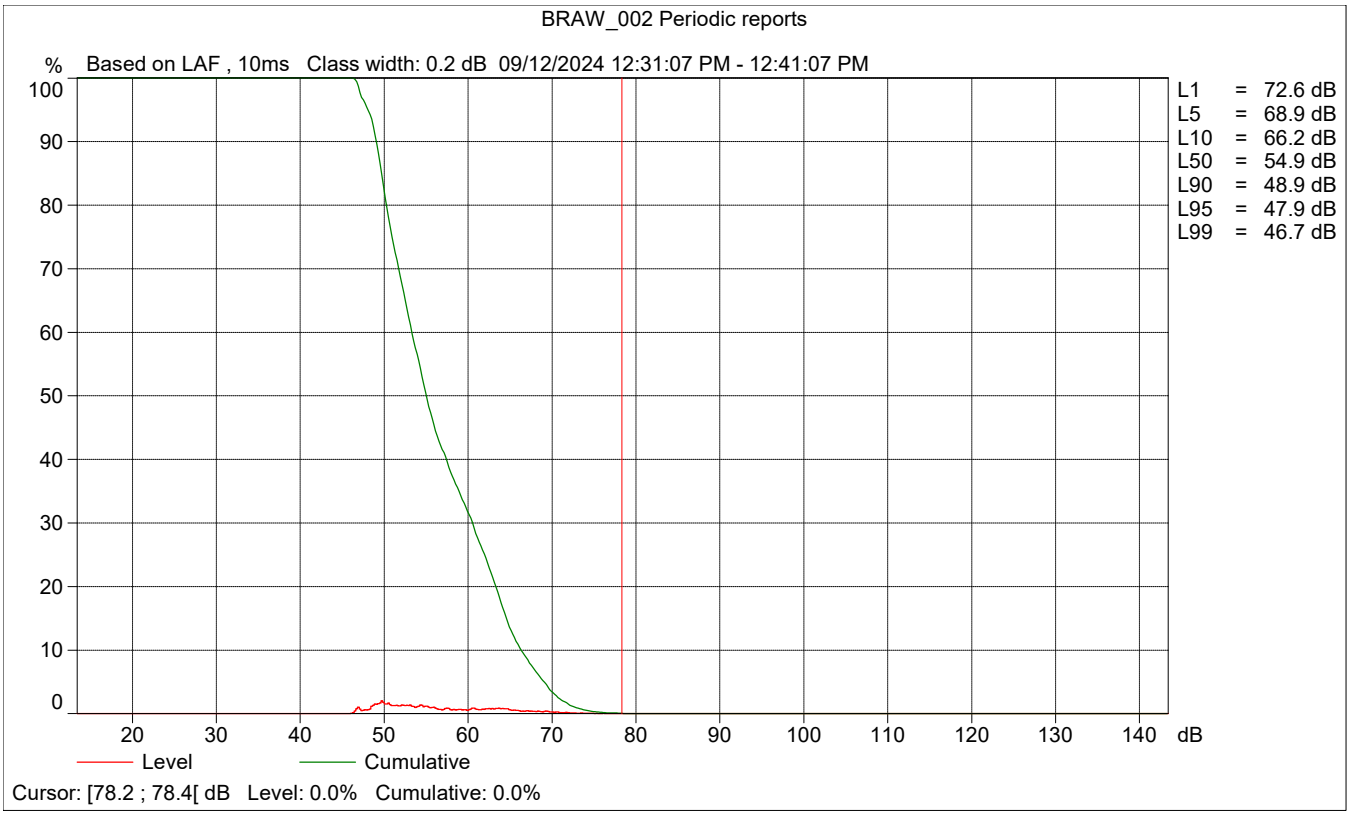

BRAW_002
dB
09/12/2024 12:36:06 PM - 12:36:07 PM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=49.5 dB


BRAW_002 Periodic reports
dB
140
120
100
80
60
40
20
12:40:00 PM
12:50:00 PM
01:00:00 PM
01:10:00 PM
01:20:00 PM
01:30:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 09/12/2024 12:31:07 PM - 01:31:07 PM LAIeq=64.2 dB LAFmax=78.6 dB LCpeak=95.0 dB LAFmin=45.9 dB

BRAW_002 Periodic reports

	Start time	Elapsed time	Overload [%]	LAleq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	64.2	78.6	45.9
Time	12:31:07 PM	0:10:00				
Date	09/12/2024					




BRAW_002 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 09/12/2024 12:31:07 PM - 12:41:07 PM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 72.6 dB
L5 = 68.9 dB
L10 = 66.2 dB
L50 = 54.9 dB
L90 = 48.9 dB
L95 = 47.9 dB
L99 = 46.7 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%

Site Number: NM-3	
Recorded By: Dennis Dinh, Oscar Escobar	
Job Number: 202590	
Date: 9/12/2024	
Time: 12:47 p.m.	
Location: Approximately 600 feet west of the Highway 86 and Panno Drive intersection	
Source of Ambient Noise: Traffic along Panno Drive	

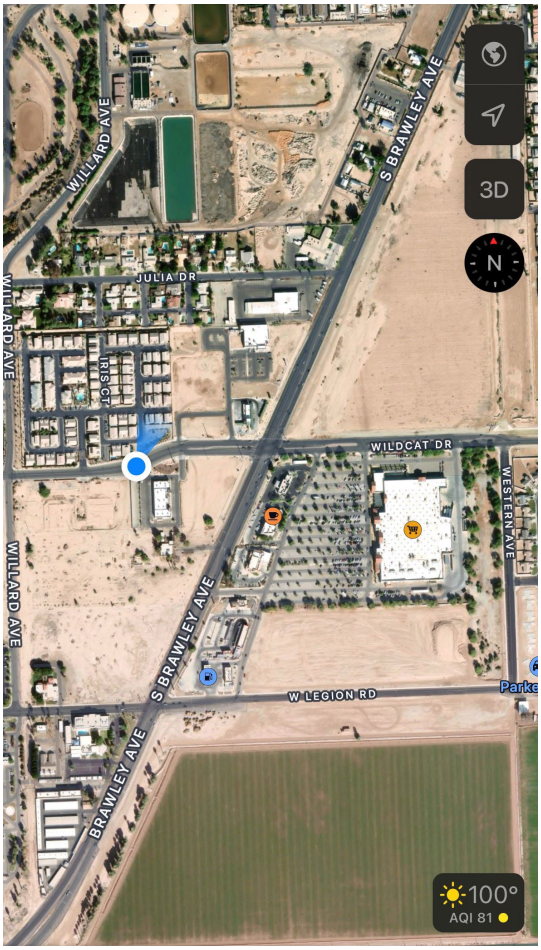
Noise Data		
L_{eq} (dB)	L_{max}(dB)	L_{min} (dB)
60.0	75.3	39.6

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**06/04/2023**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**06/04/2023**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**06/04/2023**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**06/04/2023**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset = 0.03		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	5	98	29.57

Photo of Measurement Location





2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		09/12/2024 12:47:19
End Time:		09/12/2024 12:57:19
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.23

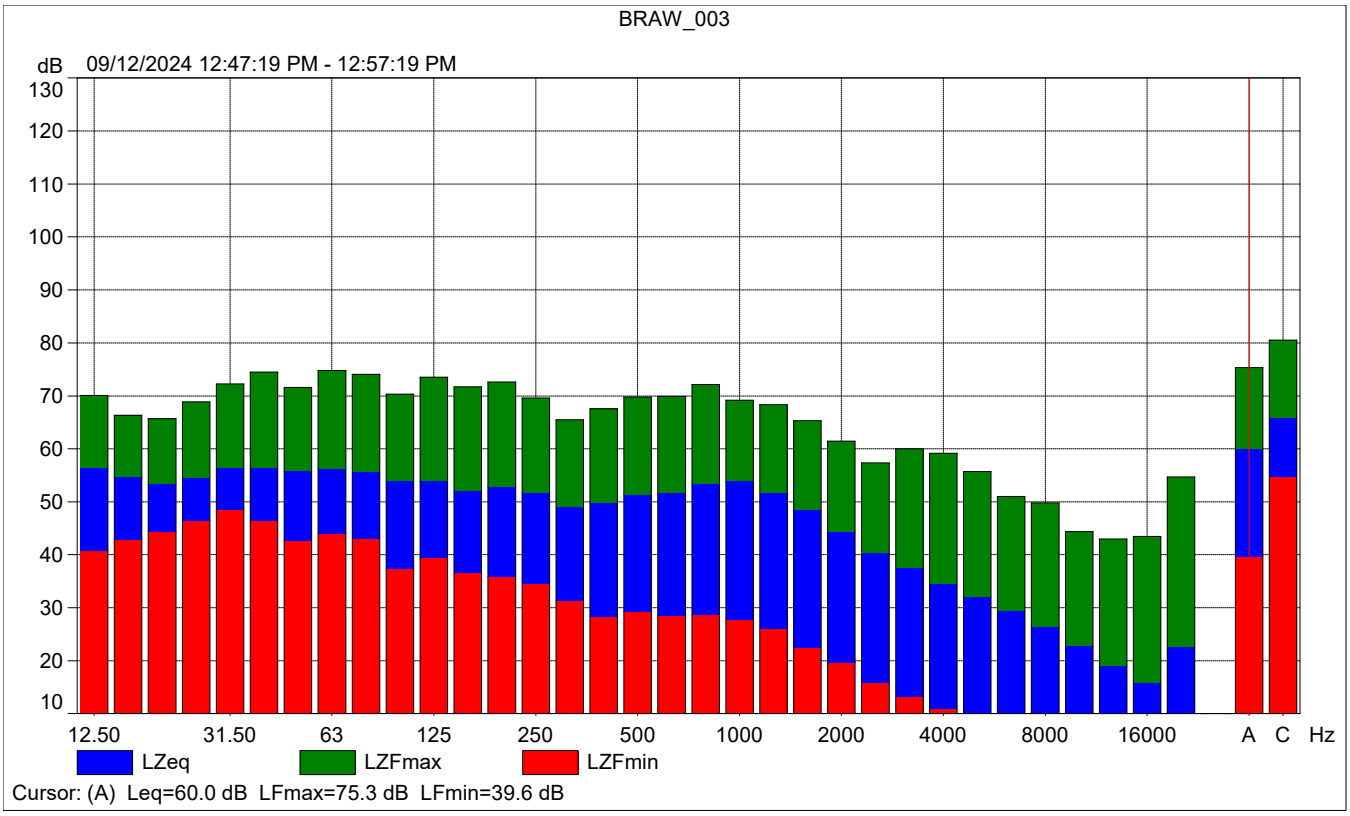
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

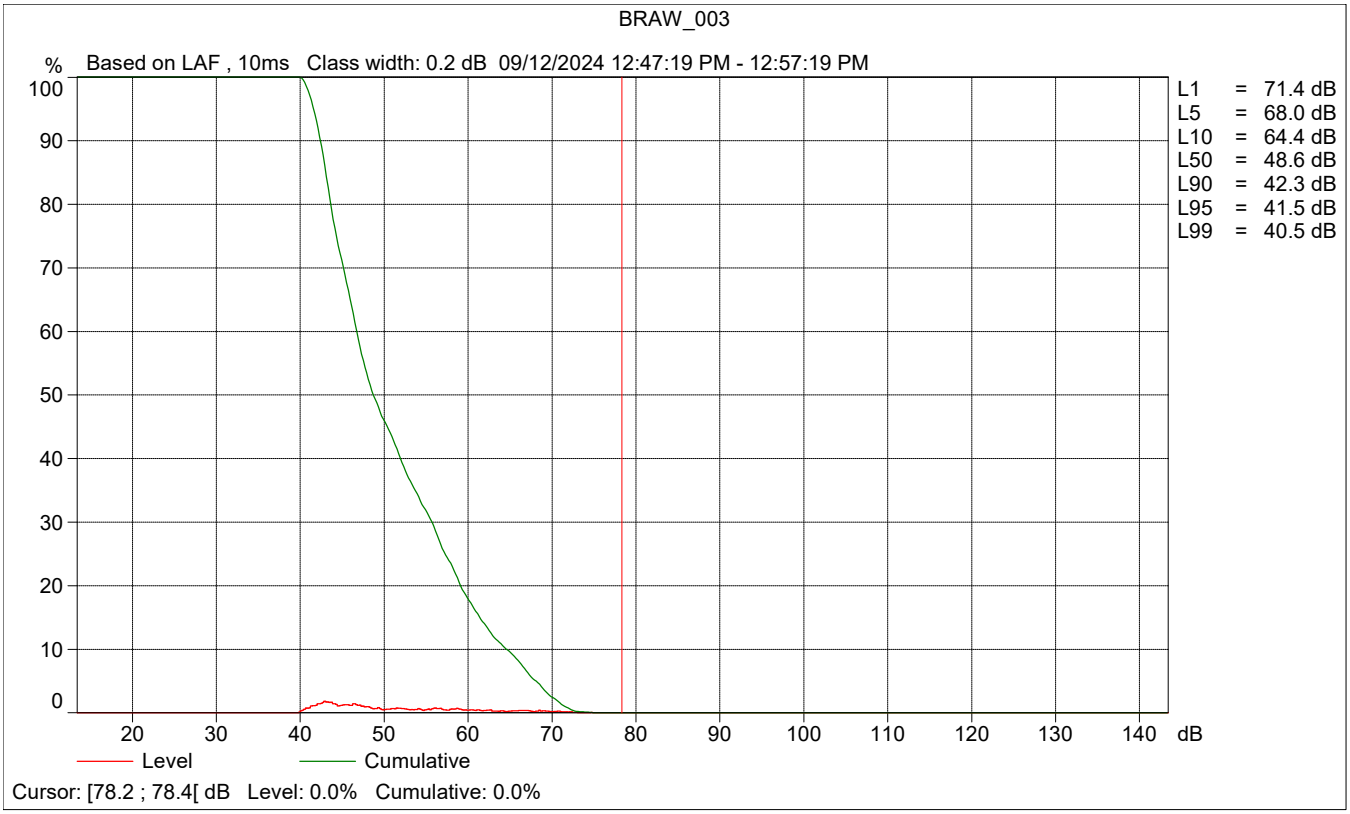
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

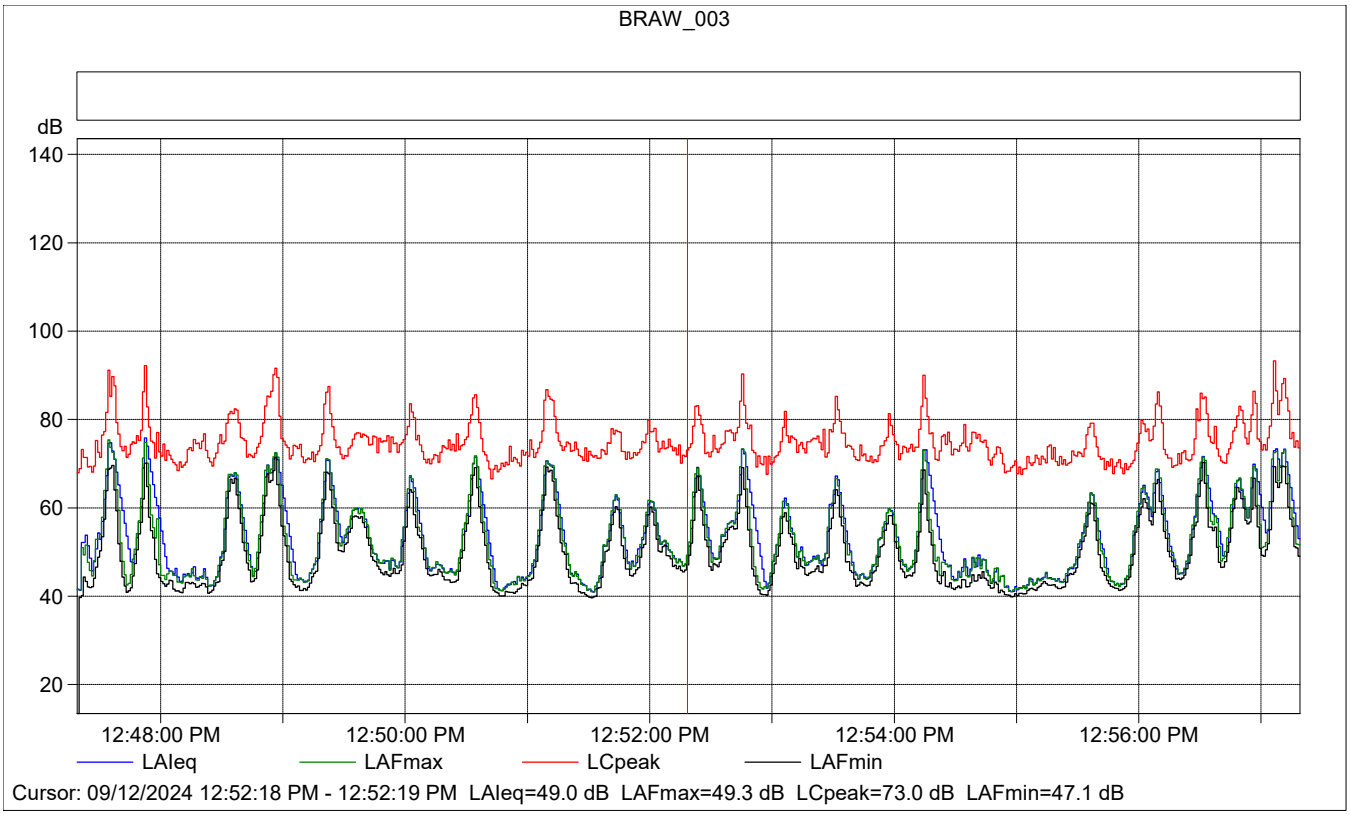
Calibration Time:		09/12/2024 12:01:56
Calibration Type:		External reference
Sensitivity:		43.0958047509193 mV/Pa

BRAW_003

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	60.0	75.3	39.6
Time	12:47:19 PM	12:57:19 PM	0:10:00				
Date	09/12/2024	09/12/2024					

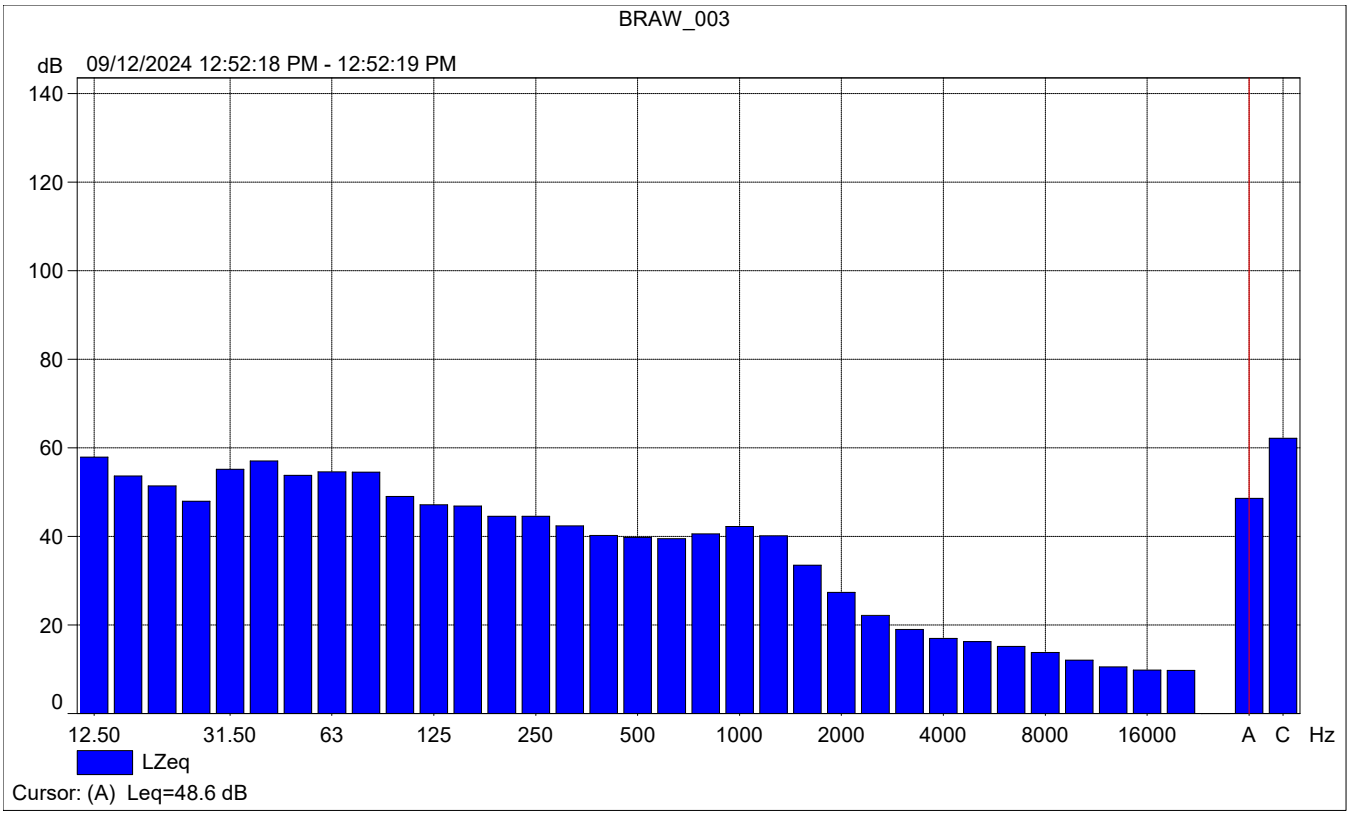

BRAW_003
dB
09/12/2024 12:47:19 PM - 12:57:19 PM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=60.0 dB LFmax=75.3 dB LFmin=39.6 dB

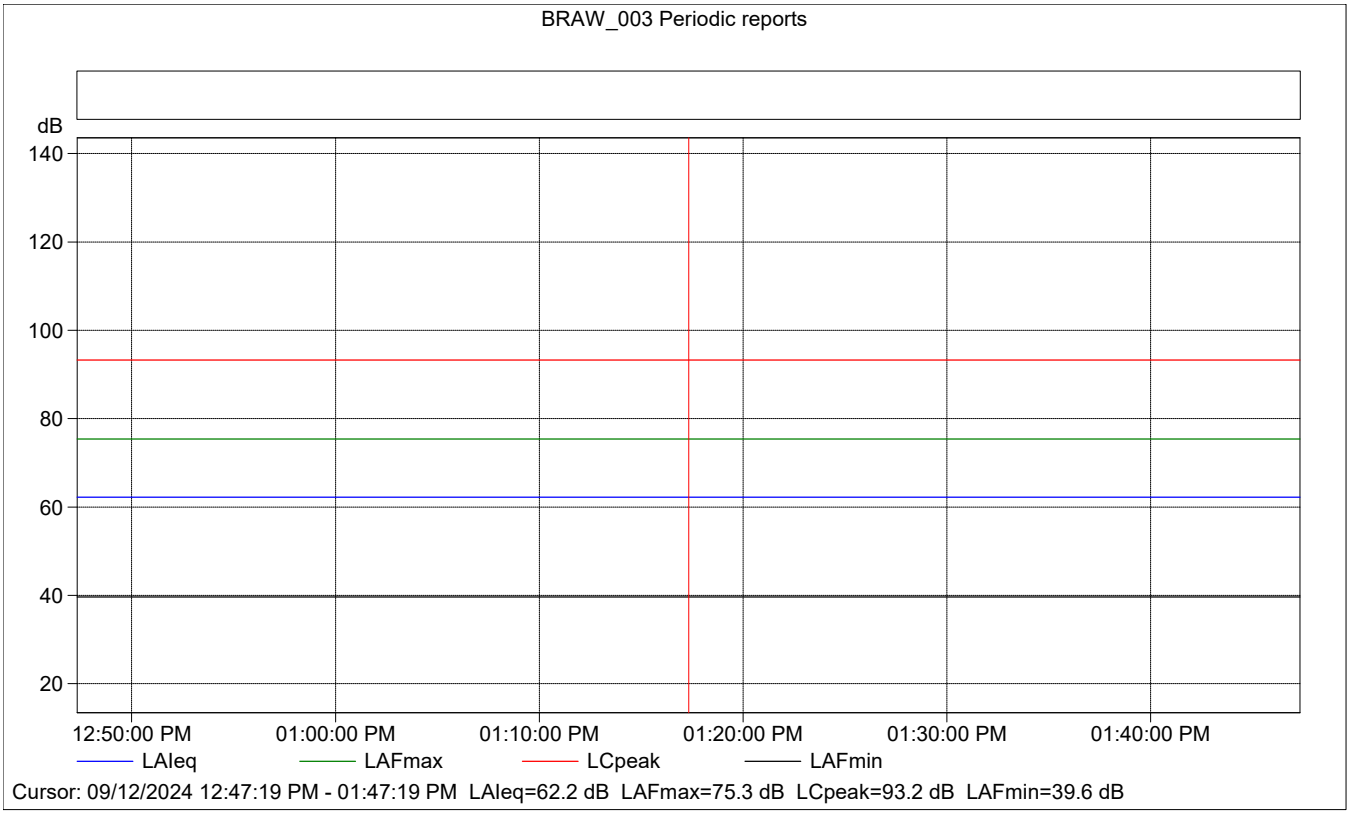

BRAW_003
%
Based on LAF , 10ms Class width: 0.2 dB 09/12/2024 12:47:19 PM - 12:57:19 PM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 71.4 dB
L5 = 68.0 dB
L10 = 64.4 dB
L50 = 48.6 dB
L90 = 42.3 dB
L95 = 41.5 dB
L99 = 40.5 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%



BRAW_003

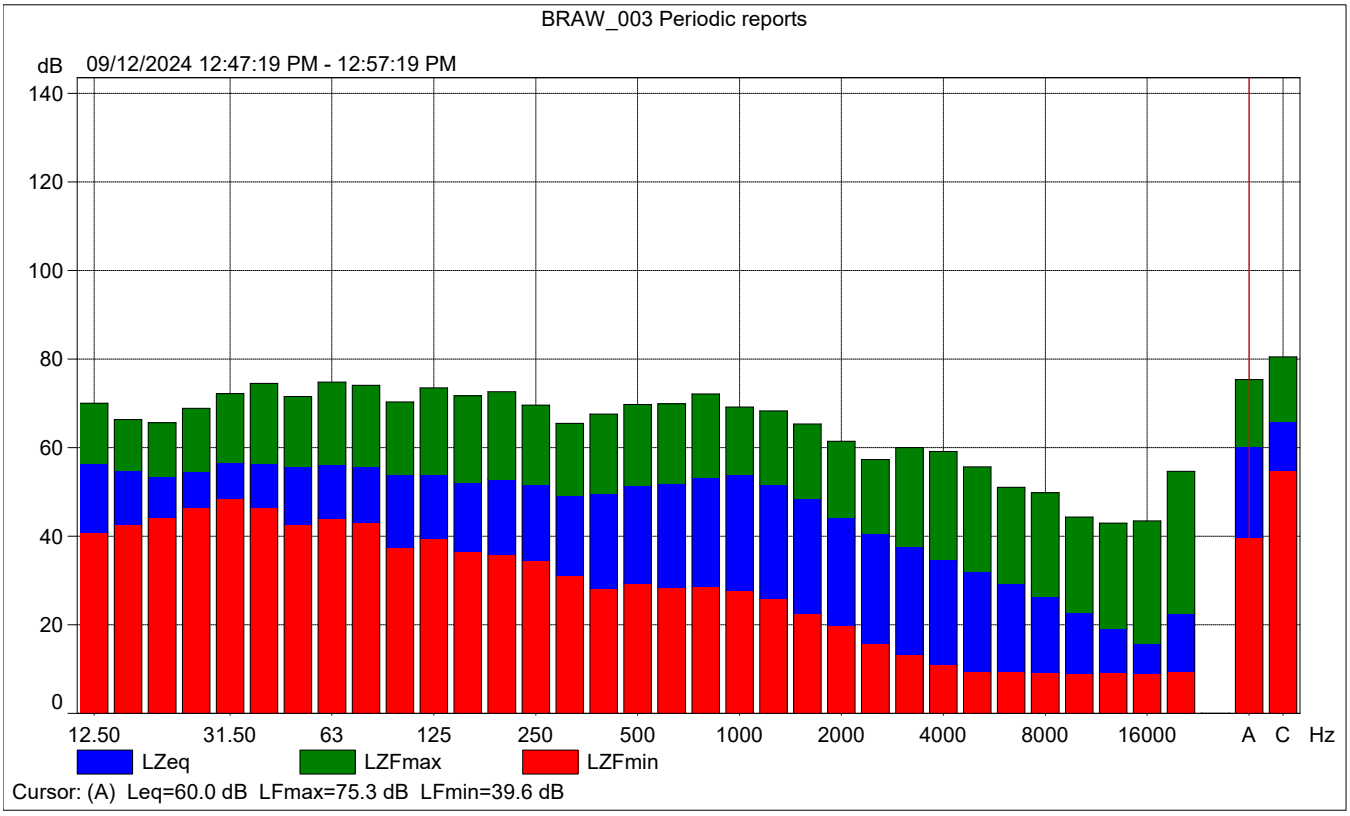
	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	49.0	49.3	47.1
Time	12:52:18 PM	0:00:01				
Date	09/12/2024					

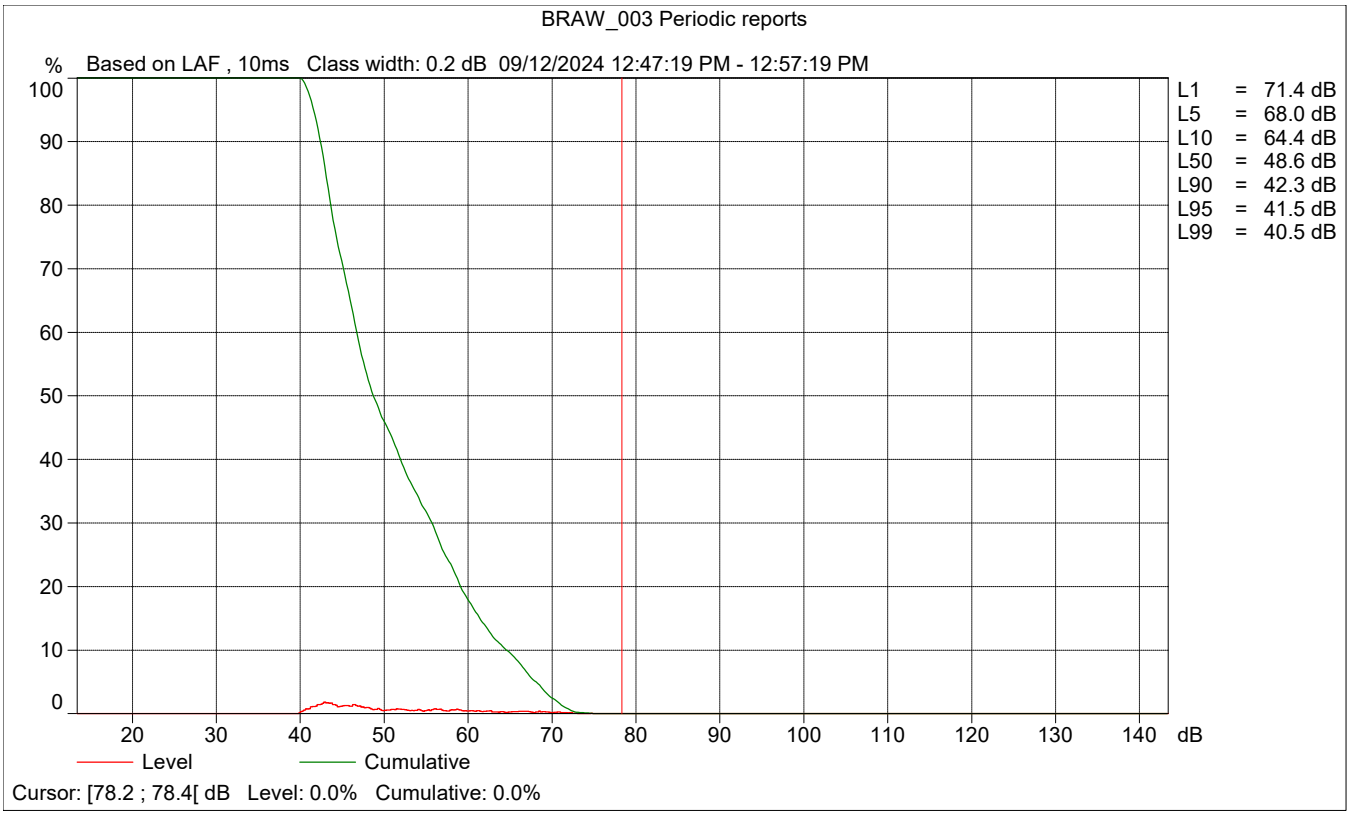

BRAW_003
dB
09/12/2024 12:52:18 PM - 12:52:19 PM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=48.6 dB


BRAW_003 Periodic reports
dB
140
120
100
80
60
40
20
12:50:00 PM
01:00:00 PM
01:10:00 PM
01:20:00 PM
01:30:00 PM
01:40:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 09/12/2024 12:47:19 PM - 01:47:19 PM LAIeq=62.2 dB LAFmax=75.3 dB LCpeak=93.2 dB LAFmin=39.6 dB

BRAW_003 Periodic reports

	Start time	Elapsed time	Overload [%]	LAleq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	62.2	75.3	39.6
Time	12:47:19 PM	0:10:00				
Date	09/12/2024					




BRAW_003 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 09/12/2024 12:47:19 PM - 12:57:19 PM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 71.4 dB
L5 = 68.0 dB
L10 = 64.4 dB
L50 = 48.6 dB
L90 = 42.3 dB
L95 = 41.5 dB
L99 = 40.5 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.0%

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Grading

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Fam	Residential	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1405	0
Excavator	No	40		80.7	1405	0
Grader	No	40	85		1405	0
Dozer	No	40		81.7	1405	0
Scraper	No	40		83.6	1405	0
Scraper	No	40		83.6	1405	0
Tractor	No	40	84		1405	0
Tractor	No	40	84		1405	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
Excavator	51.7	47.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	51.7	47.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	56	52	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	52.7	48.7	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	54.6	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	54.6	50.6	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	55	51	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	55	51	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	56	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Church	Commercia	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1205	0
Excavator	No	40		80.7	1205	0
Grader	No	40	85		1205	0
Dozer	No	40		81.7	1205	0
Scraper	No	40		83.6	1205	0
Scraper	No	40		83.6	1205	0
Tractor	No	40	84		1205	0
Tractor	No	40	84		1205	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
Excavator	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	57.4	53.4	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	54	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	55.9	52	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	55.9	52	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	56.4	52.4	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	56.4	52.4	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	57.4	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date ########
Case Descr Construction

---- Receptor #1 ----

	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Fam Residential		65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1405	0
Pickup Truck	No	40		75	1405	0
Pickup Truck	No	40		75	1405	0
Pickup Truck	No	40		75	1405	0
Generator	No	50		80.6	1405	0
Tractor	No	40	84		1405	0
Tractor	No	40	84		1405	0
Tractor	No	40	84		1405	0
Welder / Torch	No	40		74	1405	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
Crane	51.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	46	42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	46	42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	46	42	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	51.7	48.6	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	55	51	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	55	51	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	55	51	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	45	41	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	55	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Church	Commercia	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1205	0
Pickup Truck	No	40		75	1205	0
Pickup Truck	No	40		75	1205	0
Pickup Truck	No	40		75	1205	0
Generator	No	50		80.6	1205	0
Tractor	No	40	84		1205	0
Tractor	No	40	84		1205	0
Tractor	No	40	84		1205	0
Welder / Torch	No	40		74	1205	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
Crane	52.9	45	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	47.4	43.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	47.4	43.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	47.4	43.4	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	53	50	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	56.4	52.4	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	56.4	52.4	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	56.4	52.4	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	46.4	42.4	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	56.4	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Fam	Residential	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1405	0
Paver	No	50		77.2	1405	0
Paver	No	50		77.2	1405	0
Paver	No	50		77.2	1405	0
Roller	No	20		80	1405	0
Roller	No	20		80	1405	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	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	51	44	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	51	44	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	51	52.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Church	Commercia	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1205	0
Paver	No	50		77.2	1205	0
Paver	No	50		77.2	1205	0
Paver	No	50		77.2	1205	0
Roller	No	20		80	1205	0
Roller	No	20		80	1205	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	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	49.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	52.4	45.4	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	52.4	45.4	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	52.4	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date ########
Case Descr Coating

				---- Receptor #1 ----			
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Single-Fam	Residential	65	65	65			

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	1405	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
Compressor (air)	48.7	44.7	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	48.7	44.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

				---- Receptor #2 ----			
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Church	Commercia	65	65	65			

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	1205	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
Compressor (air)	50	46.1	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	50	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Michael Baker INTERNATIONAL

We Make a Difference

October 31, 2024

David Wang
Senior Project Manager
Pacific Anchor Holdings, LLC
9680 Flair Drive, Suite 101
El Monte, CA 91731

Subject: Cultural Resource Identification Memorandum for the Mixed-Use Master Plan Project, City of Brawley, Imperial County, California

Dear Mr. Wang:

In support of the Brawley Mixed-Use Master Plan Project (proposed project), Michael Baker International completed a South Coastal Information Center (SCIC) records search, literature and historical map review, Native American Heritage Commission (NAHC) Sacred Lands File search, archaeological field survey, and buried archaeological site sensitivity analysis to determine if the project area contains historical resources, as defined in California Environmental Quality Act (CEQA) Guidelines Section 15064.5(a), that may be impacted by the project. The project is subject to CEQA review; the City of Brawley (City) is the lead agency. The cultural resources identification efforts did not identify any cultural resources within the proposed project area. The methods, results, and findings of the cultural resources identification study are summarized below.

PROJECT DESCRIPTION

The Brawley Mixed-Use Master Plan Project proposes an amendment to the Brawley Gateway Specific Plan to subdivide the property and allow future commercial and multifamily residential uses. The western portion of the property would be subdivided into 12 lots for future commercial development. Lots 1-8 would range from approximately 8,000 square feet (SF) to approximately 15,000 SF and are intended to support strip retail plaza uses. Lots 10-12 would be approximately 80,000 SF and would support larger retail shopping center uses. Lot 9 is anticipated to support a commercial hotel with approximately 100 rooms. On-site parking would be provided for the proposed uses in conformance with City Zoning Ordinance requirements.

Primary access to the proposed commercial area (approximately 37 acres) is planned from (future expansion of) Legion Road to the north and a second (future/unnamed) road to the south. Future access from the north would require the improvement of Legion Road to the centerline along a portion of the northern property boundary. Future access from the south into the proposed commercial area would require the construction of a new roadway over the existing canal (Rockwood Canal) along the extent of the southern project boundary. Construction would occur in coordination with the Imperial Irrigation District (IID), which owns and operates the canal. Such improvements would be undertaken consistent with IID requirements and appropriate approvals. However, specific roadway design details are not available at this time.

The eastern portion of the property (approximately 29 acres) would be subdivided to allow development of 408 multifamily residential units with varying floor plans. The residential area would offer community amenities, including a dog park, clubhouse, pool, and fire pit as well as several community parks and green

space for resident use, and would provide opportunities for passive and active outdoor recreation. Primary and secondary access is planned from Legion Road to the north (to be improved to the centerline of the roadway). Secondary access is also anticipated via a future (unnamed) road along the eastern boundary.

Parking for the residential units would be provided in conformance with Section 27.143 of the City's Zoning Ordinance. A total of 816 parking spaces are required; 836 spaces are proposed in the form of 216 attached garage spaces and 620 standard surface parking spaces.

PROJECT AREA

The project area is identified as the boundaries of Assessor's Parcel Number 048-440-001. This includes the maximum extent of ground disturbance and project activities, site preparation, and construction. The project is mapped within the *Brawley, California* US Geological Survey (USGS) 7.5-minute topographic quadrangle map Township 4 South, Range 14 East, Section 5 (see **Figures 1-3** in **Attachment 1**).

CULTURAL RESOURCES IDENTIFICATION METHODS

The methods and results of the SCIC records search, literature and historical map search, Sacred Lands File search, archaeological field survey, and buried archaeological site sensitivity analysis are presented below.

SOUTH COASTAL INFORMATION CENTER (SCIC)

Methods

Michael Baker International requested a records search of the project area and a half-mile search radius surrounding it from the SCIC on August 12, 2024 (see **Attachment 2**). The SCIC, as part of the California Historical Resources Information System, California State University, San Diego, an affiliate of the California Office of Historic Preservation (OHP), is the official state repository of cultural resources records and reports for Imperial County.

Results

According to SCIC records, seven studies have been completed within a half-mile search radius of the project area, as identified in **Table 1**. None of the previous studies address the current project area. However, the Phase I Archaeological Survey for the Rancho Los Lagos Project conducted by Brian F. Smith and Associates in 2006 was conducted just south of the current project area and was negative for cultural resources.

Table 1: Previous Cultural Resource Investigations within 0.5 Miles

Report No.	Author(s)	Date	Title	Publisher	In Project Area?
IM-00114	Von Werlhof, Jay and Sherilee Von Werlhof	1977	Archaeological Examination of LID Proposed Gas Turbine Site Near Brawley	Imperial Valley College Museum	No
IM-01000	Wlodarski, Robert J.	2006	Nextel Wireless Telecommunications Site Ca8987a (Rodeo Drive-Afs Trucking)	Cellular Archaeological Resource Evaluations	No

Report No.	Author(s)	Date	Title	Publisher	In Project Area?
IM-01105	Fisher, Megan	2007	Initial Study - Rancho Los Lagos General Plan Amendment/Specific Plan/Change of Zone/Major Subdivision, County of Imperial, California	Michael Brandman Associates	No
IM-01158	Archaeological Consulting Services, Ltd.	1996	An Archaeological Assessment of The Niland-Imperial Pipeline Expansion Corridor, Imperial County, California	Archaeological Consulting Services, Ltd.	No
IM-01228	SWCA Environmental Consultants	2006	Volume I - Cultural Resources Final Report of Monitoring and Findings For The Qwest Network Construction Project, State Of California	SWCA Environmental Consultants	No
IM-01233	Rosenberg, Seth A.	2006	A Phase I Archaeological Survey for The Rancho Los Lagos Project, City of Brawley, Imperial County, California	Brian F. Smith and Associates	No
IM-01736	Wills, Carrie D.	2018	Archaeological Sensitivity Assessment For 416784, 'Legion Ca' 4223 Highway 86, Brawley, Imperial County, California (EBI Project No. 6118001749)	Helix Environmental Planning	No

One resource, CA-IMP-8166H, has been documented within the half-mile search radius of the project area. The resource is the Niland to Calexico Railroad constructed by the Southern Pacific Company constructed between 1902 and 1904 (**Table 2**). No previously recorded resources are located within or immediately adjacent to the project area.

The Built Environment Resources Directory (BERD) was searched for any resources located within 0.5 miles of the project site. No built environment resources within the project area were identified in the BERD (OHP 2024).

Table 2: Previously Recorded Cultural Resources within 0.5 Miles

Primary Number	Trinomial	Description	Location in Relation to Project Site
P-13-008682	CA-IMP-008166	AH7 – Railroad grade; AH11 Culvert	Outside

Literature and Historical Map Review

Methods

Michael Baker International staff reviewed literature, historical maps, and aerials for information regarding the environment, precontact occupation, the history, and the development of the project area and the vicinity. The resources reviewed are identified in the references at the end of the report. Below is a narrative description of the results.

Results

Environmental Setting

The project is in Imperial County in the Colorado Desert, an extension of the Sonoran Desert, which covers most of the southwestern United States and northwestern Mexico. The center of Imperial County is the Imperial Valley, formed by tectonic movement between the North American and Pacific plates. This sunken area between branches of the Peninsular Ranges is referred to as the Salton Trough, the northern landward extension of the Gulf of California (Imperial County 2015). Soils in the project area are mapped as Holtville silty clay, wet, and Imperial-Glenbar silty clay loam, wet, with 0 to 2 percent slopes (USDA NRCS 2024). Holtville silty clay is formed in mixed and stratified alluvium and lacustrine sediments. Imperial-Glenbar silty clay loam is formed in floodplains and old lake beds and is composed of fine textured calcareous silty clay or clay. Vegetation within the Salton Sink of the Colorado Desert is primarily characterized by desert scrub, including creosote bush scrub, burro bush, brittle bush, and occasionally ocotillo. The wildlife of this region consists of roadrunners, loggerhead shrikes, white-crowned sparrows, Merriam's kangaroo rat, black-tailed jackrabbits, side-blotched lizards, and zebra-tailed lizards (California Department of Fish and Wildlife 2016; California State Lands Commission 2015; Imperial Irrigation District 2002).

Lake Cahuilla

Environmental conditions in the Colorado Desert area have changed greatly during the millennia of human occupation. Probably the most important environmental change in the Colorado Desert in the past 2,000 years was the formation of Lake Cahuilla, also known geologically as Lake Le Conte and historically as Blake's Lake. Lake Cahuilla formed numerous times throughout the Pleistocene and Holocene epochs in response to the western diversion of the Colorado River into the Salton Trough. During each filling of Lake Cahuilla, water was impounded north of the barrier created by the Colorado River Delta. The lake continued to fill until the water reached an altitude of 12 meters (40 feet), the minimum crest of the delta at Cerro Prieto, where excess discharge would overflow into the Gulf of California (Waters 1983: 374). The shoreline of the most recent documented stands of Lake Cahuilla extended from about 20 miles south of the international border with Mexico to just northwest of Indio. Inundating the entire lower portion of the Coachella Valley, Lake Cahuilla was approximately 115 miles long, about 34 miles wide, and nearly 320 feet deep; during these periods, the elevation of the lake was 40 feet above mean sea level (Wilke 1976: 53).

When inflow from the Colorado River was sufficient to maintain a relatively stable lake level, extensive marshes would have formed around its margins and freshwater fish and shellfish populations would have flourished. Thus, Lake Cahuilla offered an especially productive environment for aboriginal populations of the western Colorado Desert. When filled, Lake Cahuilla was on the Pacific Flyway for migratory birds; hence, ducks, geese, and other migratory birds would have been available. It is likely that 30 years of progressive recession during one of the many occurred during one of the lake's desiccation phases, which were part of its natural cycles of filling and drying out. These cycles happened multiple times between approximately AD 1200 and 1700, or lowering the surface of the lake by approximately 60 feet, would have sufficiently altered the chemical and ecological balance of the lake to eliminate its economically important plant and animal resources. However, as Lake Cahuilla gradually desiccated, mesquite thickets expanded to follow the retreating shoreline, generating different resource exploitation patterns by the prehistoric inhabitants of the region (Smith and Brock 1998).

Precontact Setting

Archaeological investigations in the Colorado Desert have documented a diverse range of human adaptations extending from the late Pleistocene up to the time of European contact (e.g., McGuire and Schiffer 1982; M. Rogers 1939, 1945, 1966; Schaefer 1994; Schaefer and Laylander 2007; Wallace 1962; Warren 1984). To describe and discuss this diversity, local investigators have proposed a variety of different chronologies and conceptual categories (periods, horizons, stages, phases, traditions, cultures, peoples, industries, complexes, and patterns), often with confusingly overlapping or vague terminology.

The prehistory of the Colorado Desert is most frequently divided chronologically into three or four major periods. An Early Man stage, perhaps dating back tens of thousands of years, has been proposed. More generally accepted divisions include a Terminal Pleistocene/Early Holocene period (ca. 12,000-5000 BC) (Paleo-Indian stage; Clovis and San Dieguito patterns), a Middle/Late Holocene period (ca. 5000 BC-AD 500) (Archaic stage; Pinto, Gypsum, and Amargosa patterns), and a Late Prehistoric period (ca. AD 500-1770) (Archaic stage; Yuman, Patayan, or Hakataya pattern).

Hypothetical Early Man (pre-ca. 12,000 BC)

The antiquity of human occupation in the New World has been the subject of considerable interest and debate for more than a century. At present, the most widely accepted model is that humans first entered portions of the western hemisphere lying to the south of Alaska between about 13,000 and 10,000 BC, either along the Pacific coastline or through an ice-free corridor between the retreating Cordilleran and Laurentide segments of the continental glacier in Canada, or along both routes. While there is no generally accepted evidence of human occupation in southern California prior to about 11,000 BC, ages estimated at 48,000 years and even earlier sometimes have been reported (e.g., Bada, Schroeder, and Carter 1974; Carter 1980). However, intensive interest and a long history of research into the early occupation of North America has begun to reveal sites with widely accepted evidence dating prior to 13,000 BC, such as Cooper's Ferry, ID (Davis et al. 2019), and White Sands, NM (Bustos et al. 2018).

Claims for Early Man discoveries in southern California have generally been based either on the apparent crudeness of the lithic assemblages that were encountered or on the finds' apparent Pleistocene geological contexts (Carter 1957, 1980; Minshall 1976, 1989; Reeves, Pohl, and Smith 1986). The amino acid racemization technique was used in the 1970s and early 1980s to assign Pleistocene ages to several coastal San Diego sites (Bada, Schroeder, and Carter 1974), but the technique's findings have been discredited by more recent accelerator mass spectrometry radiocarbon dating (Taylor et al. 1985).

A Malpais pattern has been proposed as being represented by archaeological materials in the California deserts that supposedly date to between ca. 50,000 and 10,000 BC (Begole 1973, 1976; Davis, Brown, and Nichols 1980; Hayden 1976). The term Malpais was originally used by Rogers (1939, 1966) for ancient-looking cleared circles, tools, and rock alignments that he subsequently classified as San Dieguito I. The designation of Malpais continued to be applied to choppers and scrapers with heavy desert varnish and lacking any associated projectile points, found on desert pavements of the Colorado, Mojave, and Sonoran deserts. Although few would question that most of the Malpais specimens are genuine humanly made artifacts, methods for dating them remain extremely uncertain and have been challenged on several grounds (McGuire and Schiffer 1982:160-164).

In the 1970s, arguments for very early settlement of the Colorado Desert focused in particular on the Yuha Desert (Childers 1977; Minshall 1976). The radiocarbon dating of a cairn burial, "Yuha Man," to over 18,000 BC on the basis of caliche deposits on the cairn was vigorously debated (Bischoff et al. 1976, 1978,

1979; Childers 1974; Payen et al. 1978, 1979; S. Rogers 1977). More reliable dates based on the accelerator mass spectrometry radiocarbon method applied to human bone fragments now place the burial well within the Holocene, at about 3000 BC (Taylor et al. 1985). An age in excess of 50,000 years was also claimed for reported flaked stone tools exposed by erosion in Yuha Pinto Wash, but the age of the materials and their status as artifacts have been questioned (Childers and Minshall 1980; Moratto 1984).

Terminal Pleistocene/Early Holocene Period (ca. 12,000-5000 BC)

The earliest chronologically distinctive archaeological pattern recognized in mainland California is the Clovis pattern. Dated to around 11,500 BC, Clovis assemblages are distinguished by fluted projectile points and other large bifaces, as well as extinct large mammal remains. Fluted points have reportedly been found in the Yuha Desert, Cuyamaca Rancho State Park, Ocotillo Wells, Lost Valley, and Chuckwalla Valley, although not yet in independently dated contexts (Davis and Shutler 1969; Kline 2014; Kline and Kline 2007; Rondeau, Cassidy, and Jones 2007).

In the Colorado Desert, some investigators routinely assigned most of the rock features, cleared circles, and lithic assemblages that lack associated ceramics to the San Dieguito pattern, which is now generally dated to the early Holocene. Malcolm Rogers first distinguished the San Dieguito pattern in western San Diego County, based initially on surface surveys and subsequently on excavations at the C. W. Harris Site (SDI-149). His extensive surveys also identified the complex in the southern California deserts (Rogers 1939, 1966).

San Dieguito lithic technology was based on primary and secondary percussion flaking of cores and flakes. The pattern's projectile points included forms with long, wide stems and weak shoulders (sometimes termed "Great Basin Stemmed," or "Lake Mojave" and "Silver Lake" types). Some investigators have considered flaked crescents to be diagnostic of the early Holocene period (e.g., Jertberg 1978, 1986). A variety of forms for edge tools ("scrapers" and "scraper planes") have been distinguished, although it is open to question whether or not this variability in form was intentionally patterned. Milling implements seem to be either absent or conspicuously rare in early Holocene assemblages. Faunal remains and human burials are not documented. One interpretation has been that the San Dieguito pattern reflects a hunter-gatherer adaptation consisting of small, highly mobile bands exploiting both small and large game and collecting seasonally available wild plants, but perhaps not harvesting hard seeds and nuts (Rogers 1966).

Rogers proposed to distinguish three successive San Dieguito phases, each characterized by the addition of new, more sophisticated tool types and manufacturing techniques to the preexisting tool kit. San Dieguito I and II tools included bifacially and unifacially reduced choppers and chopping tools, concave-edged scrapers (spokeshaves), bilaterally notched pebbles, and scraper planes. Appearing in the San Dieguito II phase were finely made blades, smaller bifacial points, and a larger variety of scraper and chopper types. The San Dieguito III tool kit was appreciably more diverse, with the introduction of fine pressure flaking; tools included pressure-flaked blades, leaf-shaped projectile points, scraper planes, plano-convex scrapers, crescents, and elongated bifacial knives (Rogers 1939, 1966; Warren 1967; Warren and True 1961). Various attempts have also been made to seriate cleared circles on desert pavement into these phases, but without convincing success (Pendleton 1986). Because of the purely surface character of most desert sites and the scarcity of good chronological evidence, it has been difficult to test the validity of Rogers's San Dieguito I, II, and III phases. Some of the variations may have been present contemporaneously, in response to particular functional or ecological requirements. Most subsequent investigators have rejected the use of these phases (Warren, Siegler, and Dittmer 2008).

Middle/Late Holocene Period (ca. 5000 B.C.-A.D. 500)

The Pinto, Gypsum, and Amargosa patterns (which have also been designated in various other ways) characterize the middle Holocene and the early portion of the late Holocene in the California deserts, while the La Jolla, Pauma, Encinitas, and Campbell patterns apply to coastal and inland areas to the west. These patterns have been interpreted as regional specializations within the general hunting and gathering adaptations that characterized the long period between ca. 5000 B.C. and A.D. 500. The patterns are better documented and apparently occurred more frequently in the Great Basin, the Mojave Desert, and parts of the Sonoran Desert east of the Colorado River than in the Colorado Desert. Few of the period's large projectile points ("Pinto," "Gypsum," "Elko," and other types) have been identified on the desert pavements in the Colorado Desert, although that situation is beginning to change as the number of archaeological investigations in the region increases (e.g., Cleland 1999). Some sites assigned to the late portion of this period are known, indicating that occupations occurred along the boundary between the low desert and the Peninsular Range and in other favored habitats (McDonald 1992; Schaefer and Laylander 2007).

It has been suggested that the environment of the California deserts was unstable and inhospitable during this period, particularly during the so-called Altithermal period (Holocene Climatic Optimum) between about 5000 and 2000 B.C., and that these conditions forced mobile hunter-gatherers to move to more hospitable regions (Crabtree 1981; Schaefer 1994; Wilke 1976). The paleoenvironmental data do not have the resolution to detect drastic short-term events during this period. If Lake Cahuilla was present, it may have mitigated any Altithermal effects on human occupation in the Colorado Desert, but its presence is doubtful.

Several Colorado Desert sites belonging to this period have been excavated in recent years. The most substantial site is Indian Hill Rockshelter in Anza-Borrego Desert State Park. At that site, 1.5 m of cultural deposits were excavated below a Late Prehistoric (post-A.D. 500) component (McDonald 1992). Particularly significant were 11 rock-lined cache pits and numerous hearths, indicative of either a residential base or a temporary camp where food storage was integral to the settlement and subsistence strategy. Also recovered were numerous expanding-stem, concave-base ("Elko Eared") dart points, flaked lithic tools, and milling tools, as well as three inhumations, one of which was radiocarbon-dated to 4070 ±100 B.P. (calibrated to a two-sigma range between 2891 and 2347 B.C.).

Two rock-lined pits similar to those at Indian Hill Rockshelter, along with an accompanying assemblage assignable to this period, were excavated at a small rock shelter in Tahquitz Canyon near Palm Springs (Bean et al. 1995). The small number of artifacts at the site suggested that they represented strategically stored food processing equipment used by a small, mobile group.

Several important sites in the northern Coachella Valley have been documented (Love and Dahdul 2002). Deeply buried midden deposits with clay-lined features and living surfaces, cremations, hearths, and a rock shelter deposit have been found at various sites in association with radiocarbon dates ranging from before 1000 B.C. to A.D. 700. Radiocarbon dates of almost 1000 B.C. and associated bird and fish bone now confirm an early Lake Cahuilla occupational horizon, as well as early non-lacustrine phases.

Larger habitation sites from this period remained elusive in the Colorado Desert until 2006, when a series of deeply buried midden deposits and some house features were discovered under alluvial fan and dune formations at the northern end of the Coachella Valley, at Seven Palms near Desert Hot Springs (Mariam

Dahdul, personal communication 2006). These findings bring Colorado Desert cultural history more into line with comparable patterns in the Mojave Desert and the southwestern Great Basin during this period.

Early projectile points in Imperial County have generally been reported only as isolates on desert pavements, but a recent archaeological inventory at the Salton Sea Test Base produced a cluster of early projectile points, including "Lake Mojave," "Pinto/Gatecliff," and "Elko" forms, along with two eccentric crescents, scattered among Late Prehistoric or protohistoric sites on the bed of Lake Cahuilla at elevations around 30 m below sea level (Apple et al. 1997; Wahoff 1999). If these points were deposited there in the same period as their manufacture, as the investigators suggested, then presumably they had escaped burial by lake sediments or were subsequently re-exposed. An alternative explanation may be that the points were collected from earlier sites elsewhere and redeposited by later occupants. Several large points have also been reported in the Truckhaven area. Direct evidence of an early occupation comes from the Truckhaven flexed burial (IMP-109), found under a cairn and dated to 5790 ±250 B.P. (calibrated to the two-sigma range between 5295 and 4070 B.C.) (Taylor et al. 1985; Warren 1984).

The emerging picture of occupation in the Colorado Desert during the later portion of this period shows mobile hunter-gatherer bands with atlatls for hunting and milling stones for seed and nut processing, operating out of a limited number of base camps in optimal areas on the boundaries of the Salton Basin and on the shoreline of Lake Cahuilla. This pattern may be viewed as a cultural precursor of the period after A.D. 500, although linguistic data and tribal origin stories suggest that demographic displacements also occurred within the final prehistoric period (Laylander 2010; Schaefer and Laylander 2007; Sutton 2009).

Late Prehistoric Period (ca. AD 500–1769)

Sites in the Colorado Desert and Peninsular Ranges dating to after ca. AD 500 are more numerous than those known from any earlier prehistoric period. The major innovations in material culture during these centuries included the introduction of the bow and arrow, which probably occurred shortly after AD 500; the beginning of substantial pottery production using the paddle-and-anvil technique, perhaps around AD 800; the substitution of cremation for inhumation as the primary method of postmortem treatment at a similar period; and the introduction of floodplain agriculture along the Colorado River and in its delta, possibly including Imperial Valley, which has been largely invisible archaeologically but may possibly also date from around the same time. Cultural patterns within this period have been variously labeled as Patayan I/II/III (Colton 1945; Hargrave 1938; McGuire and Schiffer 1982; Waters 1982a), Yuman I/II/III (Rogers 1945), and Hakataya (Schroeder 1979).

Ceramics and agriculture probably reached the region from the east or the southeast, either through the Hohokam communities in the middle Gila River valley or directly from Sonora in northwestern Mexico (McGuire and Schiffer 1982; Rogers 1945; Schroeder 1975, 1979). Bow-and-arrow technology may have spread south from the Mojave Desert (Yohe 1992, 1998).

Ceramic analysis has provided the basis for attempts to distinguish finer chronological subdivisions within this period. Both Rogers (1945) and Waters (1982b) proposed sequences of pottery types and pottery traits as diagnostic of three distinct phases: Yuman/Patayan I, prior to ca. AD 1000, Yuman/Patayan II, between ca. AD 1000 and 1500, and Yuman/Patayan III, after ca. AD 1500. The scheme was founded, in part, on a belief that Lake Cahuilla had been present between about AD 1000 and 1500 but had been absent both before and after those limits. However, more recent research has demonstrated that the lake was not continuously present throughout the period of AD 1000–1500 and that additional lake stands

occurred both prior to AD 1000 and subsequent to AD 1500. The replicability of ceramic classifications and the chronological significance of some of the ceramic types and traits have also been questioned (Laylander 1997; Schaefer 1994; Schaefer and Laylander 2007). These findings in turn cast doubt on the viability of the Yuman/Patayan I/II/III phase distinctions.

The diversity of sites and assemblages associated with Lake Cahuilla indicates considerable variability in late prehistoric social and ecological adaptations to the lake (Dahdul 2013; Wilke 1978). The number of house pits at fish camps ranged from one to more than a dozen, perhaps reflecting differences in the number of households in residence at any one time. Fish traps ranged from isolated features to long lines that are suggestive of cooperative fishing ventures. Archaeological excavations of house pits indicate that some have well-developed middens and diverse artifact types, suggestive of extended occupations, while others have only sparse artifacts in association, suggesting use during short-term fishing expeditions. Faunal assemblages vary, from some that are largely limited to the bones of fish or migratory water birds to others that contain more diverse resources, including rabbit and large mammal bones. This variability in site types and assemblage contents has yet to be correlated in a systematic manner with other variables, such as the recessional stages of Lake Cahuilla (reflected in site elevations), localized geography and paleoenvironments around the lake's perimeter, or the ethnicity of the occupants (Schaefer 2000a; Schaefer and Laylander 2007).

Mobility was an important element in this pattern, probably involving frequent travel between Lake Cahuilla and areas outside of the Salton Basin when the lake was present. The numerous trail systems visible on desert pavement surfaces throughout the Colorado Desert attest to long-range travel to reach special resource-collecting zones and ceremonial locales, as well as trading expeditions and possibly warfare. Pot drops, trailside shrines, and other evidence of transitory activities are sometimes found in association with these trails (McCarthy 1993). Trade and travel are also seen in the distribution of localized resources, such as obsidian from Obsidian Butte; wonderstone from the south end of the Santa Rosa Mountains and from Cerro Colorado just south of the international border in northern Baja California; soapstone presumed to have come from the mountains to the west; marine shell from both the Gulf of California and the Pacific coast; and ceramic types that were not locally manufactured. The Elmore site (IMP-6427) near Kane Springs contained evidence of Olivella shell bead manufacturing and other shell processing, trade, and possibly cultural connections with delta Yumans who may have been displaced during Lake Cahuilla's infillings (Laylander 1997, 2006; Rosen 1995; Schaefer 2000b). Evidence of metate manufacturing is documented at several sites in the Superstition Mountain area, where outcrops of Imperial Formation sandstone afforded a ready local material for milling equipment (Schaefer 1988).

Ethnographic Evidence

At the time of European contact, the project area was inhabited by the Kumeyaay (Diegueño/Kamia/Ipai/Tipai) and Quechan. The Kumeyaay occupied an area that extended from the Pacific Coast at San Diego eastward to the Sand Hills of Imperial County and south into modern-day Mexico (Luomala 1978). Subsistence consisted primarily of seasonal vegetal foods with opportunistic hunting practiced during gathering. Clans in the Imperial Valley also practiced some farming of maize, beans, and tobacco. The Kumeyaay are related to other tribes of the Yuman family languages and cultures (Wilken-Robertson 2018). Political organization was divided into 30 autonomous, seminomadic bands. Leaders were selected through patrilineal succession. Villages were predominantly seasonal, consisting of campsites rather than permanent settlements. Winter villages were typically found in sheltered foothills and valleys (Luomala 1978).

The Quechan, also known as the Yuma, continue to occupy their traditional territory at the confluence of the Gila and Colorado Rivers at the edge of the California, Arizona, and Mexican borders. Their territory stretched north along the Colorado River and to the east of the Gila River. The Quechan speak a language in the Yuman-Cochimi language family. People living in the territory were geographically divided into a series of settlements or *rancherías* north and south of the confluence of the Colorado and Gila Rivers. *Rancherías* comprised extended family groups with populations ranging into the hundreds. Subsistence primarily consisted of cultivated plants rather than gathered resources, which allowed for larger populations. The Quechan planted their fields multiple times throughout the year with crops including teparies (beans) and maize. The Quechan recognized several patrilineal clan groups; however, females used a clan name only. Tribal structure, rather than *ranchería* or clan structure, played a crucial role during war expeditions against neighboring tribes (Imperial County 2015).

Historic Setting

European exploration of Imperial County began in 1540 with an expedition led by Melchior Diaz. However, the historic period did not begin until 1769, when multiple seaborne and overland expeditions under the leadership of the soldier Gaspar de Portolá and the Franciscan missionary Junípero Serra reached the region from Baja California and passed northward along the coastal plain to seek Monterey. Juan Bautista de Anza and Francisco Garcés pioneered a route from the Colorado River to coastal southern California. Early settlement sites of the Spanish period in the southeast portion of the county include Mission Puerto de Purísima Concepción (1780) and Mission San Pedro San Pablo de Bicuñer (1781) along the de Anza Trail. Both missions were destroyed in 1781 in conflicts between the Spanish and the Quechan (Imperial County 2015).

As Spanish attention was consumed by the Napoleonic wars in Europe, California and its government and missions were increasingly left to their own devices. In 1821, Mexico consummated its independence from Spain, and the region became more open to outside visitors and influences. The Mexican government attempted to reestablish an overland route from Sonora to the California coast in order to encourage trade and settlement. Following several expeditions, the Sonora Road was established in 1825, following portions of the de Anza Trail through the county before turning westward through the Carrizo Corridor and branching toward San Diego and Temecula. The Mexican government established a small adobe post, Fort Romualdo Pacheco, along this route in 1825. The fort was abandoned in 1826 following an attack by the Kumeyaay (Imperial County 2015).

Agricultural development became possible in 1891 with the natural development of the Salton Sea (Farr 1918: 3). The newfound fertility of the area prompted investors and San Diego County supervisors to reconsider their involvement in Imperial Valley. As a result, local entrepreneurs formed the California Development Company, which acquired one hundred thousand acres of land from General Guillermo Andrade, who owned most of the land in the Imperial Valley (Farr 1918: 4). The Imperial Land Company, formed by merchant Dr. W. T. Heffernan, founded the City of Imperial four years later.

The Imperial Land Company and California Development Company worked in tandem to immediately create an irrigation network that connected the Colorado River to the Imperial Valley as part of a larger effort toward desert reclamation. The California Development Company finished the canal system in 1901, promoting a period of immense regional growth. The establishment of the canal system was also matched by the completion of the Southern Pacific Railroad's branch line to Old Beach between 1902 and 1903 (Farr 1918: 15). These two pivotal developments ushered in a population boom in the Imperial Valley, as agricultural laborers and merchants alike flocked to the rapidly growing community. As the community

flourished, the San Diego Board of Supervisors ratified the creation of Imperial County, separate from San Diego County, on August 12, 1907 (Farr 1918: 18-19).

Agriculture is still the primary source of revenue in Imperial County and constitutes $1.86 billion in market value of agricultural products sold (Census of Agriculture 2017). Throughout the twentieth and twenty-first centuries, the number of farms has grown to cover 521,729 acres of land as of 2017. The population has increased due to the growth of industry, which was reported to be 179,702 as of 2020 (US Census Bureau 2024).

The City of Brawley and the Imperial Valley

Brawley is a city in Imperial Valley, California, a region whose growth was significantly influenced by the efforts of early developers who were interested in bringing water to the Colorado desert. Among them was Dr. O. M. Wozencraft, who spent 40 years pursuing bringing water to the desert valley and received initial support from the California State Legislature in 1859 but saw it unfulfilled due to the Civil War. In 1892, Charles R. Rockwood, an irrigation engineer, identified a plan to irrigate the Colorado Desert, leading to the formation of the California Development Company, and later brought on George Chaffey, who was experienced in Australian irrigation projects. The company, through its subsidiary, the Imperial Land Company, began canal construction in 1900 and, in 1901, successfully diverted water from the Colorado River (DFG 2000).

J. H. Braly, an investor from Los Angeles, acquired 4,000 acres of land in 1902 in the Imperial Valley region. After the US government circular declared the region unsuitable for agriculture, and now worried over the land's potential failure, Braly sold the acres. The land made its way into the possession of the Imperial Land Company, which functioned as a sales agency, assisting settlers by filing claims for land available in the Imperial Valley under the Homestead Act, the Desert Land Act, or both (City of Brawley, n.d.; Starr 1990). Despite the government claims, after acquiring the land, the Imperial Land Company promoted the agricultural benefits of the town and area (City of Brawley, n.d.).

In 1907, Imperial County was established, with several towns incorporated over the following years, and by 1908, Brawley was also officially incorporated. Today, Brawley is known as an agricultural epicenter that produces an abundance of winter vegetables and supports popular outdoor recreational sites, such as Imperial Sand Dunes Recreational Area and the Sonny Bono Salton Sea National Wildlife Refuge (City of Brawley, n.d.).

Project Area Development History

The earliest historic aerial available on the University of California Santa Barbara Library's FrameFinder website of the project area is a 1937 photo aerial that shows the project area to be agriculturally developed, with no existing structures visible within the area (UCSB 1937). Along the southern end of the project area runs the Rockwood Canal, which was named after Charles R. Rockwood and completed in 1901 (NRM Digital Library, n.d.). Along the western edge is Highway 86.

While aerial photographs of the project area could not be located for the duration of the 1940s, historic maps of the City of Brawley show that no structures or buildings were erected and dismantled within the project area during that decade (USGS 1940, 1943). Aerial photographs of the project area from 1953 and 1959 show no significant changes or development since the 1930s (NETR 1953, 1959).

Aerial imagery from 1968 and 1976 shows no significant changes to the project area (UCSB 1968, 1976; USGS 1976). No significant changes to the project area are noted throughout the rest of the 80s and through the early 2020s. The only noticeable changes throughout the decades were the interior plowed portion of the project area alternating from periods of fallow to periods of cultivation.

NATIVE AMERICAN HERITAGE COMMISSION SACRED LANDS FILE SEARCH

On August 12, 2024, Michael Baker International requested that the NAHC search the Sacred Lands File for any tribal cultural resources that might be affected by the project and a list of tribal contacts that may have knowledge regarding cultural resources in the vicinity of the project area. The NAHC responded in a letter dated August 23, 2024, that the search of the Sacred Lands File was positive. The NAHC correspondence is presented in **Attachment 3**. Michael Baker did not send notification letters to the tribal contacts provided by the NAHC but did send the list of contacts to the City. The City has mailed Assembly Bill 52 and Senate Bill 18 consultation letters to the tribal contacts provided by the NAHC. A record of that consultation is provided in the associated environmental documents.

ARCHAEOLOGICAL FIELD SURVEY

Methods

An archaeological survey of the project area was conducted on August 23, 2024, by Michael Baker International archaeologists Rachel Garcia and Epifanio Figueroa. Before fieldwork, a map was created in ArcGIS Online that included the project area and GIS feature classes, including point, line, and polygon features for collecting data in the field. The maps were then downloaded in Esri's Field Maps app on Apple iPads and coupled via Bluetooth with a Trimble DA2 Catalyst GNSS GPS receiver with submeter accuracy. The field crews used the tablets and GPS units to locate and survey the project area accurately and for the purposes of mapping any newly discovered cultural resources or built environment resources should they be encountered. After the fieldwork, this information was imported into Esri's ArcGIS Pro to create digital maps. Digital photographs documented the project area environment and the general character of the survey area. Existing water feature structures, such as the canals and floodgates within and immediately adjacent to the project area, were also photographed.

A daily survey summary form was completed at the end of the survey to convey the conditions of the survey area and summarize findings. This form included a description of vegetation cover (including contextual photographs), as well as estimates of ground surface visibility, rated as poor (0-25 percent), fair (26-50 percent), good (51-75 percent), or excellent (76-100 percent). Evidence for buried cultural deposits was opportunistically sought by inspecting natural or artificial erosional exposures and the spoils from rodent burrows. In the daily survey notes, the archaeologists assessed the potential for buried sites based on geomorphology.

Results

The perimeter of the project area consisted of hard-packed dirt roads with concrete-lined irrigation ditches **(**Photo 1: Concrete lined ditch present with hay bales visible on the northern perimeter of the lot; photo facing west.**Photo 1)**. The interior of the project area consisted of a plowed alfalfa field. The area north of the alfalfa field was used for hay bale storage. Two modern trash scatters were encountered during the survey—one in the northwestern corner of the project area and another along the western perimeter of the project area at the base of the date palms **(Photo 2)**. Vegetation in the project area included date and fern palms along the north and west perimeter (**Photo 3**), and the interior plowed land consisted of a mixture of alfalfa and orchard grass. Ground visibility in the alfalfa field was fair, with approximately 40 to 50 percent visibility, while visibility along the perimeter was excellent, with 85-90

percent visibility **(Photo 4** and **Photo 5)**. The soil type consisted of a light yellowish-brown silty loam, with gravel mixed in perimeter soil. A freshwater bivalve shell scatter was identified on a dirt road south of the alfalfa field of the project area. The shells averaged 1-3 centimeters in width and were likely of the species *Pisidium casertanum*, which, along with Anodonta californiensis, were the most common species of bivalves in what was once ancient Lake Cahuilla **(Photo 6)**.



Photo 1: Concrete lined ditch present with hay bales visible on the northern perimeter of the lot; photo facing west.



Photo 2: Modern trash pile; photo facing west.



Photo 3: Date and fern palms present on the western perimeter of site; photo facing west.



Photo 4: Visibility and vegetation example of plowed field consisting of alfalfa and orchard grass; photo facing north.



Photo 5: Overview showing the visibility along the perimeter of project area from the northwest corner of project area facing south.



Photo 6: Bivalve shell type present along water canal.

ARCHAEOLOGICAL SITE SENSITIVITY ANALYSIS

Sensitivity for cultural resources consisting of archaeological sites is considered low to moderate. The records search from the SCIC did not identify any previously recorded archaeological sites within the project area or the half-mile radius surrounding it. However, the NAHC Sacred Lands File search returned positive results. The project area is within the area of ancient Lake Cahuilla, a valuable resource for Native American inhabitants of the area over the last 1,300 years. Several Indigenous groups, including the Quechan (Yuma) people, the Cahuilla, and the Kumeyaay, utilized the resources provided by ancient Lake Cahuilla.

The soils present within the project area are formed from alluvial and lacustrine sediments, which are often associated with buried archaeological deposits due to the dynamic processes of sediment deposition in floodplain and basin environments. The slow permeability and fine textures of these soils can help preserve organic and cultural materials. Alluvial settings, particularly those linked to ancient lakes like Lake Cahuilla, have demonstrated archaeological potential. They often contain layers of sediments that may cover and protect ancient sites and artifacts.

The project area has experienced disturbance associated with agricultural use. However, intact buried archaeological deposits may remain at depths below the plowzone or in other areas around the perimeter of the alfalfa fields not previously disturbed.

SUMMARY OF FINDINGS

The SCIC records search, literature and historical map review, and field survey identified no historic resources, as defined by CEQA Section 15064.5(a), within the project area. No other cultural resources were identified within the project area during the pedestrian survey.

Sensitivity for buried archaeological resources is low at the surface but increases to moderate in undisturbed deposits. As there is a potential for disturbing previously unknown archaeological resources during excavation into native soil, a significant impact to previously unidentified archaeological resources may occur. Mitigation to reduce potential impacts on unknown cultural resources would, therefore, be required in the form of archaeological and Native American monitoring during project construction. The archaeologist shall inform all construction personnel prior to construction activities about the proper procedures in the event of an archaeological discovery. The preconstruction training shall be held in conjunction with the project's initial on-site safety meeting and shall explain the importance and legal basis for the protection of significant archaeological resources. In the event that archaeological resources (artifacts or features) are exposed during ground-disturbing activities, construction activities in the immediate vicinity of the discovery shall be halted while the on-call archaeologist is contacted. The resource shall be evaluated for significance, and tribal consultation shall be conducted in the case of a tribal resource. If the discovery proves to be significant, the long-term disposition of any collected materials should be determined in consultation with the affiliated tribe(s), where relevant.

Additionally, should the project require any modification to Imperial Irrigation District (IID) facilities, including the Rockwood Canal, which runs along the southern edge of the project area, the canal, being historic in age, should be documented, evaluated, and approved in consultation with the IID and the City of Brawley.

PREPARER QUALIFICATIONS

This document was prepared by James Daniels, MA, RPA, Senior Archaeologist and Principal Investigator, and Rachel Garcia, MA, Associate Archaeologist. Rachel Garcia and Epifanio Figueroa conducted the field survey.

JAMES DANIELS, MA, RPA, PRINCIPAL INVESTIGATOR/SENIOR ARCHAEOLOGIST

Mr. Daniels has 17 years of cultural resources management experience in California, Nevada, and North Carolina. His experience includes archaeological surveys, evaluations of historic and precontact sites for listing in the California and National Registers, site mitigation data recoveries, mitigation monitoring, and preparation of archaeological resource management reports and cultural resources technical reports. As a senior archaeologist, he supports projects needing compliance with CEQA, National Environmental Policy Act, National Historic Preservation Act Section 106, Native American Graves Protection and Repatriation Act, Assembly Bill 52, US Army Corps of Engineers 404 permits, and local cultural resource regulations. He assists with environmental impact statements/reports and alternative mitigation measures for clients, including interpretive signage, informative website design, brochures, and ethnographic studies. He also assists in Native American consultation and coordination of Native American monitoring. Mr. Daniels provides advanced technical services for clients, including geophysical surveys with ground-penetrating radar, obsidian and ceramic sourcing using portable X-ray fluorescence, photogrammetry, and GIS predictive modeling and data collection using Esri Field Maps. He meets the Secretary of the Interior's Professional Qualification Standards for archaeology and historic preservation.

RACHEL GARCIA, MA, ASSOCIATE ARCHAEOLOGIST

Ms. Garcia is an archaeologist specializing in prehistoric and historical archaeology with cultural resource management experience in California and the American Southwest, notably New Mexico. Her experience encompasses archaeological surveys, mapping, and excavation techniques. Additionally, she earned her MA in history where she has honed her skills in historical pedagogy, critical source analysis, research methodologies, and historical documentation interpretation. Ms. Garcia meets the Secretary of the Interior's Professional Qualification Standards for history.

EPIFANIO Z. FIGUEROA, FIELD ARCHAEOLOGIST

Mr. Figueroa has worked in various capacities in cultural resource management since 2010. He has worked as a staff archaeologist and lab assistant on various projects located in Cyprus and the Southwestern states of Arizona and California. He has provided Native American tribal consultation support and has provided support in cultural resource identification studies and evaluations and report writing. He has been involved in developing various digital survey forms and geodatabases using ESRI's AGOL/ArcGIS Pro, ArcSurvey123 and Field Maps. Additionally, Mr. Figueroa has worked as a full-time staff geophysicist for approximately five years in both Pennsylvania and California gathering, analyzing and mapping geophysical data. Mr. Figueroa has worked as a geophysicist on previous projects when collecting geophysical data, developing mapped figures, mapping stratigraphic columns, and while report writing. Lastly, Mr. Figueroa's versatile degrees have enabled him to utilize his Geosciences background when providing support for paleontological monitoring.

Sincerely,

James T. Daniels, Jr, MA, RPA
Senior Archaeologist

Rachel Garcia, MA
Archaeologist

Epifanio Figueroa, BA
Archaeologist

Attachments:
Attachment 1 – Figures
Attachment 2 – SCIC Records Search Results
Attachment 3 – NAHC Sacred Lands File Search Results

REFERENCES

Apple, Rebecca McCorkle, Andrew York, Andrew Pigniolo, James H. Cleland, and Stephen Van Wormer. 1997. *Archaeological Survey and Evaluation Program for the Salton Sea Test Base, Imperial County, California*. KEA Environmental, San Diego.

Bada, Jeffrey, Roy Schroeder, and George Carter. 1974. "New Evidence for the Antiquity of Man in North America Deduced from Aspartic Acid Racemization." *Science* 184:791-793.

Bean, Lowell John, Jerry Schaefer, and Sylvia Brakke Vane. 1995. *Archaeological, Ethnographic, and Ethnohistoric Investigations at Tahquitz Canyon, Palm Springs, California*. Cultural Systems Research, Menlo Park, California.

Begole, Robert S. 1973. "An Archaeological Survey in the Anza-Borrego Desert State Park: 1972 Preliminary Report." *Pacific Coast Archaeological Society Quarterly* 9(2):27-55.

Begole, Robert S. 1976. "A Continuing Archaeological Survey in the Anza-Borrego Desert State Park: 1975-1976 Report." *Pacific Coast Archaeological Society Quarterly* 12(2):1-24.

Bischoff, James L., W. Morlin Childers, Reiner Protsch, and Roy M. Shlemon. 1979. "Reply to Payen et al., II." *American Antiquity* 44:599.

Bischoff, James L., W. Morlin Childers, and Roy M. Schlemon. 1978. "Comments on the Pleistocene Age Assignment and Associations of a Human Burial from the Yuha Desert, California: A Rebuttal." *American Antiquity* 43:747-749.

Bischoff, James L., Richard Merriam, W. Morlin Childers, and Reiner Protsch. 1976. "Antiquity of Man in America Indicated by Radiometric Dates on the Yuha Burial Site." *Nature* 261:128-129.

Bustos, David, Jackson Jakeway, Tommy M. Urban, Vance T. Holliday, Brendan Fenerty, David A. Raichlen, et al. 2018. "Footprints preserve terminal Pleistocene hunt? Human-sloth interactions in North America." *Science Advances* 4:7621.

California Department of Fish and Wildlife. 2016. Imperial County Conservation and Open Space Element. Accessed October 22, 2024. https://www.icpds.com/assets/County-of-Imperial-2016-1642792433.pdf.

California State Lands Commission. 2015. Environmental Checklist and Analysis – Biological Resources. Accessed October 22, 2024. https://www.slc.ca.gov/wp-content/uploads/2018/09/3.4.pdf.

Carter, George F. 1957. *Pleistocene Man at San Diego*. Johns Hopkins Press.

Carter, George F. 1980. "Earlier Than You Think: A Personal View of Man in the Americas." Texas A&M University, College Station.

Census of Agriculture. 2017. *County Profile: Imperial County California.* Accessed April 2024. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/California/cp06025.pdf/.

Childers, W. Morlin. 1974. "Preliminary Report on the Yuha Burial, California." *Anthropological Journal of Canada* 12(1):2-9.

Childers, W. Morlin. 1977. "Ridge-Back Tools of the Colorado Desert." *American Antiquity* 42:242-248.

Childers, W. Morlin, and Herbert L. Minshall. 1980. "Evidence of Early Man Exposed at Yuha Pinto Wash." *American Antiquity* 45:297-308.

City of Brawley. n.d. "About." Accessed September 2024. https://www.brawley-ca.gov/about.

Cleland, James H. 1999. "From Paleoindian to Protohistoric: The Chronology of Human Occupation of Salton Sea Test Base." *Proceedings of the Society for California Archaeology* 12:10-19.

Colton, Harold S. 1945. "The Patayan Problem in the Colorado River Valley." *Southwestern Journal of Anthropology* 1:114-121.

Crabtree, Robert H. 1981. "Archaeology." In *A Cultural Resources Overview of the Colorado Desert Planning Units* by Elizabeth von Till Warren, Robert H. Crabtree, Claude N. Warren, Martha Knack, and Richard McCarty, pp. 25-54. USDI Bureau of Land Management, California Desert District, Riverside.

Dahdul, Mariam. 2013. "A Regional and Diachronic Study of Hunter-Gatherer Mobility and Mortuary Practices in the Salton Basin, Southeastern California." Unpublished PhD diss., Department of Anthropology, University of California, Santa Barbara.

Davis, Emma Lou, Kathryn H. Brown, and Jacqueline Nichols. 1980. *Evaluation of Early Human Activities and Remains in the Colorado Desert*. Great Basin Foundation, San Diego.

Davis, Emma Lou, and Richard Shutler, Jr. 1969. "Recent Discoveries of Fluted Points in California and Nevada." *Nevada State Museum Anthropological Papers* 14:154-169.

Davis, Loren G., David B. Madsen, Lorena Becerra-Valdivia, Thomas Higham, David A Sisson, Sarah M. Skinner, et al. 2019. "Late Upper Paleolthic occupation at Cooper's Ferry, Idaho, USA, ~16,000 years ago." *Science* 365:891-97.

DFG (Department of Fish and Game). 2000. "A History of the Imperial Valley." Accessed September 2024.

Farr, F. C. 1918. *The History of Imperial County California: In One Volume, Illustrated*. Elms and Franks.

Hargrave, Lyndon L. 1938. "Results of a Study of the Cohonino Branch of the Patayan Culture in 1938." *Museum of Northern Arizona Museum Notes* 11(6):43-50.

Hayden, Julian D. 1976. "Pre-Altithermal Archaeology in the Sierra Pinacate, Sonora, Mexico." *American Antiquity* 41:274-289.

Imperial County. 2015. *Baseline Environmental Inventory Report: Conservation and Open Space Element Update*.

Imperial Irrigation District. 2002. *Water Conservation and Transfer Project Final EIS/EIR*. Accessed October 22, 2024. https://www.usbr.gov/lc/region/g4000/IID_FEIS/Vol_1/Sec_03.2_Part_1b.pdf.

Jertberg, Patricia. 1978. "A Qualitative and Quantitative Analysis of Relationships of the Eccentric Crescent and its Value as an Indicator of Culture Change." Unpublished master's thesis, Department of Anthropology, California State University, Fullerton.

Jertberg, Patricia. 1986. "The Eccentric Crescent: Summary Analysis." *Pacific Coast Archaeological Society Quarterly* 22(4):53-64.

Kline, George E. 2014. "The McCoy Fluted Point Discovery in Context with the Solar Development of the Chuckwalla Valley: CA-RIV-23891." *Proceedings of the Society for California Archaeology* 28:80-85.

Kline, George E., and Victoria L. Kline. 2007. "Fluted Point Recovered from San Diego County Excavation." *Proceedings of the Society for California Archaeology* 20:55-59.

Laylander, Don. 1997. "The Last Days of Lake Cahuilla: The Elmore Site." *Pacific Coast Archaeological Society Quarterly* 33(1&2):1-138.

Laylander, Don. 2006. "The Regional Consequences of Lake Cahuilla." In *San Diego State University Occasional Archaeological Papers* 1:59-77.

Laylander, Don. 2010. "Linguistic Prehistory and the Archaic-Late Transition in the Colorado Desert." *Journal of California and Great Basin Anthropology* 30:141-155.

Love, Bruce, and Mariam Dahdul. 2002. "Desert Chronologies and the Archaic Period in the Coachella Valley." *Pacific Coast Archaeological Society Quarterly* 38(2-3):65-86.

Luomala, Katherine. 1978. "Tipai and Ipai." In *California*, edited by Robert F. Heizer, pp. 592-609. *Handbook of the North American Indians*, Vol. 8, edited by William C. Sturtevant. Smithsonian Institution.

McCarthy, Daniel F. 1993. "Prehistoric Land-Use at McCoy Spring: An Arid-Land Oasis in Eastern Riverside County, California." Unpublished master's thesis, Department of Anthropology, University of California, Riverside.

McDonald, Alison Meg. 1992. "Indian Hill Rockshelter and Aboriginal Cultural Adaptation in Anza-Borrego Desert State Park, Southeastern California." Unpublished PhD diss., Department of Anthropology, University of California, Riverside.

McGuire, Randall H., and Michael B. Schiffer. 1982. "Problems in Culture History." In *Hohokam and Patayan*, edited by Randall H. McGuire and Michael B. Schiffer, pp. 153-222. Academic Press.

Minshall, Herbert L. 1976. *The Broken Stones*. Copley Books.

Minshall, Herbert L. 1989. *Buchanan Canyon: Ancient Human Presence in the Americas.* Slawson Communications.

Moratto, Michael J. 1984. *California Archaeology*. Academic Press.

NETR (National Environmental Title Research). 2024. Subject matter search. Aerial photographs of site and vicinity: 1953, 1959, 1984, 1996, 2002, 2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020, 2022. Accessed September 2024. https://www.historicaerials.com/viewer.

NRM Digital Library. n.d. "A History of the Imperial Valley." Accessed October 22, 2024. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=8630

Office of Historic Preservation. 2024. *Built Environment Resources Directory*. California Department of Parks and Recreation. Accessed October 24, 2024. https://ohp.parks.ca.gov/berd/

Payen, Louis A., Carol H. Rector, Eric W. Ritter, and R. E. Taylor. 1979. "Reply to Bischoff, Childers, and Shlemon." *American Antiquity* 44:596-599.

Payen, Louis A., Carol H. Rector, Eric Ritter, R. E. Taylor, and J. E. Ericson. 1978. "Comments on the Pleistocene Age Assignment and Associations of a Human Burial from the Yuha Desert, California." *American Antiquity* 43:448-453.

Pendleton, Lorann S. 1986. *Archaeological Investigations in the Picacho Basin*. Wirth Environmental Services.

Reeves, Brian, John M. D. Pohl, and Jason W. Smith. 1986. "The Mission Ridge Site and the Texas Street Question." In *New Evidence for the Pleistocene Peopling of the Americas*, edited by Alan Lyle Bryan, pp. 65-80. Center for the Study of Early Man, University of Maine, Orono.

Rogers, Malcolm J. 1939. "Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas." San Diego Museum Papers No. 3.

Rogers, Malcolm. 1945. "An Outline of Yuman Prehistory." *Southwestern Journal of Anthropology* 1:167-198.

Rogers, Malcolm. 1966. "Ancient Hunters of the Far West." *Union-Tribune*, San Diego.

Rogers, Spencer L. 1977. "An Early Human Fossil from the Yuha Desert of Southern California: Physical Characteristics." San Diego Museum Papers No. 12.

Rondeau, Michael F., Jim Cassidy, and Terry L. Jones. 2007. "Colonization Technologies: Fluted Projectile Points and the San Clemente Island Woodworking/Microblade Complex." In *California Prehistory:*

Colonization, Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 63-70. AltaMira Press.

Rosen, Martin D. 1995. "IMP-6427, a Lake Cahuilla Shell Bead Manufacturing Site." *Proceedings of the Society for California Archaeology* 8:87-104.

Schaefer, Jerry. 1988. *Lowland Patayan Adaptations to Ephemeral Alkali Pans at Superstition Mountain, West Mesa, Imperial County, California.* Brian F. Mooney Associates.

Schaefer, Jerry. 1994. "The Challenge of Archaeological Research in the Colorado Desert: Recent Approaches and Discoveries." *Journal of California and Great Basin Anthropology* 16:60-80.

Schaefer, Jerry. 2000a. *Archaeological Investigations at a Protohistoric Fish Camp on the Receding Shoreline of Ancient Lake Cahuilla, Imperial County, California.* ASM Affiliates.

Schaefer, Jerry. 2000b. "Now Dead I Begin to Sing: A Protohistoric Clothes-Burning Ceremonial Feature in the Colorado Desert." *Journal of California and Great Basin Anthropology* 22:186-211.

Schaefer, Jerry, and Don Laylander. 2007. "The Colorado Desert: Ancient Adaptations to Wetlands and Wastelands." In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 247-258. Altamira Press.

Schroeder, Albert H. 1975. "The Hohokam, Sinagua and the Hakataya." Imperial Valley College Occasional Papers No. 3. El Centro, California.

Schroeder, Albert H. 1979. "Prehistory: Hakataya." In *Southwest*, edited by Alfonso Ortiz, pp. 100-107. *Handbook of North American Indians*, Vol. 9, William C. Sturtevant, general editor. Smithsonian Institution.

Smith, Brenda D., and James Brock. 1998. "From Shoreline to Mesquite Dune: Changing Subsistence Strategies at CA-RIV-4754, La Quinta." Archaeological Advisory Group, Pioneertown. *Proceedings of the Society for California Archaeology*, Vol. 12, pp. 1–4.

Star, Kevin. 1990. *Material Dreams: Southern California Through the 1920s*. Oxford University Press

Sutton, Mark Q. 2009. "People and Language: Defining the Takic Expansion into Southern California." *Pacific Coast Archaeological Society Quarterly* 41(2 & 3):33-93.

Taylor, R., L. Payen, C. Prior, P. Slota, R. Gillespie, J. Gowlett, et al. 1985. "Major Revisions in the Pleistocene Age Assignments for North American Human Skeletons by C14 Accelerator Mass Spectrometry: None Older Than 11,000 C14 Years B.P.". *American Antiquity* 50:136-140.

UCSB (University of California, Santa Barbara). 1937. Single-frame aerial photo by Fairchild Aerial Surveys Flight C-4650, Frame IMP-5-89. https://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

UCSB (University of California, Santa Barbara). 1968. Single-frame aerial photo by Western Aerial Surveys, Inc. Flight WAS-G04, Frame 10-12. https://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

UCSB (University of California, Santa Barbara). 1976. Single-frame aerial photo by Western Aerial Surveys, Inc. Flight WAS-G13, Frame 118. https://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

US Census Bureau. 2024. "QuickFacts: Imperial County, California." Accessed August 2024. https://www.census.gov/quickfacts/fact/table/imperialcountycalifornia/PST045223/.

USDA NRCS (US Department of Agriculture, Natural Resources Conservation Service). 2024. Web Soil Survey. Accessed April 5, 2024. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

USGS (US Geological Survey). 1940. *Brawley, California.* 1:62,500. Electronic resource map. https://ngmdb.usgs.gov/topoview/viewer/#.

USGS (US Geological Survey). 1943. *Brawley, California.* 1:62,500. Electronic resource map. https://ngmdb.usgs.gov/topoview/viewer/#.

USGS (US Geological Survey). 1976. *Brawley, California.* 1:24,000. Electronic resource map. https://ngmdb.usgs.gov/topoview/viewer/#.

Wahoff, Tanya L. 1999. "Flaked Lithic Tools from Recent Investigations on the Salton Sea Test Base." *Proceedings of the Society for California Archaeology* 12:20-27.

Wallace, William J. 1962. "Prehistoric Cultural Development in the Southern California Deserts." *American Antiquity* 28:172-180.

Warren, Claude N. 1967. "The San Dieguito Complex: A Review and Hypothesis." *American Antiquity* 32:168-185.

Warren, Claude N. 1984. "The Desert Region." In *California Archaeology*, by Michael J. Moratto, pp. 339-430. Academic Press.

Warren, Claude N., Gretchen Siegler, and Frank Dittmer. 2008. "Paleo-Indian and Early Archaic Periods." In *Prehistoric and Historic Archaeology of Metropolitan San Diego: A Historic Properties Background Study*, pp. 13-107. ASM Affiliates.

Warren, Claude N., and Delbert L. True. 1961. "The San Dieguito Complex and Its Place in California Prehistory." *University of California Archaeological Survey Annual Report* 1960-1961:246-338. Los Angeles.

Waters, Michael R. 1982a. "The Lowland Patayan Ceramic Tradition." In *Hohokam and Patayan: Prehistory of Southwestern Arizona*, edited by Randall H. McGuire and Michael B. Schiffer, pp. 275-297. Academic Press.

Waters, Michael R. 1982b. "The Lowland Patayan Ceramic Typology." In *Hohokam and Patayan: Prehistory of Southwestern Arizona*, edited by Randall H. McGuire and Michael B. Schiffer, pp. 537-570. Academic Press.

Waters, Michael R. 1983. "Late Holocene Lacustrine Chronology and Archaeology of Ancient Lake Cahuilla, California." *Quaternary Research* 19:373–387.

Wilke, Philip J. 1976. *Background to Prehistory of the Yuha Desert*. Ballena Press Anthropological Papers No. 5.

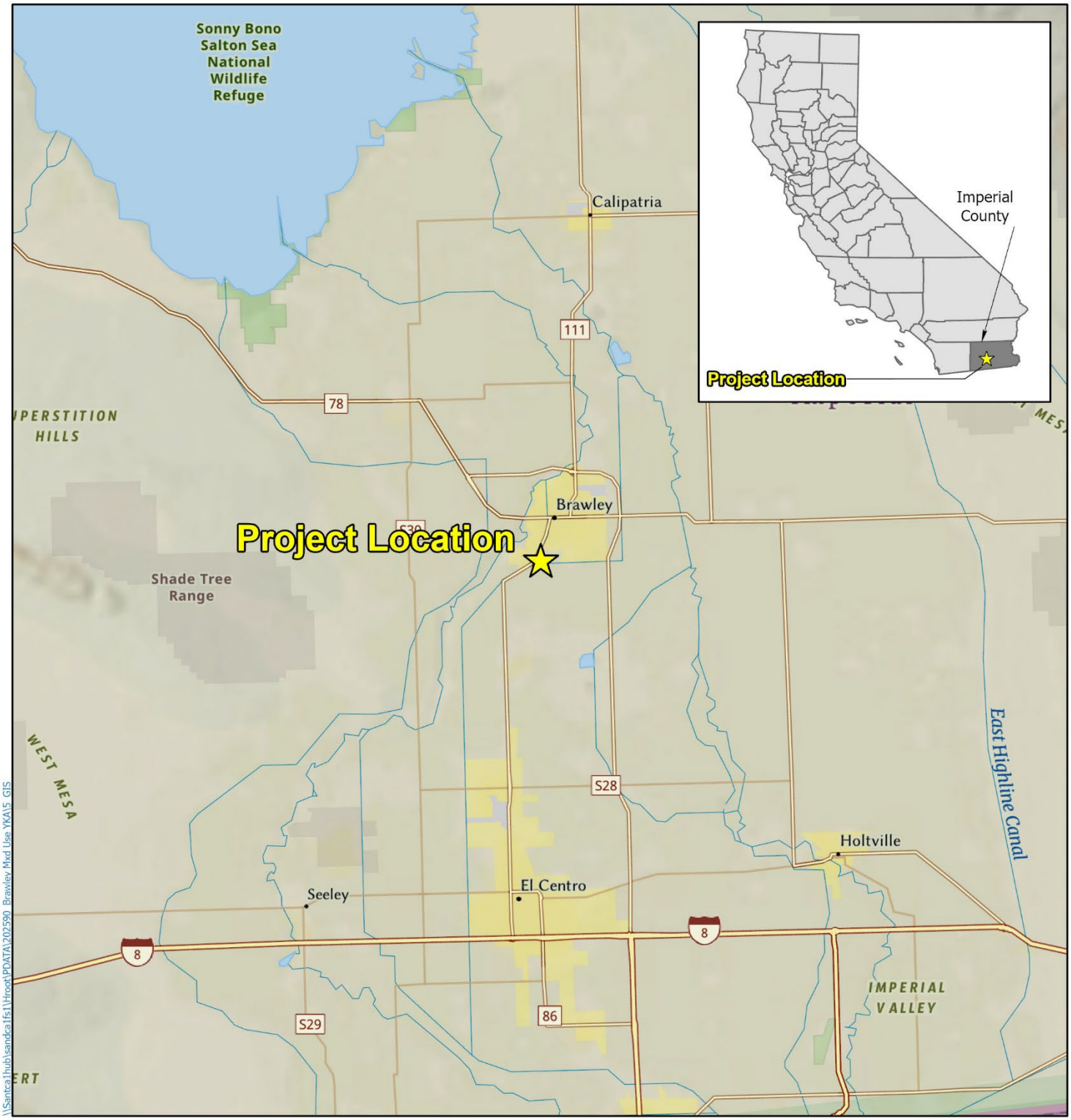
Wilke, Philip J. 1978. *Late Prehistoric Human Ecology at Lake Cahuilla, Coachella Valley, California.* Contributions of the University of California Archaeological Research Facility No. 38. Berkeley.

Wilken-Robertson, Michael. 2018. *Kumeyaay Ethnobotany: Shared Heritage of the Californias*. Sunbelt Publications, Inc. San Diego, California.

Yohe, Robert M., II. 1992. *A Reevaluation of Western Great Basin Cultural Chronology and Evidence for the Timing of the Introduction of the Bow and Arrow to Eastern California Based on New Excavations at the Rose Spring Site (CA-INY-372).* Unpublished PhD diss., Department of Anthropology, University of California, Riverside.

Yohe, Robert M., II. 1998. "The Introduction of the Bow and Arrow and Lithic Resource Use at Rose Spring." *Journal of California and Great Basin Anthropology* 20:26-52.

Attachment 1
Figures



Legend

★ Project Area (APN: 048-440-001)

BRAWLEY MIXED USE MASTER PLAN PROJECT
CULTURAL RESOURCES ASSESSMENT

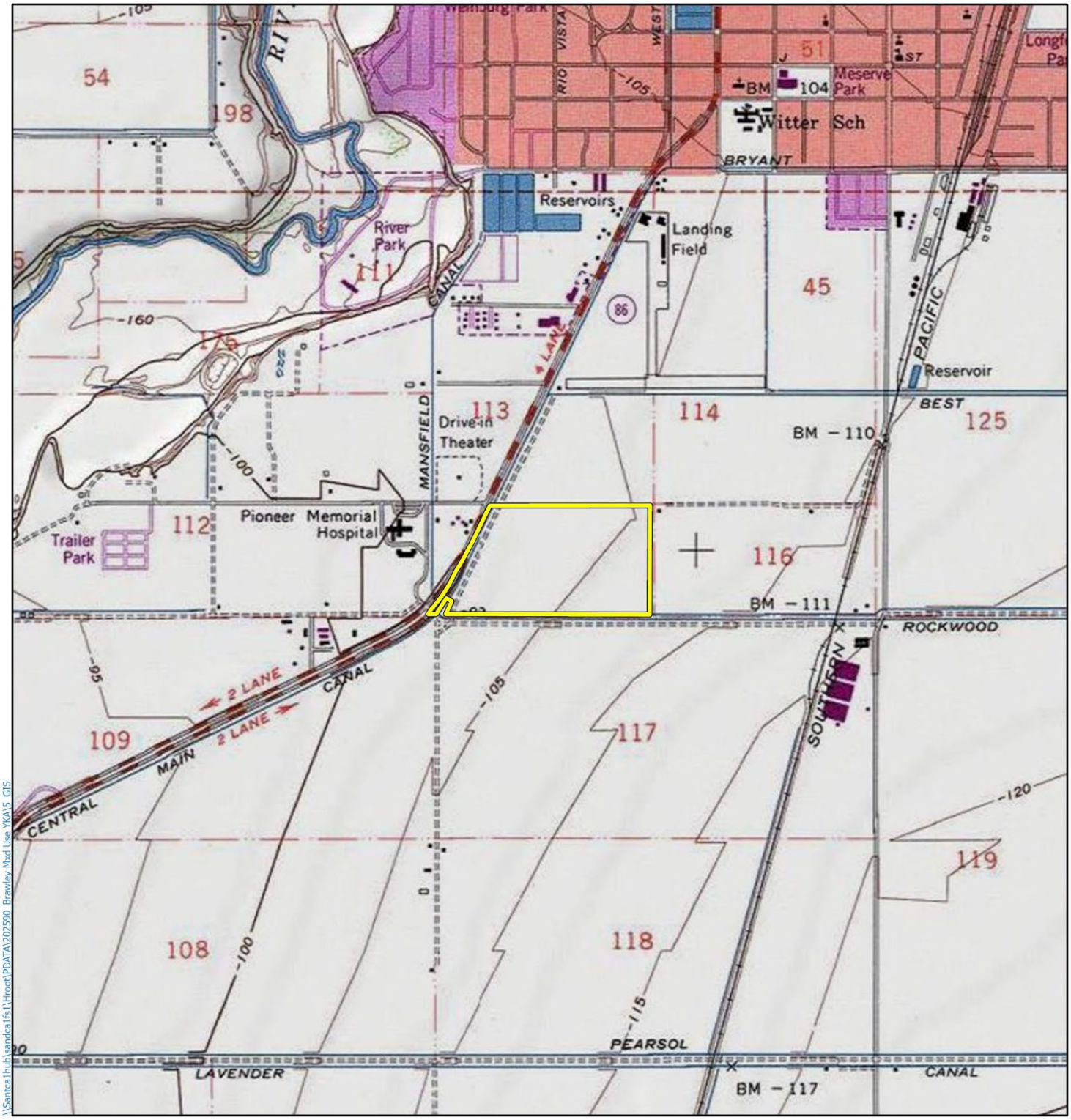
Regional Vicinity

Michael Baker INTERNATIONAL

0 2.5 5 Miles

Source: Esri, ArcGIS Online, National Geographic World Map: *Lancaster, California*

Figure 1



\\Santca1hub\sandca1fs1\Vtroot\PDATA\202590_Brawley Mxd Use\YKA15_GIS

Legend

Project Area (66.3 Acres)

BRAWLEY USGS 7.5-MINUTE TOPO QUAD
T 04 S R 14 E, SECTION 5

BRAWLEY MIXED USE MASTER PLAN PROJECT
CULTURAL RESOURCES ASSESSMENT

Michael Baker INTERNATIONAL

0 0.25 0.5 Miles

Source: Esri, ArcGIS Online, Lancaster West USGS 7.5-Minute topographic quadrangle maps: *Brawley, California*

Project Location

Figure 2



Legend

Project Area (66.3 Acres)

BRAWLEY MIXED USE MASTER PLAN PROJECT
CULTURAL RESOURCES ASSESSMENT

Michael Baker INTERNATIONAL

0 100 200 Meters

Source: Esri, ArcGIS Online, 2024 Nearmap Imagery: *Brawley, California*

Project Area

Figure 3

Attachment 2
SCIC Records Search Results

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM
RECORDS SEARCH

Company: Michael Baker International

Company Representative: Rachel Garcia

Date Processed: 9/10/2024

Project Identification: Mixed Use Master Plan

Search Radius: 1/2 mile

Historical Resources: JL

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: JL

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: JL

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: n/a

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements
RSID: 3713
RUSH: no
Hours: 1
Spatial Features: 8
Address-Mapped Shapes: no
Digital Database Records: 9
Quads: 1
Aerial Photos: 0
PDFs: yes
PDF Pages: 96

This is not an invoice. Please pay from the monthly billing statement

Report Detail: IM-00114

Identifiers

Report No.: IM-00114

Other IDs:

Type	*Name*
NADB-R	1100114
Voided	VONWEJ69

Cross-refs:

Citation information

Author(s): VON WERLHOF, JAY and SHERILEE VON WERLHOF
Year: 1977
Title: ARCHAEOLOGICAL EXAMINATION OF IID PROPOSED GAS TURBINE SITE NEAR BRAWLEY
Affliliation: IMPERIAL VALLEY COLLEGE MUSEUM
No. pages:
No. maps:
Attributes: Archaeological, Evaluation, Other research
Inventory size:
Disclosure:
Collections:

General notes

[NADB Keywords: T14S R14E, UNKNOWN FINDINGS]

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Imperial
USGS quad(s): Brawley
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	8/4/2014	jay
Last modified:		

IC actions:

Date	*User*	*Action taken*
8/4/2014	jay	Appended record from NADB.

Record status:

Report Detail: IM-01000

Identifiers

Report No.: IM-01000

Other IDs:

Type	*Name*
NADB-R	1101000
Voided	WLODAR09

Cross-refs:

Citation information

Author(s): WLODARSKI, ROBERT J.
Year: 2006
Title: NEXTEL WIRELESS TELECOMMUNICATIONS SITE CA8987A (RODEO DRIVE-AFS TRUCKING)
Affliliation: CELLULAR ARCHAEOLOGICAL RESOURCE EVALUATIONS
No. pages:
No. maps:
Attributes: Archaeological, Evaluation, Other research
Inventory size:
Disclosure:
Collections:

General notes

[NADB Keywords: 4175 DOGWOOD ROAD, T14S R14E SEC 4, UNKNOWN FINDINGS]

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Imperial
USGS quad(s): Brawley
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	8/4/2014	jay
Last modified:		

IC actions:

Date	*User*	*Action taken*
8/4/2014	jay	Appended record from NADB.

Record status:

Report Detail: IM-01105

Identifiers

Report No.: IM-01105

Other IDs:

Type	*Name*
NADB-R	1101105
Voided	FISHEM01

Cross-refs:

Citation information

Author(s): FISHER, MEGAN

Year: 2007

Title: INITIAL STUDY - RANCHO LOS LAGOS GENERAL PLAN AMENDMENT/SPECIFIC PLAN/CHANGE OF ZONE/MAJOR SUBDIVISION, COUNTY OF IMPERIAL, CALIFORNIA

Affliliation: MICHAEL BRANDMAN ASSOCIATES

No. pages:

No. maps:

Attributes: Archaeological, Evaluation, Other research

Inventory size:

Disclosure:

Collections:

General notes

[NADB Keywords: T14S R14E SECTIONS 7 AND 8, UNKNOWN FINDINGS]

Associated resources

No. resources: 0

Has informals:

Location information

County(ies): Imperial

USGS quad(s): Brawley

Address:

PLSS:

Database record metadata

	Date	*User*
Entered:	8/4/2014	jay
Last modified:		

IC actions:

Date	*User*	*Action taken*
8/4/2014	jay	Appended record from NADB.

Record status:

Report Detail: IM-01158

Identifiers

Report No.: IM-01158

Other IDs:

Type	*Name*
NADB-R	1101158
Voided	ACS01

Cross-refs:

Citation information

Author(s): ARCHAEOLOGICAL CONSULTING SERVICES, LTD.

Year: 1996

Title: AN ARCHAEOLOGICAL ASSESSMENT OF THE NILAND-IMPERIAL PIPELINE EXPANSION CORRIDOR, IMPERIAL COUNTY, CALIFORNIA

Affliliation: ARCHAEOLOGICAL CONSULTING SERVICES, LTD.

No. pages:

No. maps:

Attributes: Archaeological, Evaluation, Other research

Inventory size:

Disclosure:

Collections:

General notes

[NADB Keywords: PIPELINE, UNKNOWN FINDINGS]

Associated resources

Primary No.	*Trinomial*	*Name*
P-13-005951	CA-IMP-005951	

No. resources: 1

Has informals:

Location information

County(ies): Imperial

USGS quad(s): Brawley, El Centro, Niland, Westmorland East

Address:

PLSS:

Database record metadata

	Date	*User*
Entered:	8/4/2014	jay
Last modified:		

IC actions:

Date	*User*	*Action taken*
8/4/2014	jay	Appended record from NADB.

Record status:

Report Detail: IM-01228

Identifiers

Report No.: IM-01228

Other IDs:

Type	*Name*
NADB-R	1101228
Voided	SWCA02

Cross-refs:

Citation information

Author(s): SWCA ENVIRONMENTAL CONSULTANTS

Year: 2006

Title: VOLUME I - CULTURAL RESOURCES FINAL REPORT OF MONITORING AND FINDINGS FOR THE QWEST NETWORK CONSTRUCTION PROJECT, STATE OF CALIFORNIA

Affliliation: SWCA ENVIRONMENTAL CONSULTANTS

No. pages:

No. maps:

Attributes: Archaeological, Evaluation, Other research

Inventory size:

Disclosure:

Collections:

General notes

[NADB Keywords: UNKNOWN FINGDINGS]

Associated resources

No. resources: 0

Has informals:

Location information

County(ies): Imperial

USGS quad(s): Acolita, Araz, Brawley, Cactus, Clyde, Coyote Wells, Durmid, East Of Acolita, El Centro, Frink, Glamis, Glamis SE, In-Ko-Pah Gorge, Iris, Iris Pass, Iris Wash, Niland, Oasis, Ogilby, Painted Gorge, Palo Verde, Plaster City, Plaster City NW, Seeley, Seventeen Palms, Tortuga, Truckhaven, Westmorland West, Yuma East, Yuma West

Address:

PLSS:

Database record metadata

	Date	*User*
Entered:	8/4/2014	jay
Last modified:		

IC actions:

Date	*User*	*Action taken*
8/4/2014	jay	Appended record from NADB.

Record status:

Report Detail: IM-01233

Identifiers

Report No.: IM-01233

Other IDs:

Type	*Name*
NADB-R	1101233
Voided	ROSENS02

Cross-refs:

Citation information

Author(s): ROSENBERG, SETH A.

Year: 2006

Title: A PHASE I ARCHAEOLOGICAL SURVEY FOR THE RANCHO LOS LAGOS PROJECT, CITY OF BRAWLEY, IMPERIAL COUNTY, CALIFORNIA

Affliliation: BRIAN F. SMITH AND ASSOCIATES

No. pages:

No. maps:

Attributes: Archaeological, Evaluation, Other research

Inventory size: RECONNASSIANCE OF 1071 ACRES

Disclosure:

Collections:

General notes

[NADB Keywords: HISTORIC CANALS, MITIGATION MONITORING RECOMMENDATIONS, NEGATIVE SURVEY]

Associated resources

No. resources: 0

Has informals:

Location information

County(ies): Imperial

USGS quad(s): Brawley

Address:

PLSS:

Database record metadata

	Date	*User*
Entered:	8/4/2014	jay
Last modified:		

IC actions:

Date	*User*	*Action taken*
8/4/2014	jay	Appended record from NADB.

Record status:

Report Detail: IM-01736

Identifiers

Report No.: IM-01736

Other IDs:

Type	Name
NADB-R	1101736

Cross-refs:

Citation information

Author(s): WILLS, CARRIE D.

Year: 2018 (Mar)

Title: ARCHAEOLOGICAL SENSITIVITY ASSESSMENT FOR 416784, 'LEGION CA' 4223 HIGHWAY 86, BRAWLEY, IMPERIAL COUNTY, CALIFORNIA (EBI PROJECT NO. 6118001749)

Affliliation: HELIX ENVIRONMENTAL PLANNING

No. pages: 7

No. maps: 1

Attributes: Archaeological, Literature search, Other research

Inventory size:

Disclosure: Not for publication

Collections: No

General notes

Associated resources

No. resources: 0

Has informals: No

Location information

County(ies): Imperial

USGS quad(s): Brawley

Address:

Address	City	Assessor's parcel no.	Zip code
4223 HIGHWAY 86	BRAWLEY		92227

PLSS: T14S R14E Sec. 5 SBBM

Database record metadata

	Date	User
Entered:	9/29/2019	
Last modified:	9/30/2019	jlennox

IC actions:

Date	User	Action taken
9/30/2019	jlennox	POPULATED ATTRIBUTES

Record status: Database Complete

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-13-008682	CA-IMP-008166	Other - Southern Pacific Railroad (imperial and Gulf Branch); Resource Name - Niland to Calexico Railroad	Site	Historic	AH07; AH11	2003 (Karen Collins, J. Michael Pflaum, IVC Museum); 2005 (Andrea C. Craft, Michael J. Wise); 2011 (C. Ehringer, ESA)	IM-01337, IM-01451, IM-01462, IM-01493, IM-01537, IM-01710

Resource Detail: P-13-008682

Identifying information

Primary No.: P-13-008682
Trinomial: CA-IMP-008166
Name: Niland to Calexico Railroad
Other IDs:

Type	*Name*
Other	Southern Pacific Railroad (imperial and Gulf Branch)
Resource Name	Niland to Calexico Railroad

Cross-refs:

Attributes

Resource type: Site
Age: Historic
Information base: Survey
Attribute codes: AH07 (Roads/trails/railroad grades); AH11 (Walls/fences) - wall
Disclosure: Not for publication
Collections: No
Accession no(s):
Facility:

General notes

See supplemental file for additional info

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
6/13/2003	Karen Collins, J. Michael Pflaum	IVC Museum	
9/14/2011	C. Ehringer	ESA	update
5/24/2005	Andrea C. Craft, Michael J. Wise		update

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
IM-01337	2008	CULTURAL RESOURCE SURVEY FOR THE CITY OF CALEXICO TOWN CENTER PLAZA INFRASTRUCTURE IMPROVEMENTS, CITY OF CALEXICO, IMPERIAL COUNTY, CALIFORNIA	LAGUNA MOUNTAIN ENVIRONMENTAL, INC.
IM-01451	2011	A PHASE I CULTURAL RESOURCES INVENTORY AND ARCHIVAL SEARCH OF THE U.S. CUSTOMS AND BORDER PROTECTION BORDER PATROL STATION ON ATEN ROAD IN EL CENTRO, IMPERIAL COUNTY, CALIFORNIA	HARRIS ENVIRONMENTAL GROU, INC.
IM-01462	2010	RESULTS OF CULTURAL RESOURCES SURVEY FOR THE ALLIANCE REGIONAL CENTER, CITY OF IMPERIAL, IMPERIAL COUNTY	RECON ENVIRONMENTAL, INC.
IM-01493	2012	REVISED CLUSTER I SOLAR POWER PROJECT FINAL ENVIRONMENTAL IMPACT REPORT/ RESPONSE TO COMMENTS	ESA COMMUNITY DEVELOPMENT
IM-01537	2012	SECTION 106 CONSULTATION FOR PROPOSED EDA GRANT ASSISTANCE TO CONSTRUCT OFF-SITE IMPROVEMENTS FOR THE IMPERIAL CENTER PROJECT, PHASE 1 (RECON NUMBER 5919)	RECON
IM-01710	2011	CLUSTER I SOLAR PROJECT - CULTURAL RESOURCES AND PALEONTOLOGICAL STUDIES	ESA

Resource Detail: P-13-008682

Location information

County: Imperial

USGS quad(s): Brawley, Calexico, El Centro, Heber, Niland

Address:

PLSS: T11S R14E Sec. 34 SBBM
T11S R14E Sec. 27 SBBM
T11S R14E Sec. 22 SBBM
T11S R14E Sec. 15 SBBM
T11S R14E Sec. 10 SBBM
T11S R14E Sec. 3 SBBM
T12S R14E Sec. 34 SBBM
T12S R14E Sec. 27 SBBM
T12S R14E Sec. 22 SBBM
T12S R14E Sec. 15 SBBM
T12S R14E Sec. 10 SBBM
T12S R14E Sec. 3 SBBM
T13S R14E Sec. 33 SBBM
T13S R14E Sec. 28 SBBM
T13S R14E Sec. 21 SBBM
T13S R14E Sec. 22 SBBM
T13S R14E Sec. 15 SBBM
T13S R14E Sec. 10 SBBM
T13S R14E Sec. 3 SBBM
T14S R14E Sec. 31 SBBM
T14S R14E Sec. 30 SBBM
T14S R14E Sec. 29 SBBM
T14S R14E Sec. 20 SBBM
T14S R14E Sec. 17 SBBM
T14S R14E Sec. 8 SBBM
T14S R14E Sec. 5 SBBM
T14S R14E Sec. 4 SBBM
T15S R14E Sec. 32 SBBM
T15S R14E Sec. 31 SBBM
T15S R14E Sec. 30 SBBM
T15S R14E Sec. 19 SBBM
T15S R14E Sec. 18 SBBM
T15S R14E Sec. 7 SBBM
T15S R14E Sec. 6 SBBM
T16S R14E Sec. 33 SBBM
T16S R14E Sec. 28 SBBM
T16S R14E Sec. 21 SBBM
T16S R14E Sec. 16 SBBM
T16S R14E Sec. 17 SBBM
T16S R14E Sec. 8 SBBM
T16S R14E Sec. 5 SBBM
T17S R14E Sec. 14 SBBM
T17S R14E Sec. 11 SBBM
T17S R14E Sec. 3 SBBM
T17S R14E Sec. 2 SBBM

UTMs: Zone 11 639073mE 3668618mN NAD83 (western wall)
Zone 11 639089mE 3668619mN NAD83 (eastern wall)
Zone 11 639081mE 3668619mN NAD83 (north end of rail update)
Zone 11 639098mE 3667195mN NAD83 (south end of rail update)
Zone 11 639120mE 3678620mN NAD27 (north utm)
Zone 11 641075mE 3614965mN NAD27 (south utm)

Management status

Resource Detail: P-13-008682

Database record metadata

	Date	User	
Entered:	8/5/2014	jay	
Last modified:	9/8/2022	jlennox	
IC actions:	*Date*	*User*	*Action taken*
	8/5/2014	jay	Appended record from Access site list database.
	8/5/2014	jay	Appended record from Excel resource log.
	10/25/2021	jlennox	populated attributes
Record status:	Database Complete		

Attachment 3

NAHC Sacred Lands File Search Results

Michael Baker
INTERNATIONAL

We Make a Difference

August 12, 2024

Laura Miranda
California Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
nahc@nahc.ca.gov

Re: Cultural Resources Inventory for the Mixed Use Master Plan Project, Brawley, California

Dear Chairperson Miranda,

Michael Baker International is conducting a cultural resources inventory for the proposed Mixed Use Master Plan Project in Brawley, CA. The cultural resources inventory will be conducted in compliance with the California Environmental Quality Act. The proposed project includes the subdivision of the approximately 66-acre property to allow for future commercial and multi-family residential use. The subject site is located south of (future) Legion Road, east of Brawley Avenue/State Highway 86, and north of Rockwood Canal in the City of Brawley in central Imperial County, California. The project aims to subdivide the western portion of the property into 12 lots for future commercial development, and subdivide the eastern portion of the property (approximatey 29 acres) for development of 408 multi-family residential units with an estimated 816 parking spaces. The residential area would include a dog park, clubhouse, pool, fire pit, and several community parks and green spaces for resident use.

Michael Baker International will conduct a cultural resources records search of the project area and a 0.5-mile search radius surrounding it at the South Coastal Information Center (SCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, literature, historic map and aerial photo review, local historical society consultation, a built environment and archaeological pedestrian survey, and an archaeological sensitivity analysis of the project site.

We would also like to request a list of Native American tribes that may have knowledge of cultural resources in the project area or who may wish to be notified of the investigation. Please submit your response to me via e-mail at Rachel.Garcia@mbakerintl.com.

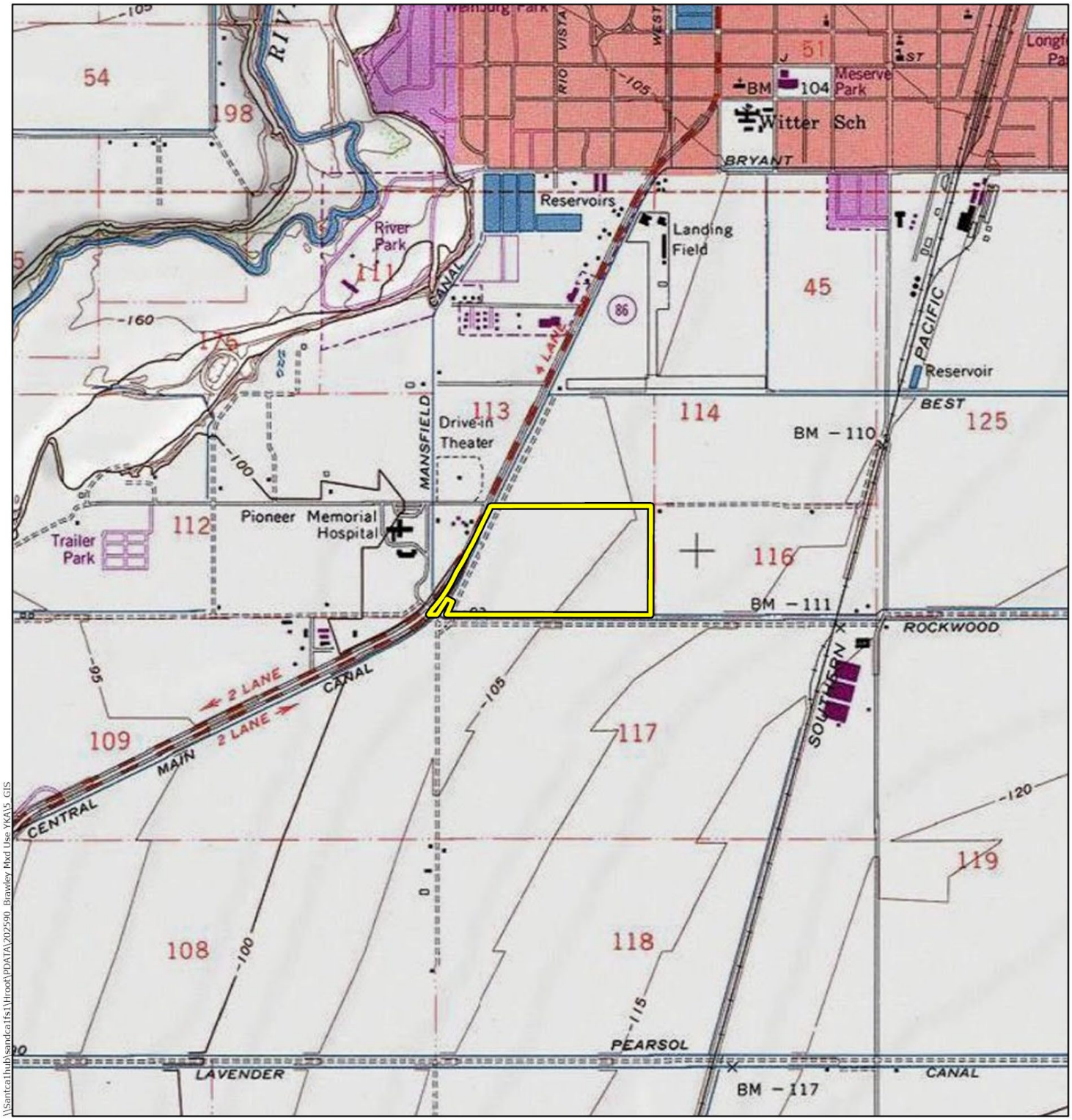
Sincerely,

Rachel Garcia

Rachel Garcia. MA
Archaeologist
Rachel.Garcia@mbakerintl.com

Your Requested Information:
County – Imperial
USGS Quad – Brawley
Township and Range – T04S R14E Sec. 5

Attachments: 1. 1:24,000 Scale Location Map of Project Area
2. Sacred Lands File & Native American Contacts List Request



\\SantaAnaHub\sandca1fs1\Hroot\PDATA\202590_Brawley Mxd Use YKA\5_GIS

Legend

- Project Area (APN: 048-440-001)
- USGS 7.5' Quad Boundary

BRAWLEY USGS 7.5-MINUTE TOPO QUAD
T 04 S R 14 E, SECTION 5

Michael Baker INTERNATIONAL

0 0.25 0.5 Miles

Source: Esri, ArcGIS Online, Lancaster West USGS 7.5-Minute topographic quadrangle maps: *Lancaster, California*

BRAWLEY GATEWAY SPECIFIC PLAN UPDATE
BRAWLEY, CA

Project Location

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Mixed Use Master Plan Project

County: Imperial

USGS Quadrangle Name: Brawley

Township: 04S **Range:** 14E **Section(s):** 5

Company/Firm/Agency: Michael Baker International

Street Address: 5050 Avenida Encinas Suite 260

City: Carlsbad, CA **Zip:** 92008

Phone: (760) 603-6251

Fax:

Email: Rachel.Garcia@mbakerintl.com

Project Description:

The proposed project includes the subdivision of the approximately 66-acre property to allow for future commercial and multi-family residential use. The subject site is located south of (future) Legion Road, east of Brawley Avenue/State Highway 86, and north of Rockwood Canal in the City of Brawley in central Imperial County, California. The project aims to subdivide the western portion of the property into 12 lots for future commercial development, and subdivide the eastern portion of the property (approximatey 29 acres) for development of 408 multi-family residential units with an estimated 816 parking spaces. The residential area would include a dog park, clubhouse, pool, fire pit, and several community parks and green spaces for resident use.

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok, Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,

August 23, 2024

Rachel Garcia
Michael Baker International

Via Email to: Rachel.Garcia@mbakerintl.com

Re: Mixed Use Master Plan Project, Imperial County

Dear Ms. Garcia:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the tribes on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Imperial County
8/23/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Imperial	Barona Group of the Capitan Grande	F	Art Bunce, Attorney		(760) 489-0329		buncelaw@aol.com	Diegueno	Imperial,San Diego	7/25/2023
	Campo Band of Diegueno Mission Indians	F	Marcus Cuero, Chairperson	36190 Church Road, Suite 1 Campo, CA, 91906	(619) 478-9046		marcuscuero@campo-nsn.gov	Diegueno	Imperial,San Diego	5/15/2024
	Campo Band of Diegueno Mission Indians	F	Ben Dyche, Vice Chairperson	36190 Church Road, Suite 1 Campo, CA, 91906	(619) 478-9046		bdyche@campo-nsn.gov	Diegueno	Imperial,San Diego	5/24/2024
	Campo Band of Diegueno Mission Indians	F	Daniel Tsosie, THPO	36190 Church Road, Suite 1 Campo, CA, 91906	(619) 760-6480		dtsosie@campo-nsn.gov	Diegueno	Imperial,San Diego	5/24/2024
	Ewiiaapaayp Band of Kumeyaay Indians	F	Michael Garcia, Vice Chairperson	4054 Willows Road Alpine, CA, 91901	(619) 933-2200	(619) 445-9126	michaelg@leaningrock.net	Diegueno	Imperial,San Diego	
	Ewiiaapaayp Band of Kumeyaay Indians	F	Robert Pinto, Chairperson	4054 Willows Road Alpine, CA, 91901	(619) 368-4382	(619) 445-9126	ceo@ebki-nsn.gov	Diegueno	Imperial,San Diego	
	Iipay Nation of Santa Ysabel	F	Clint Linton, Director of Cultural Resources	P.O. Box 507 Santa Ysabel, CA, 92070	(760) 803-5694		clinton@redtailenvironmental.com	Diegueno	Imperial,San Diego	11/30/2023
	Inaja-Cosmit Band of Indians	F	Rebecca Osuna, Chairperson	2005 S. Escondido Blvd. Escondido, CA, 92025	(760) 737-7628	(760) 747-8568		Diegueno	Imperial,San Diego	
	Jamul Indian Village	F	Lisa Cumper, Tribal Historic Preservation Officer	P.O. Box 612 Jamul, CA, 91935	(619) 669-4855		lcumper@jiv-nsn.gov	Diegueno	Imperial,San Diego	9/5/2018
	Jamul Indian Village	F	Erica Pinto, Chairperson	P.O. Box 612 Jamul, CA, 91935	(619) 669-4785	(619) 669-4817	epinto@jiv-nsn.gov	Diegueno	Imperial,San Diego	
	La Posta Band of Diegueno Mission Indians	F	Gwendolyn Parada, Chairperson	8 Crestwood Road Boulevard, CA, 91905	(619) 478-2113	(619) 478-2125	LP13boots@aol.com	Diegueno	Imperial,San Diego	
	Manzanita Band of Kumeyaay Nation	F	Angela Elliott Santos, Chairperson	P.O. Box 1302 Boulevard, CA, 91905	(619) 766-4930	(619) 766-4957		Diegueno	Imperial,San Diego	
	Mesa Grande Band of Diegueno Mission Indians	F	Michael Linton, Chairperson	P.O Box 270 Santa Ysabel, CA, 92070	(760) 782-3818	(760) 782-9092	mesagrandeband@msn.com	Diegueno	Imperial,San Diego	
	Quechan Tribe of the Fort Yuma Reservation	F	Manfred Scott, Acting Chairman - Kw'ts'an Cultural Committee	P.O. Box 1899 Yuma, AZ, 85366	(928) 210-8739		culturalcommittee@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	5/16/2023
	Quechan Tribe of the Fort Yuma Reservation	F	Jordan Joaquin, President, Quechan Tribal Council	P.O.Box 1899 Yuma, AZ, 85366	(760) 919-3600		executivesecretary@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	5/16/2023
	Quechan Tribe of the Fort Yuma Reservation	F	Jill McCormick, Historic Preservation Officer	P.O. Box 1899 Yuma, AZ, 85366	(928) 261-0254		historicpreservation@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	5/16/2023
	San Pasqual Band of Diegueno Mission Indians	F	John Flores, Environmental Coordinator	P. O. Box 365 Valley Center, CA, 92082	(760) 749-3200	(760) 749-3876	johnf@sanpasqualtribe.org	Diegueno	Imperial,San Diego	8/16/2016
	San Pasqual Band of Diegueno Mission Indians	F	Allen Lawson, Chairperson	P.O. Box 365 Valley Center, CA, 92082	(760) 749-3200	(760) 749-3876	allenl@sanpasqualtribe.org	Diegueno	Imperial,San Diego	
	Sycuan Band of the Kumeyaay Nation	F	Cody Martinez, Chairman	Sycuan Tribal Office: 1 Kwaaypaay Court El Cajon, CA, 92019	(619) 445-2613		cmartinez@sycuan-nsn.gov	Kumeyaay	Imperial,San Diego	8/7/2023
	Sycuan Band of the Kumeyaay Nation	F	Bernice Paipa, Cultural Resource Specialist	Sycuan Cultural Center: 910 Willow Glen Drive El Cajon, CA, 92019	(619) 445-6917		bpaipa2@sycuan-nsn.gov	Kumeyaay	Imperial,San Diego	8/7/2023
	Viejas Band of Kumeyaay Indians	F	Ray Teran, Resource Management Director	1 Viejas Grade Road Alpine, CA, 91901	(619) 659-2312		rteran@viejas-nsn.gov	Kumeyaay	Imperial,San Diego	6/29/2023
	Viejas Band of Kumeyaay Indians	F	Ernest Pingleton, THPO	1 Viejas Grade Road Alpine, CA, 91901	(619) 445-3810		epingleton@viejas-nsn.gov	Kumeyaay	Imperial,San Diego	6/29/2023

Native American Heritage Commission
Native American Contact List
Imperial County
8/23/2024

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Mixed Use Master Plan Project, Imperial County.

Record: PROJ-2024-004390
Report Type: List of Tribes
Counties: Imperial
NAHC Group: All

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

April 22, 2025

Cynthia Mancha
City of Brawley
Development Services, Planning Division
383 Main Street
Brawley, CA 92227

Subject: **Brawley Mixed Use Master Plan Project, Brawley, California – Cultural Resources Evaluation (Revised Conceptual Site Plan)**

PURPOSE

This memorandum serves to evaluate changes made to the Conceptual Site Plan for the proposed Brawley Mixed Use Master Plan Project (proposed Project) located in the City of Brawley (City), California. The Site Plan was recently revised, subsequent to preparation of the *Cultural Resource Identification Memorandum for the Mixed Use Master Plan Project, City of Brawley, Imperial County, California*, dated October 31, 2024. The minor changes to the Conceptual Site Plan are the basis for this memorandum which is intended to evaluate potential short- and long-term impacts on cultural resources that would result from construction and operation of the proposed Project, pursuant to California Environmental Quality Act requirements. The evaluation is aimed at determining whether the significance findings identified in the original technical cultural resources memorandum remain valid, or if new or substantially increased impacts would result.

REVISED PROJECT DESCRIPTION

The proposed Project would require City approval of an amendment to the Brawley Gateway Specific Plan to subdivide the subject property and allow for future commercial and multi-family residential uses; refer to Figure 1, Conceptual Site Plan. As currently proposed, the western portion of the property (approximately 37 acres) would still be subdivided for future commercial development, including strip retail plaza and larger retail shopping center uses. As compared to the original Site Plan, the revised Site Plan would reduce the square footage of the proposed retail shopping plaza uses from approximately 85,000 square feet (SF) to 65,500 SF (Pads 1 to 8); the square footage of the retail shopping center uses would be increased from approximately 240,000 SF (originally Pads 10 thru 12) to 243,000 SF (now Pads 10 and 11). The revised Site Plan would also increase the number of rooms proposed for the commercial hotel from approximately 100 rooms to 150 rooms (Pad 9). Proposed access to the commercial use area would still be from (future) Legion Road to the north, with secondary access occurring from the south along a future/unnamed road.

Under the revised Site Plan, the eastern portion of the property (approximately 29 acres) would still be subdivided to allow for future development of 408 multi-family residential units and associated community amenities, with an estimated 836 parking spaces. Total square footage of the residential uses would be reduced from approximately 411,744 SF to 273,288 SF with the revised Site Plan. Proposed primary and secondary access to the residential area would remain from (future) Legion Road to the north (to be improved to centerline of roadway); secondary access would still be via a future road along the eastern boundary.

EVALUATION

No change to the development footprint (limits of disturbance) as originally proposed would result with the revised Conceptual Site Plan. Although minor changes to design of the internal building pads and mixture and/or intensity of the proposed land uses would occur, the development footprint (total of approximately 66 acres) as evaluated in the October 2024 *Cultural Resource Identification Memorandum* would remain the same. As a result, no updates to the previously completed South Coastal Information Center records search, literature and historical map review, Native American Heritage Commission Sacred Lands File search, archaeological field survey, or buried archaeological site sensitivity analysis prepared as part of the *Cultural Resource Identification Memorandum* are required to evaluate new land areas or potential cultural resources not already considered.

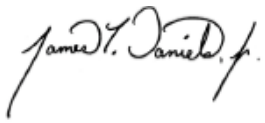
As the extent of the land area affected by the proposed Project has not changed, potential impacts resulting with future development of the site and associated mitigation measures to reduce such impacts to less than significant, as identified in the October 2024 *Cultural Resource Identification Memorandum*, remain applicable to the Project as currently proposed.

CONCLUSION

No new or substantially increased significant impacts relative to cultural resources would result with the revised Conceptual Site Plan. The significance findings and associated mitigation measures identified in the original *Cultural Resource Identification Memorandum* (October 2024) remain appropriate and applicable to the proposed Project.

Please feel free to contact me at (760) 208-0583 or at james.daniels@mbakerintl.com with any questions you may have regarding the results and/or conclusions of this report.

Sincerely,



James Daniels, MA, RPA
Senior Archaeologist

COMMERCIAL PAD SUMMARY TABLE

SITE AREA	36 ACRES		
PAD SUMMARY			
PAD NUMBER	**LOT SIZE (SF)**	**TOTAL BUILDING AREA (SF)**	**NO. OF PARKING PROVIDED**
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL / FOOD 30%)	48,534	6,500	42
#6 (RETAIL/ FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	*13,400*	*60*
#8 (RETAIL / SHOP)	77,770	15,600	80
#9 (HOTEL, **150 KEYS**)	197,790	122,905	194
#4 ('BIG BOX' RETAIL)	520,942	148,000	762
#4 ('BIG BOX' RETAIL)	420,755	95,000	499
TOTAL	**1,568,971**	**431,405**	**1890**

APARTMENT SUMMARY TABLE

SITE AREA	**28.77 ACRES**
TOTAL UNITS	**408 UNITS**
DENSITY	**14.2 DU/AC**

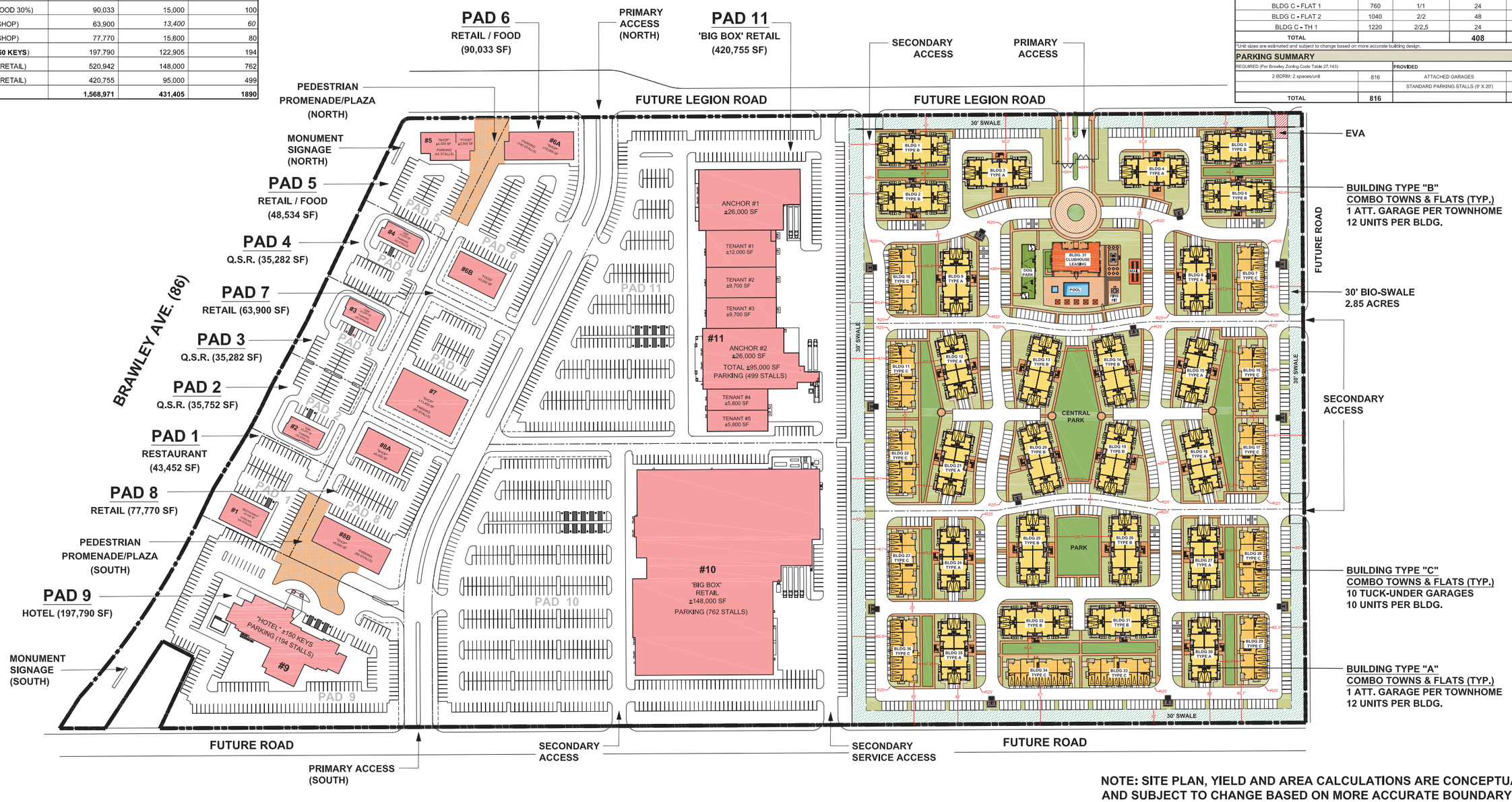
APARTMENT UNIT SUMMARY

UNIT PLAN	SQ. FT.*	BD/BA	# UNITS	TOTAL S.F.
BLDG A - UNIT 1	760	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2,5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2,5	48	57,600
BLDG C - CARRIAGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	760	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	49,920
BLDG C - TH 1	1220	2/2,5	24	29,280
TOTAL			**408**	**273,288**

*Unit sizes are estimated and subject to change based on more accurate building design.

PARKING SUMMARY

REQUIRED (Per Brawley Zoning Code Table 27.143)		PROVIDED	
2 BDRM: 2 spaces/unit	816	ATTACHED GARAGES	216
		STANDARD PARKING STALLS (9' X 20')	620
TOTAL	**816**		**836**



NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

Michael Baker INTERNATIONAL

File: 202590Figures.indd

0 50 100 200

Source: W Design & Architects, 03/09/2025

BRAWLEY MIXED USE MASTER PLAN PROJECT

Conceptual Site Plan

Figure 1

CITY OF BRAWLEY

Development Services Department
205 S. Imperial Avenue
Brawley, CA 92227

Building Division
Phone: (760) 344-8622
Fax: (760) 351-2656

Housing Division
Phone: (760) 351-1905
Fax: (760) 351-2656

Planning Division
Phone: (760) 344-8822
Fax: (760) 351-2656

August 14, 2025

RE: Initial Outreach Proposed Specific Plan Amendment, GP Amendment, Zone Change, Tentative Tract Map (APN: 048-440-001)

To whom it may concern,

The City of Brawley Planning Department received Specific Plan Amendment, GP Amendment, Zone Change, and Tentative Tract Map for a parcel located in the Gateway Specific Plan Area.

- **Site Location/Vicinity:**



- **Proposed Project:**

  The proposed project would require City approval of an amendment to the Brawley Gateway Specific Plan and a tentative tract map for future commercial and multi-family residential uses; refer to Exhibit 1, Conceptual Site Plan. As currently proposed, the western portion of the property (approximately 37 acres) would be subdivided for future commercial development, including strip retail plaza and larger retail shopping center uses. The conceptual Site Plan would include 65,500 SF of commercial space (Pads 1 to 8); the square footage of the retail shopping center uses is proposed to be 243,000 SF (Pads 10 and 11). A hotel of approximately 150 rooms (Pad 9). Proposed access to the commercial use area would still be from (future) Legion Road to the north, with secondary access occurring from the south continuation of Mead Road. Currently the Rockwood Canal runs along the southern property boundary and would require to be undergrounded. The eastern portion of the property (approximately 29 acres) would be subdivided to allow for the future development of 408 multi-family residential units and associated community amenities, with an estimated 836 parking spaces. Total square footage of the residential uses would be 273,288 SF. Proposed primary and secondary access to the residential would remain from (future) Legion Road to the north (to be improved to centerline of roadway); secondary access would be via a future road along the eastern boundary through the continuation of Western Avenue.

- **Current Zoning Designation:** The subject property is located within a C-2 (Medium Commercial), M-1 (Light Manufacturing); and C-P (Service Professional) zones. The project would require a zone change to accommodate R-2 (Medium Density Residential), additional Commercial Zone, and eliminate the M-1 zone.

- **Adjacent Property Zoning Designations:**

North:	C-2 (Medium Commercial)/ Wal-Mart/ARCO/Strip Shopping Center	East:	R-1 (Single Family Residential)
South:	Proposed Planned Development (Rancho Los Lagos)	West:	C-2/C-P (Medium Commercial/Service Professional) Hospital, Church, and Pharmacy

Please consider this letter and preliminary project information as formal notification of a proposed project. Please respond in writing within 30 days if you wish to request consultation regarding possible significant effects that the proposed project may have on tribal cultural resources.

Please provide a designated lead contact person if you have not already provided such information. If you or any of your tribal members have any questions or concerns regarding the proposed project, please contact don't hesitate to contact me: planning@brawley-ca.gov.

Sincerely,

Cynthia Mancha

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman Kw'ts'an
Cultural Committee
P.O. Box 1899
Yuma, AZ, 85366

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130
Santa Ysabel, CA, 92070

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural
Resources
P.O. Box 507
Santa Ysabel, CA, 92070

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Mesa Grande Band of
Mission Indians
Theresa Hernandez, Chairperson
P.O. Box 270
Santa Ysabel, CA, 92070

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302
Boulevard, CA, 91905

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

San Pasqual Band of Diegueno Mission
Indians Allen
Lawson, Chairperson
P.O. Box 365
Valley Center, CA, 92082

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Sycuan Band of the Kumeyaay Nation
Bernice Paipa, Cultural Resource Spc.
Sycuan Cultural Center: 910
Willow Glen Drive
El Cajon, CA, 92019

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Inaja-Cosmit Band of Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd.
Escondido, CA, 92025

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Kwaaymii Laguna Band of Mission
Indians
Carmen Lucas
P.O. Box 775
Pine Valley, CA, 91962

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Quechan Tribe of the Fort Yuma
Jordan Joaquin, President,
Quechan Tribal Council
P.O.Box 1899
Yuma, AZ, 85366

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Quechan Tribe of the Fort Yuma
Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899
Yuma, AZ, 85366

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

La Posta Band of Diegueno Mission
Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road
Boulevard, CA, 91905

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Mesa Grande Band of Diegueno
Mission Indians
Michael Linton, Chairperson
P.O Box 270
Santa Ysabel, CA, 92070

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road
Alpine, CA, 91901

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

La Posta Band of Diegueno Mission
Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road
Boulevard, CA, 91905

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Barona Group of the Capitan Grande
1095 Barona Road
Lakeside, CA, 92040

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Campo Band of Diegueno Mission
Indians
36190 Church Road, Suite 1
Campo, CA, 91906

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

San Pasqual Band of Diegueno Mission
Indians
John Flores, Environmental Coordinator
P. O. Box 365
Valley Center, CA, 92082

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairperson
1 Kwaaypaay Court
El Cajon, CA, 92019

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Viejas Band of Kumeyaay Indians
Ernest Pingleton, Tribal Historic Officer,
Resource Management
1 Viejas Grade Road
Alpine, CA, 91901

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Viejas Band of Kumeyaay Indians
Ray Teran, Resource
Management Director
1 Viejas Grade Road
Alpine, CA, 91901

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Jamul Indian Village
Lisa Cumper, Tribal Historic
Preservation Officer
P.O. Box 612
Jamul, CA, 91935

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road
Alpine, CA, 91901

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612
Jamul, CA, 91935

City of Brawley
c/o The Holt Group, Inc.
1601 N Imperial Avenue
El Centro, CA 92243

FIRST-CLASS
US POSTAGE PITNEY BOWES
ZIP 92243
02 7H
0001280935
$ 000.74⁰
AUG 15 2025

Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairman
1 Kwaaypaay Court
El Cajon, CA, 92019

From: Jill Mccormick <historicpreservation@quechantribe.com>
Sent: Wednesday, August 20, 2025 1:55:42 AM
To: Planning Department <Planning@brawley-ca.gov>
Subject: Proposed Specific Plan Amendment, GP Amendment, Zone Change, Tentative Tract May (APN 048-440-001

[EXTERNAL EMAIL] This email originated from outside of the organization. Please be mindful when opening attachments and embedded links.

You don't often get email from historicpreservation@quechantribe.com. Learn why this is important
Good afternoon,
This email is to inform you that the Historic Preservation Office of the Ft. Yuma Quechan Tribe does not wish to comment on this project.

Jill

H. Jill McCormick, M.A.
Historic Preservation Office
Ft. Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899
Office: 760-919-3631
Cell: 928-920-6521

Michael Baker
INTERNATIONAL

TRANSPORTATION IMPACT STUDY

Brawley Mixed Use Master Plan Development

Prepared for:
City of Brawley
383 Main Street
Brawley, CA 92227

January 7, 2025

5050 Avenida Encinas, Suite 260, Carlsbad, CA 92008
Office: 760.603-6266 | Fax: 760.476.9198
Contact: jacob.swim@mbakerintl.com
JN 202590

Michael Baker
INTERNATIONAL

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY 4
1.1 CEQA Analysis Summary 4
1.2 Transportation Operations (Level of Service) Summary 4
2 INTRODUCTION 5
2.1 Project Description 5
2.2 Project Location 5
3 PROJECT TRIP GENERATION 8
3.1 Proposed Project 8
3.1.1 Project Forecast Trip Generation 8
3.1.2 Proposed Project Trip Distribution & Trip Assignment 9
4 STUDY AREA & ANALYSIS METHODOLOGY 15
4.1 LOS Analysis Methodology 15
4.1.1 Intersection Analysis Methodology 15
4.1.1 Roadway Segment Analysis Methodology 16
4.1.2 Thresholds of Improvements 16
4.2 Study Area 17
4.3 Data Collection 17
5 CEQA VMT ANALYSIS 19
5.1 VMT Screening Criteria 19
5.2 VMT Thresholds 20
5.3 VMT Analysis 21
6 EXISTING CONDITIONS 23
6.1 Surrounding Roadway Network 23
6.2 Existing Conditions Traffic Analysis 24
6.2.1 Existing Intersection Evaluation 24
6.2.2 Existing Roadway Segment Evaluation 27
6.3 Active Transportation 28
6.3.1 Existing Pedestrian and Bicycle Facilities 28
6.3.2 Existing Transit Facilities 28
7 OPENING YEAR 2028 WITHOUT PROJECT CONDITIONS 31
7.1 Opening Year 2028 Without Project Analysis 31
7.1.1 Cumulative Traffic 31

7.1.2 Opening Year 2028 Without Project Intersection Evaluation 32
7.1.3 Opening Year 2028 Without Project Roadway Segment Evaluation 34
8 OPENING YEAR 2028 PLUS PROJECT CONDITIONS 35
8.1 Opening Year 2028 Plus Project Intersection Evaluation 35
8.1.1 Opening Year 2028 Plus Project Roadway Segment Evaluation 37
9 SUMMARY & CONCLUSIONS 38
9.1 CEQA Analysis Summary 38
9.1.1 VMT Impact Mitigation Options 38
9.2 Local Mobility Assessment (Level of Service) Summary 40

LIST OF EXHIBITS

Exhibit 1 – Project Location Map 6
Exhibit 2 – Project Site Plan 7
Exhibit 3 – Project Trip Distribution (Residential) 10
Exhibit 4 – Project Trip Distribution (Commercial) 11
Exhibit 5 – Project Trip Assignment (Residential) 12
Exhibit 6 – Project Trip Assignment (Commercial) 13
Exhibit 7 – Project Trip Assignment (Total) 14
Exhibit 8 – Study Area 18
Exhibit 9 – Traffic Analysis Zone (TAZ) For Project Site 22
Exhibit 10 – Existing Intersection Lane Geometry 25
Exhibit 11 – Existing Daily and AM/PM Peak Hour Intersection Volumes 26
Exhibit 12 – Existing Pedestrian and Bicycle Facilities 29
Exhibit 13 – Existing Transit Facilities 30
Exhibit 14 – Opening Year 2028 Without Project Daily and AM/PM Peak Hour Traffic Volumes 33
Exhibit 15 – Opening Year 2028 Plus Project Daily and AM/PM Peak Hour Traffic Volumes 36

LIST OF TABLES

Table 1 – ITE Trip Generation Rates 8
Table 2 – Proposed Project Trip Generation 8
Table 3 - Level of Service & Delay Range 15
Table 4 – Roadway Segment Daily Capacity & LOS Standards 16
Table 5 - VMT Screening Criteria Evaluation 19
Table 6 - VMT Assessment 21
Table 7 – Existing Conditions AM/PM Peak Hour Intersection LOS 24
Table 8 – Existing Conditions Roadway Segment LOS 27

Table 9 – Cumulative Projects Trip Generation Summary 31
Table 10 – Opening Year 2028 Without Project AM/PM Peak Hour Intersection LOS 32
Table 11 – Opening Year 2028 Without Project Conditions Roadway Segment LOS 34
Table 12 – Opening Year 2028 WO Project & Opening Year 2028 + Project AM/PM PH Int. LOS 35
Table 13 – Opening Year 2028 WO Project & Opening Year 2028 + Project Roadway Segment LOS Comparison 37

APPENDICES

Appendix A: TIA Scoping Memo
Appendix B: Traffic Count Data & Signal Timing Sheets
Appendix C: Existing HCM Worksheets
Appendix D: Opening Year 2028 Without Project HCM Worksheets
Appendix E: Opening Year 2028 Plus Project HCM Worksheets

1 EXECUTIVE SUMMARY

This transportation impact study analyzes the forecast transportation conditions associated with the proposed Brawley Mixed Use Master Plan Development (project). The approximately 66-acre project site is located on the southeast corner of Brawley Avenue and Legion Road in the City of Brawley (City) in south-central Imperial County, California. The project proposes an amendment to the Brawley Gateway Specific Plan to subdivide the property and allow for future commercial and multi-family residential uses. The affected County Assessor Parcel Number is 048-440-001. The site currently supports agricultural use.

1.1 CEQA ANALYSIS SUMMARY

In December 2018, new California Environmental Quality Act (CEQA) guidelines were approved that shift transportation analysis from delay and operations to vehicle miles traveled (VMT) when evaluating transportation Impacts under CEQA. This change in methodology is a result of Senate Bill 743 (SB743), which was signed into law in September 2013. The Governor's Office of Planning and Research (OPR) released *Technical Advisory on Evaluating Transportation Impacts in CEQA* in December 2018 (Technical Advisory) that contains recommendations regarding assessment of VMT, screening criteria, thresholds of significance, and approach to mitigating impacts. Statewide implementation VMT as the metric for evaluating transportation impacts under CEQA occurred on July 1, 2020. The City of Brawley does not have VMT guidelines, therefore, OPR's Technical Advisory was used to evaluate the project's transportation impacts based on VMT. The project is not screened out from needing a VMT analysis for both the residential and commercial components of the site. As such, a detailed VMT analysis is required and provided in this report.

1.2 TRANSPORTATION OPERATIONS (LEVEL OF SERVICE) SUMMARY

While transportation impacts are based on VMT, the City also requires analysis of intersection and roadway segment operating conditions for their Transportation Impact Analysis (TIA). For purposes of this analysis, level of service (LOS) D or better is considered acceptable operating conditions at study intersections and roadway segments. LOS E and F are considered deficient operating conditions.

Under the Opening Year 2028 Without and With Project conditions, all study intersections are forecast to operate at acceptable LOS D or better. It may be noted that a new traffic signal is assumed at S Brawley Avenue & Future Road (Study Int. #9) and Project Driveway #1 & Future Legion Road (Study Int. #6) to be designed and constructed by the project. Coordination with City staff will be necessary to address permits, utilities, plans and construction of a new signal at these two locations.

S Brawley Avenue from Malan Street to Wildcat Drive is forecast to operate at LOS F under Opening Year 2028 Plus Project conditions. As discussed in Section 4.1.2 in this report, if traffic generated by the project causes a roadway to degrade to LOS E or below, the project shall build a roadway segment to its ultimate General Plan Mobility Element classification if not currently constructed as such. However, this section of S Brawley Avenue is built to its ultimate classification (i.e. 4-lane Arterial). In addition, the intersections at S Brawley Avenue & Malan Street and S Brawley Avenue & Wildcat Drive are forecast to operate at acceptable conditions (LOS C) during the AM and PM peak hour. Therefore, widening S Brawley Avenue from Malan Street to Wildcat Drive is not recommended.

2 INTRODUCTION

This study analyzes the forecast transportation conditions associated with the proposed Brawley Mixed Use Master Plan Development project in the City of Brawley.

2.1 PROJECT DESCRIPTION

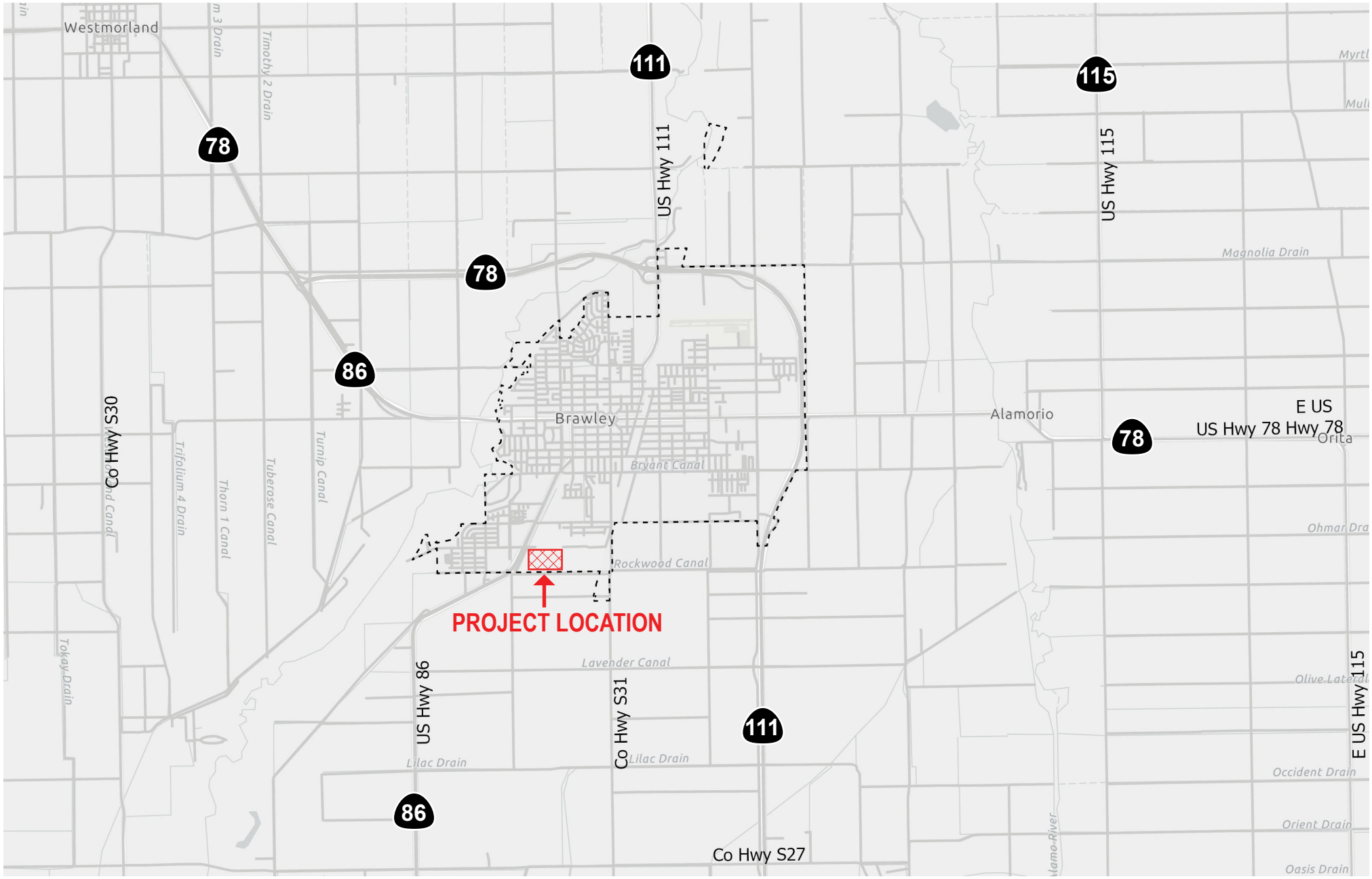
The Brawley Mixed Use Master Plan Development project (proposed project) proposes an amendment to the Brawley Gateway Specific Plan to subdivide the property and allow for future commercial and multi-family residential uses. The eastern portion of the property (approximately 29 acres) would be subdivided to allow for development of 408 multi-family residential units, with an estimated 816 parking spaces provided. The western portion of the property (approximately 37 acres) would be subdivided into 12 lots for future commercial development, including strip retail plaza, larger retail shopping center and a commercial hotel with approximately 100 rooms. The site currently supports agricultural use. Primary access to the proposed commercial area is planned from (future) Legion Road to the north and a second (future/unnamed) road to the south. Future access from the north would require improvement of Legion Road to the centerline along a portion of the northern property boundary. Future access from the south into the proposed commercial area would require construction of a new roadway above the existing canal (Rockwood Canal) along the extent of the southern project boundary. Primary and secondary access to the proposed residential area is planned from (future) Legion Road to the north (to be improved to centerline of roadway). Secondary access is also anticipated via a future road along the eastern boundary.

2.2 PROJECT LOCATION

The proposed project site is located in the northern portion of the City of Brawley (City) in south-central Imperial County, California. The subject site is located south of (future) Legion Road, east of Brawley Avenue/State Highway 86, and north of Rockwood Canal. The affected County Assessor Parcel Number is 048-440-001.

Exhibit 1 shows the location of the project site.

Exhibit 2 provides the project site plan.



Michael Baker INTERNATIONAL

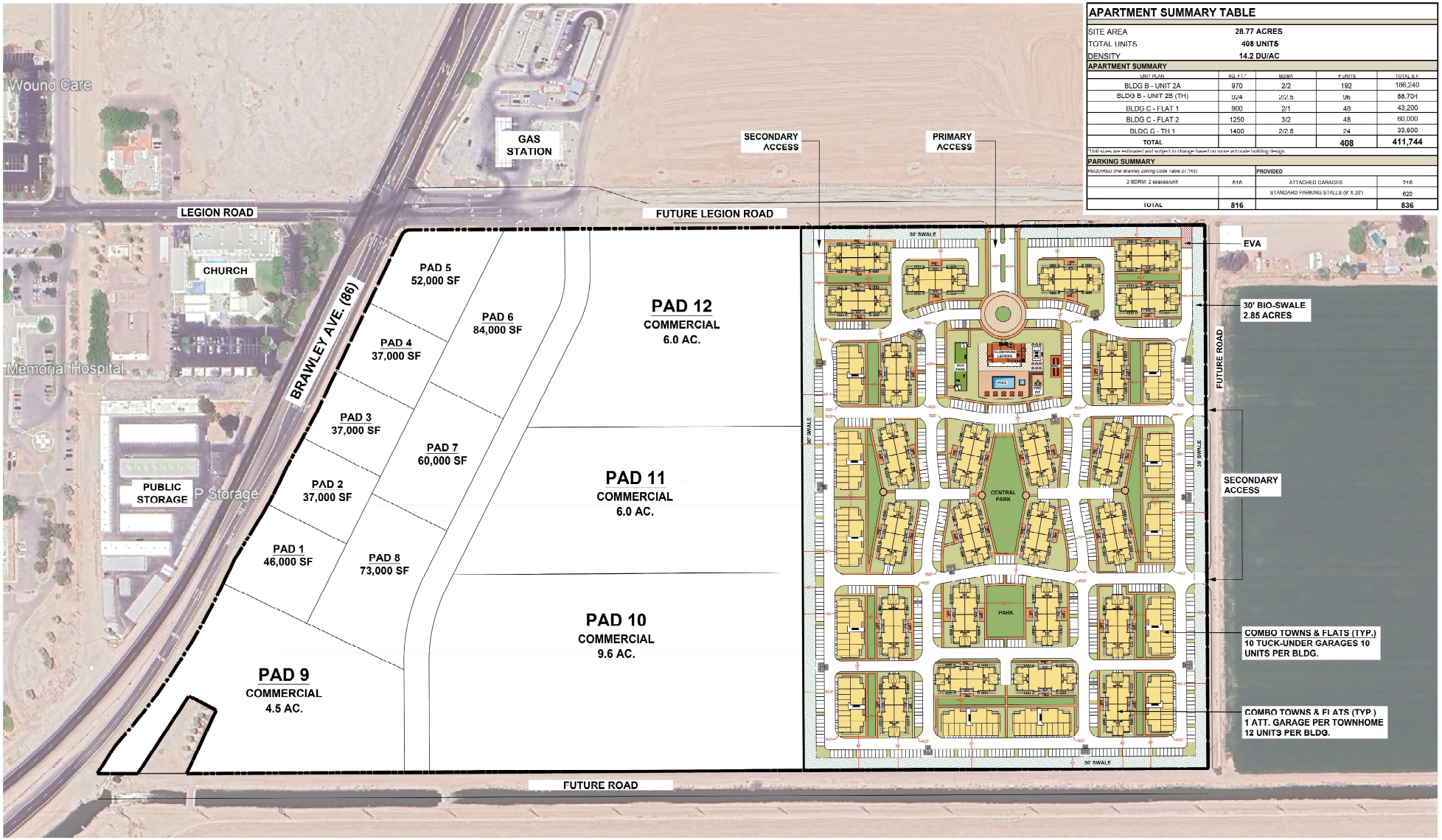
Not to Scale

Project Location

Exhibit 1

Nov 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



APARTMENT SUMMARY TABLE

SITE AREA	28.77 ACRES
TOTAL UNITS	408 UNITS
DENSITY	14.2 DU/AC

APARTMENT SUMMARY

UNIT PLAN	SQ. FT.*	BD/BA	# UNITS	TOTAL S.F.
BLDG B - UNIT 2A	970	2/2	192	186,240
BLDG B - UNIT 2B (TH)	924	2/2.5	96	88,704
BLDG C - FLAT 1	900	2/1	48	43,200
BLDG C - FLAT 2	1250	3/2	48	60,000
BLDG C - TH 1	1400	2/2.5	24	33,600
TOTAL			408	411,744

*Unit sizes are estimated and subject to change based on more accurate building design.

PARKING SUMMARY

REQUIRED (Per Brawley Zoning Code Table 27.142)		PROVIDED	
2 BDRM: 2 spaces/unit	816	ATTACHED GARAGES	216
		STANDARD PARKING STALLS (9' X 20')	620
TOTAL	816		836

NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

N

0 100' 200'

Source: Danielian Associates Architecture and Planning

Michael Baker INTERNATIONAL

Not to Scale

Project Site Plan

Exhibit 2

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

3 PROJECT TRIP GENERATION

3.1 PROPOSED PROJECT

The project proposes to construct 408 multi-family residential units and approximately 37 acres of commercial area. The site currently supports agricultural use. Vehicular access to the project site will be provided via (future) Legion Road for the residential portion of the project. For the commercial portion, primary access will be provided via (future) Legion Road to the north and a second (future/unnamed) road along the southern boundary of the project site.

3.1.1 Project Forecast Trip Generation

In order to calculate the vehicular trips forecast to be generated by the project, the *Institute of Transportation Engineers (ITE) 11th Edition Trip Generation Manual* rates were utilized as summarized in **Table 1.**

TABLE 1 – ITE TRIP GENERATION RATES

Trip Generation Rates1

Land Use	ITE Code [1]	Daily Trip Rate	AM Peak Hour Rate		PM Peak Hour Rate	
			Total	In : Out	Total	In : Out
Multi-Family Residential	220	6.74 /DU	0.40 /DU	24% : 76%	0.51 /DU	63% : 37%
Shopping Plaza	821	67.52 /KSF	1.73 /KSF	62% : 38%	5.91 /KSF	49% : 51%
Shopping Center	820	37.01 /KSF	0.84 /KSF	62% : 38%	3.40 /KSF	48% : 52%
Hotel	310	7.99 /Room	0.46 /KSF	56% : 44%	0.59 /KSF	51% : 49%

[1] Source: ITE Trip Generation Manual, 11th Edition.

Table 2 summarizes the project trip generation using the rates shown in **Table 1**. As shown, the project is forecast to generate approximately 15,150 daily vehicle trips with 489 AM peak hour trips (239 inbound and 251 outbound) and 1,247 PM peak hour trips (636 inbound and 611 outbound).

TABLE 2 – PROPOSED PROJECT TRIP GENERATION

Land Use	Pad	Intensity	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
				Total	In : Out	Total	In : Out
Multi-Family Residential	-	408 DU	2750	163	39 : 124	208	131 : 77
Shopping Plaza	1 thru 8	85 KSF	5739	147	91 : 56	441	216 : 225
Shopping Center	10 thru 12	240 KSF	8882	202	125 : 77	816	392 : 424
Pass-By Trips Reduction (34%) [1]			-3020	-69	-43 : -26	-277	-133 : -144
Sub-Total Shopping Center Trips			***5862***	***133***	***83 : 51***	***539***	***259 : 280***
Hotel	9	100 Rooms	799	46	26 : 20	59	30 : 29
TOTAL TRIP GENERATION			**15150**	**489**	**239 : 251**	**1247**	**636 : 611**

Notes:

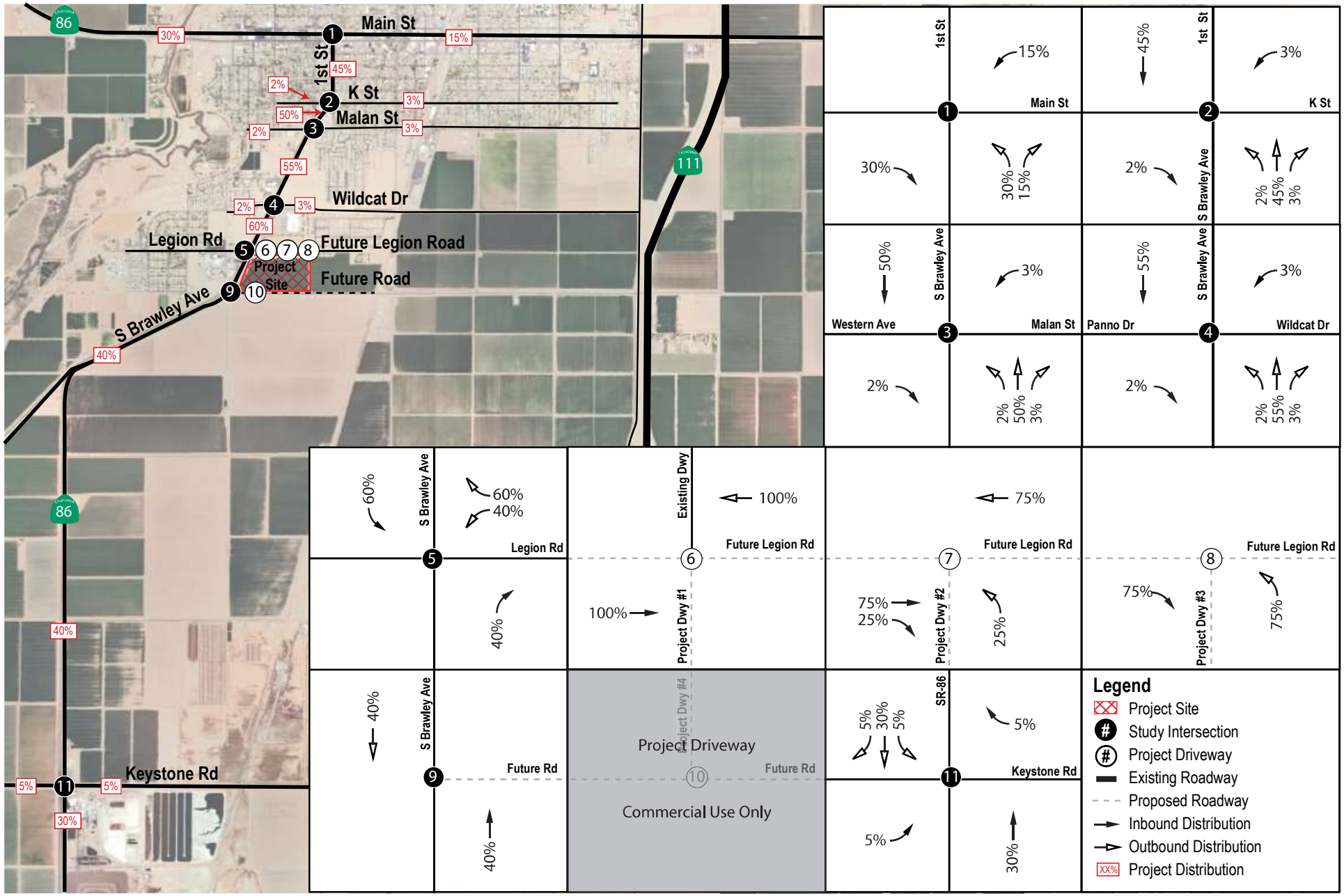
DU = Dwelling Unit

KSF = 1,000 Square Feet

[1] *ITE Trip Generation Handbook*

3.1.2 Proposed Project Trip Distribution & Trip Assignment

Project trips were distributed onto the surrounding roadway network based on existing travel patterns using existing traffic count data. **Exhibit 3** shows the forecast residential trip percent distribution of the proposed project within the study area, while **Exhibit 4** shows the forecast commercial trip percent distribution. As shown, 60% of project traffic is expected to travel to/from the north on Brawley Avenue and 40% to/from the south. On Main Street, 30% of traffic is assumed to use this roadway traveling west while 15% traveling east. **Exhibit 5** and **Exhibit 6** show the corresponding residential and commercial forecast assignment of AM and PM peak hour project-generated trips assuming the trip percent distribution. The total project trip assignment is shown in **Exhibit 7**.



Not to Scale

Project Trip Distribution (Residential)

Exhibit 3

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

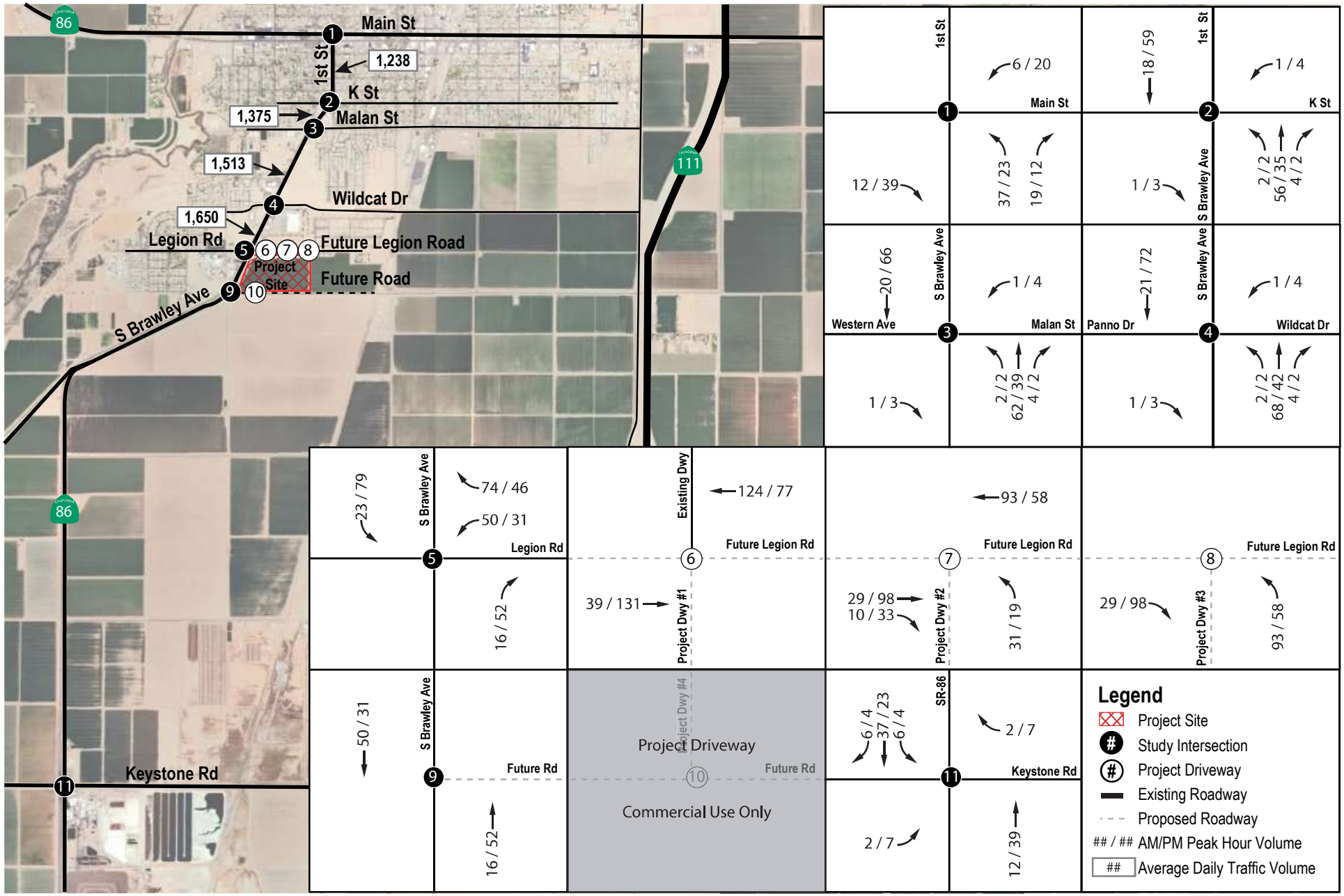
Project Trip Distribution (Commercial)

Exhibit 4

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

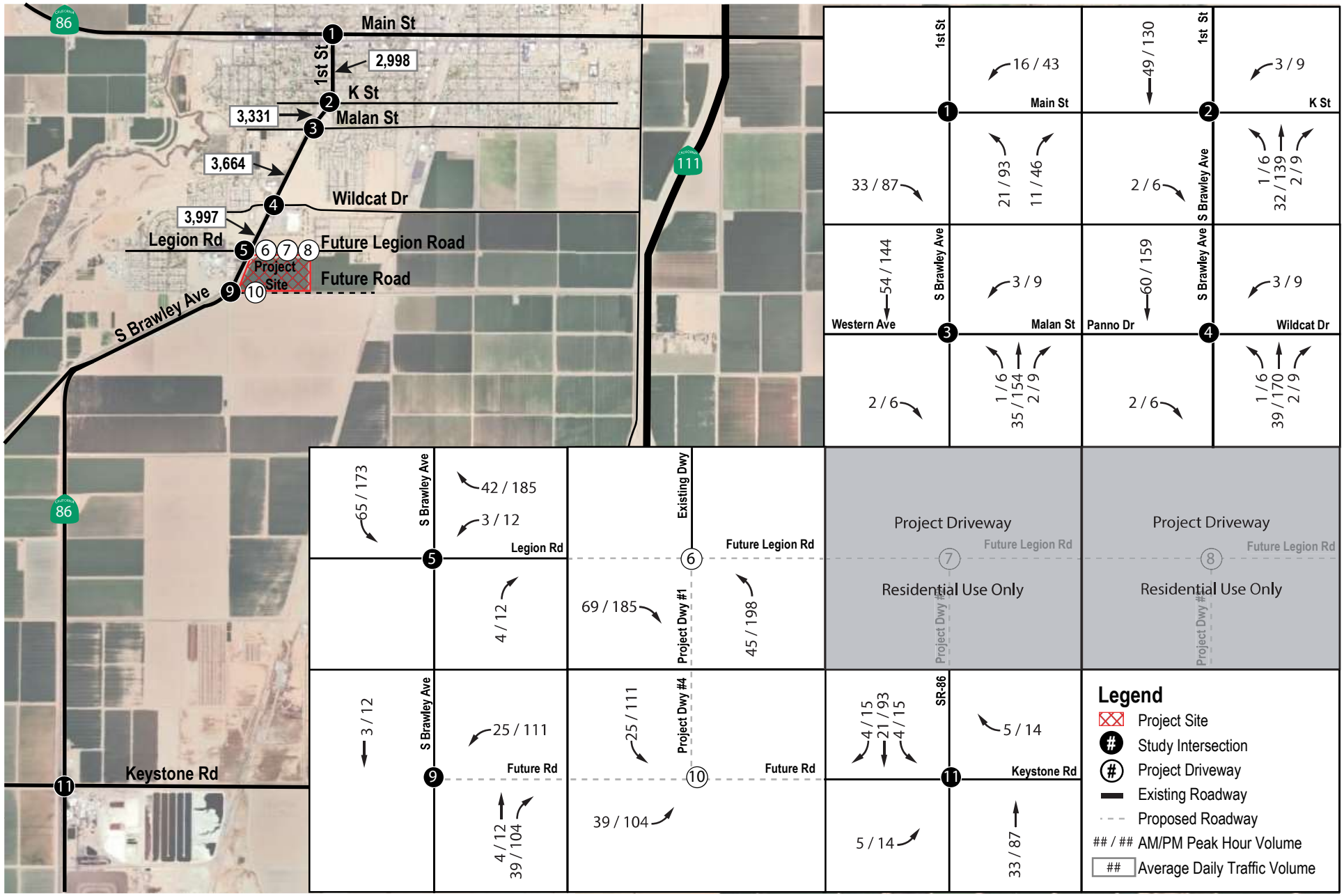
Project Trip Assignment (Residential)

Exhibit 5

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

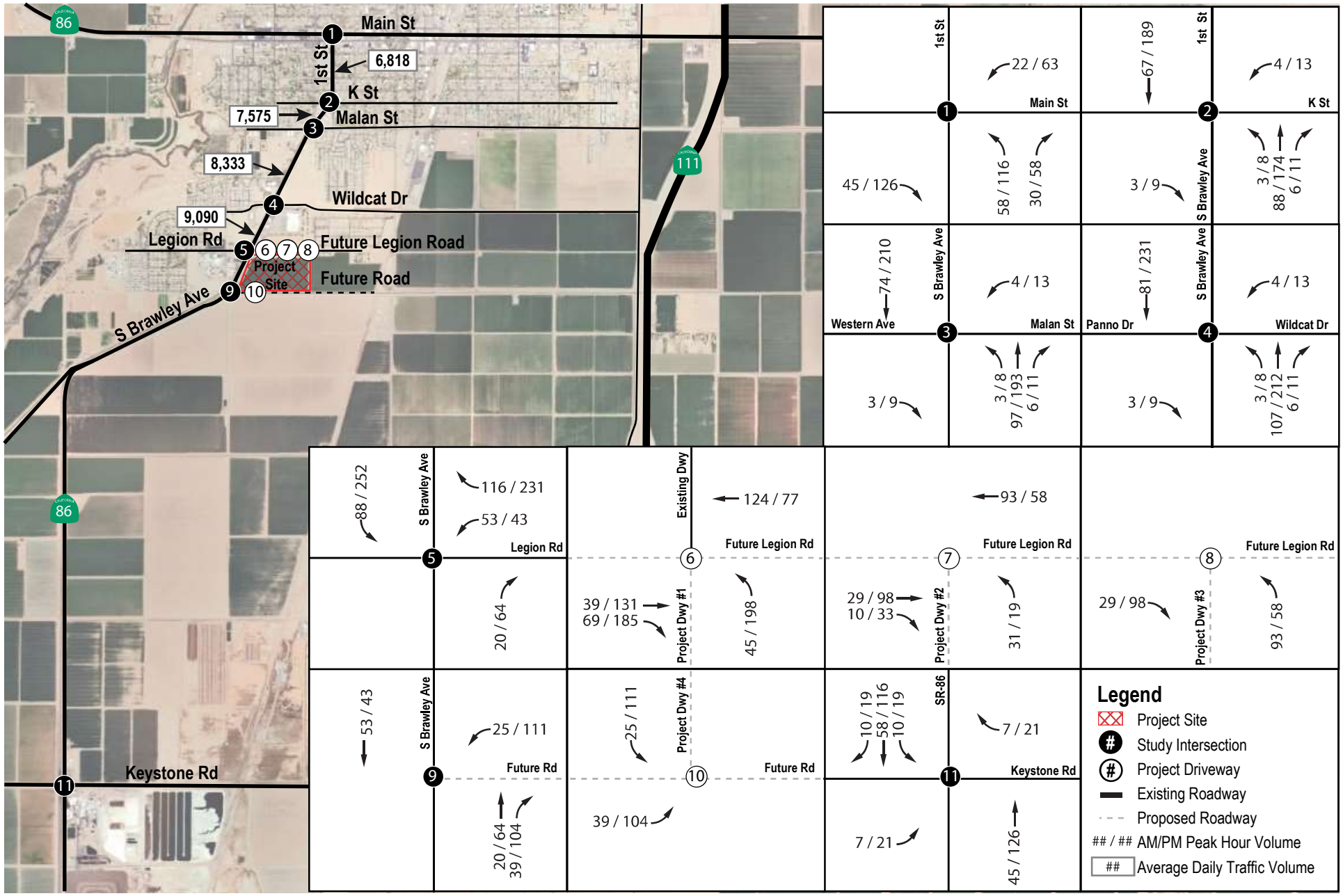
Project Trip Assignment (Commercial)

Exhibit 6

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

Project Trip Assignment (Total)

Exhibit 7

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

4 STUDY AREA & ANALYSIS METHODOLOGY

4.1 LOS ANALYSIS METHODOLOGY

4.1.1 Intersection Analysis Methodology

Level of Service (LOS) is commonly used as a qualitative description of intersection operation and is based on the capacity of the travel lanes approaching the intersection, the volume of traffic using the intersection, and the average vehicle delay. The intersection analysis conforms to the operational analysis methodology outlined the *Highway Capacity Manual (HCM 6th Edition)* and performed utilizing *Synchro 11* traffic analysis software.

The *HCM* analysis methodology describes the operation of an intersection using a range of level of service from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding stopped delay experienced per vehicle for study intersections as shown in **Table 3**.

For signalized intersections, signal timing data and parameters such as cycle lengths, splits, clearance intervals, etc. were obtained from the current signal timing data sheets provided by City staff and incorporated into the Synchro model. Synchro reports average vehicle delay for a signalized intersection, which correspond to a particular LOS, to describe the overall operation of an intersection.

Unsignalized intersection LOS for all-way stops and roundabouts is based on the average vehicle delay for all approaches. Average vehicle delay for one-way or two-way stop-controlled intersections is influenced by available gaps in traffic flow on the non-controlled approaches and LOS is based on the approach with the worst delay. The City of Brawley has adopted level of service "D" or better as the standard for acceptable operating conditions for intersections.

TABLE 3 - LEVEL OF SERVICE & DELAY RANGE

Level of Service	Control Delay (seconds/vehicle)		Description
	Signalized Intersections	Unsignalized Intersections	
A	≤ 10.0	≤ 10.0	Operates with very low delay and most vehicles do not stop.
B	> 10.0 to 20.0	> 10.0 to 15.0	Operates with good progression with some restricted movements.
C	> 20.0 to 35.0	>15.1 to 25.0	Operates with significant number of vehicles stopping with some backup and light congestion.
D	> 35.0 to 55.0	> 25.0 to 35.0	Operates with noticeable congestion, longer delays occur, and many vehicles stop.
E	> 55.0 to 80.0	> 35.1 to 50.0	Operates with significant delay, extensive queuing and unfavorable progression.
F	> 80.0	> 50.0	Operates at a level that is unacceptable to most drivers. Arrival rates exceed capacity of the intersection. Extensive queuing occurs.

Source: Highway Capacity Manual (HCM) 6th Edition.

4.1.1 Roadway Segment Analysis Methodology

The basis for roadway segment analysis is the relationship between the measured daily traffic volume and the Level of Service (LOS) capacity thresholds established according to roadway classifications. The analysis results provide a planning-level assessment of whether a segment is under, approaching, or over the planning level capacity threshold. For purposes of this analysis, LOS "D" or better is considered acceptable operating conditions for roadway segments. **Table 4** presents the roadway segment capacity thresholds by LOS for 4 lane roadways and 2 lane roadways per Table ME.3 in the El Centro Traffic Study Guidelines.

TABLE 4 – ROADWAY SEGMENT DAILY CAPACITY & LOS STANDARDS

Roadway Functional Classification	Level of Service Capacity (ADT)				
	LOS A	LOS B	LOS C	LOS D	LOS E
4-Lane Divided Arterial	22,000	25,000	29,000	32,300	36,000
4-Lane Undivided Arterial	16,000	19,000	22,000	24,000	27,000
2-Lane Arterial	11,000	12,500	14,500	16,000	18,000
2-Lane Collector	6,000	7,500	9,000	10,500	12,000

Source: Table ME.3 from El Centro Traffic Study Guidelines | **Note**: El Centro Traffic Study Guidelines were used as reference for this report since Brawley does not LOS Standards in their Circulation Element.

4.1.2 Thresholds of Improvements

For purposes of this analysis, level of service "D" or better is considered acceptable operating conditions for intersections and roadway segments. The following thresholds are used to determine a project's substantial traffic effect on vehicular intersections and roadway segments:

Roadway Segment:

- Proposed project causes roadway capacity to degrade to LOS E or below. The proposed project shall build a roadway segment to its ultimate mobility element classification if not currently constructed as such.

Signalized Intersection:

- Proposed project adds traffic to an intersection that currently operates or is projected to operate at LOS E or below.
- Proposed project causes an intersection's operations to degrade to LOS E or below.
- Proposed project traffic either contributes to or is responsible for the 95th percentile queue length to exceed the available storage length.

Side-Street Stop Control:

- Proposed project contributes to a critical movement of an intersection that currently operates or is projected to operate at LOS E or below.

4.2 STUDY AREA

Based on the estimated trips generated by the project, existing roadway network and surrounding land uses, Michael Baker determined the following eleven (11) intersections should be analyzed during the AM/PM peak hours:

1. 1st Street / Main Street
2. 1st Street / K Street
3. S Brawley Avenue / Malan Street
4. S Brawley Avenue / Wildcat Drive
5. S Brawley Avenue / Legion Road
6. Future Driveway #1 / Future Legion Road
7. Future Driveway #2 / Future Legion Road
8. Future Driveway #3 / Future Legion Road
9. S Brawley Avenue / Future Road
10. Future Driveway #4 / Future Road
11. Imperial Avenue (SR-86) / Keystone Road

The study also evaluates the following four (4) roadway segments for average daily (24-hour) traffic volumes:

A. 1st Street – between Main Street and K Street
B. 1st Street – between K Street and Malan Street
C. S Brawley Avenue – between Malan Street and Wildcat Drive
D. S Brawley Avenue – between Wildcat Drive and Legion Road

Exhibit 8 shows the study locations.

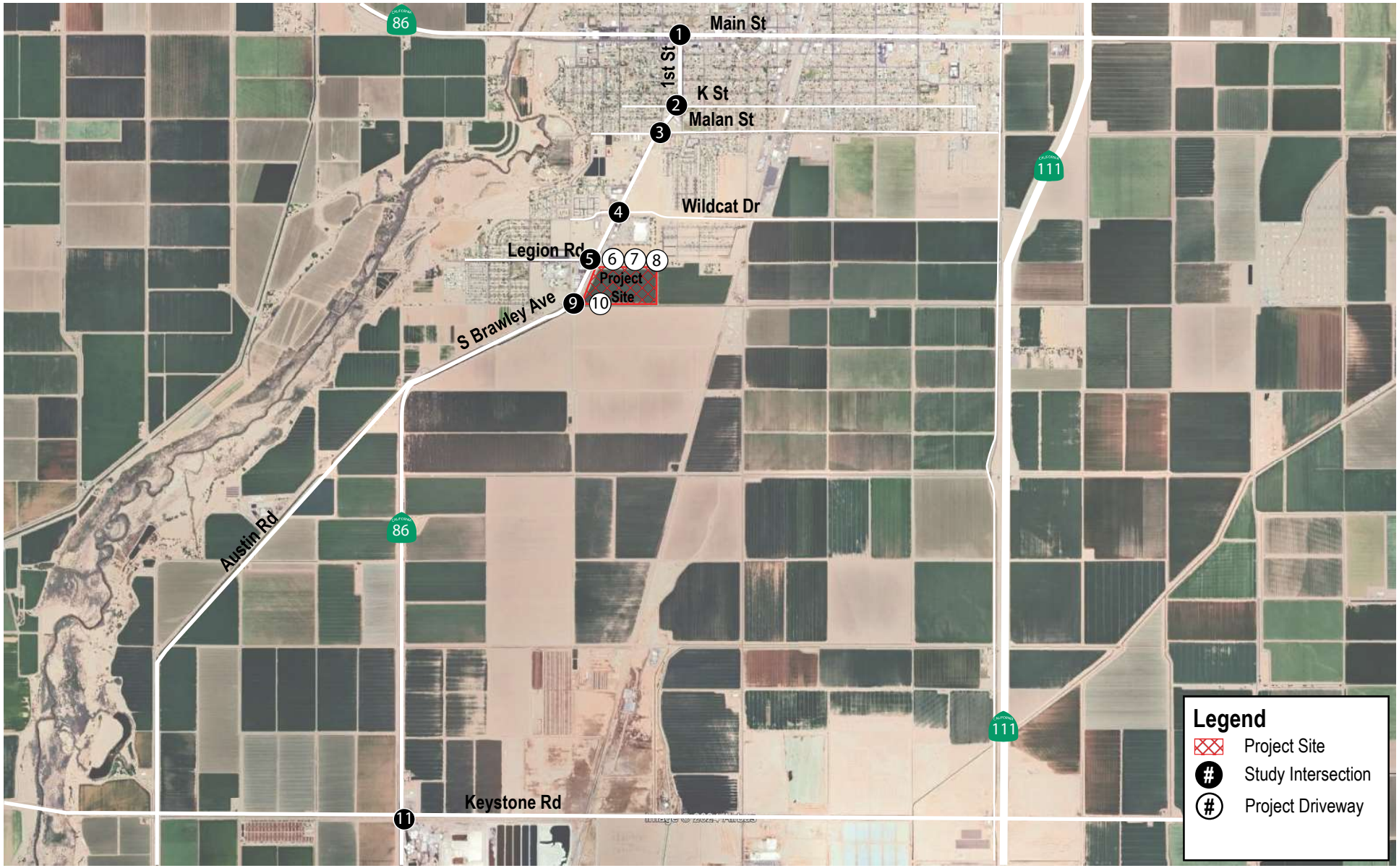
The following study scenarios will be evaluated:

- Existing Conditions
- Opening Year 2028 Without Project Conditions
- Opening Year 2028 Plus Project Conditions

Michael Baker coordinated with City staff on the study assumptions and completed the traffic scoping process which identified the project's trip generation, trip distribution and assignment, study locations and scenarios, and study methodology which can be found in **Appendix A**.

4.3 DATA COLLECTION

Traffic counts were collected at the study locations along S Brawley Avenue on Wednesday, October 16, 2024. Pedestrian and bicycle counts were also collected at the study intersections during the AM and PM peak periods. Traffic count data and signal timing at study locations are provided in **Appendix B**.



Not to Scale

Michael Baker INTERNATIONAL

Study Area

Exhibit 8

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

5 CEQA VMT ANALYSIS

In December 2018 new CEQA guidelines were approved that shift traffic analysis from delay and operations to VMT when evaluating Transportation Impacts under CEQA. This change in methodology is a result of SB743, which was signed into law in September 2013. SB743 "creates a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB743 requires OPR to amend the CEQA Guidelines to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must 'promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.'[1] "[2]

As part of the development of the new CEQA guidelines, OPR prepared a Technical Advisory**.** The final version of the Technical Advisory is dated December 2018 and provides guidance for local jurisdictions in developing methodologies and thresholds for evaluating VMT. The City of Brawley does not have their own VMT guidelines, therefore, OPR's Technical Advisory was used to evaluate the project's transportation impacts based on VMT.

5.1 VMT SCREENING CRITERIA

OPR's Technical Advisory includes screening criteria for land use projects such as the proposed Brawley Mixed use project. A project that meets at least one of the screening criteria would have a less-than-significant VMT impact due to project characteristics and/or location. Each of the screening criteria have been reviewed to determine if the proposed project meets the screening criteria, see **Table 5**.

TABLE 5 - VMT SCREENING CRITERIA EVALUATION

ID	VMT Screening Criteria	Description	Screening Evaluation	Criteria Met? (Yes / No)
1	Small Projects	Projects that generate or attract fewer than 110 trips per day.	The project generates 15,150 daily trips which exceeds the 110 daily trip threshold.	NO
2	Map-Based Screening for Residential and Office Projects	Residential and office projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with data from a travel survey or travel demand model can illustrate areas that are currently below threshold VMT. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis.	Map-based screening maps have not been developed for the City of Brawley. Therefore, low VMT areas have not been identified and the project cannot be analyzed using this metric.	NO

[1] Public Resources Code Section 21099(b)(1)
[2] Office of Planning and Research, http://www.opr.ca.gov/ceqa/updates/sb-743/

ID	VMT Screening Criteria	Description	Screening Evaluation	Criteria Met? (Yes / No)
3	Near Transit Stations	Projects that are proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less-than-significant impact on VMT. This presumption would not apply, however, if project-specific or location-specific information indicates that the project will still generate significant levels of VMT. For example, the presumption might not be appropriate if the project: ● Has a Floor Area Ratio (FAR) of less than 0.75 ● Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking) ● Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization)	The project is not located within ½ mile of an existing major transit stop (site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods). The project is also not located along a high-quality transit corridor (corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours).	NO

The project meets none of the three VMT screening criteria described in the table above. Therefore, a detailed VMT analysis is required, and the proposed project is not presumed to have a less-than-significant transportation impact.

5.2 VMT THRESHOLDS

OPR's Technical Advisory provides recommended thresholds for residential, retail and office projects.

Residential Project Threshold: A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita. Proposed development referencing city VMT per capita should not cumulatively exceed the number of units specified in the Sustainable Community Strategy (SCS) for that city, and should be consistent with the SCS.

Office Project Threshold: A proposed project exceeding a level of 15 percent below existing regional VMT per employee may indicate a significant transportation impact. The proposed project does not include an office component and therefore, this threshold does not apply to the project.

Retail Project Threshold: A net increase in total VMT may indicate a significant transportation impact.

The OPR Technical Advisory Guidelines also state "*By adding retail opportunities into the fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant.*" For the retail portion of the proposed development, the recommended "Retail Project Threshold" is based on whether the total work-based VMT/employee for the project TAZ is less than Imperial County's total work-based VMT/employee (i.e. 10.04).

5.3 VMT ANALYSIS

According to a Southern California Association of Governments (SCAG) Year 2040 Travel Forecast Model for Imperial County, the project site is located in Traffic Analysis Zone (TAZ) 14049103. A map of the TAZ is provided in **Exhibit 9**. The socioeconomic data including home-based and work-based productions and attractions within this TAZ are provided in **Table 6**.

For the residential component of the project, the total home-based VMT/capita for the project's TAZ is 12.55 which is slightly higher than Imperial County's total home-based VMT/capita (12.04). For the project to have a less-than-significant impact, the total VMT/capita would need to be 10.67 which is 15% below Imperial County's VMT/capita. As shown, an 11% reduction in VMT/capita is needed to mitigate the impact.

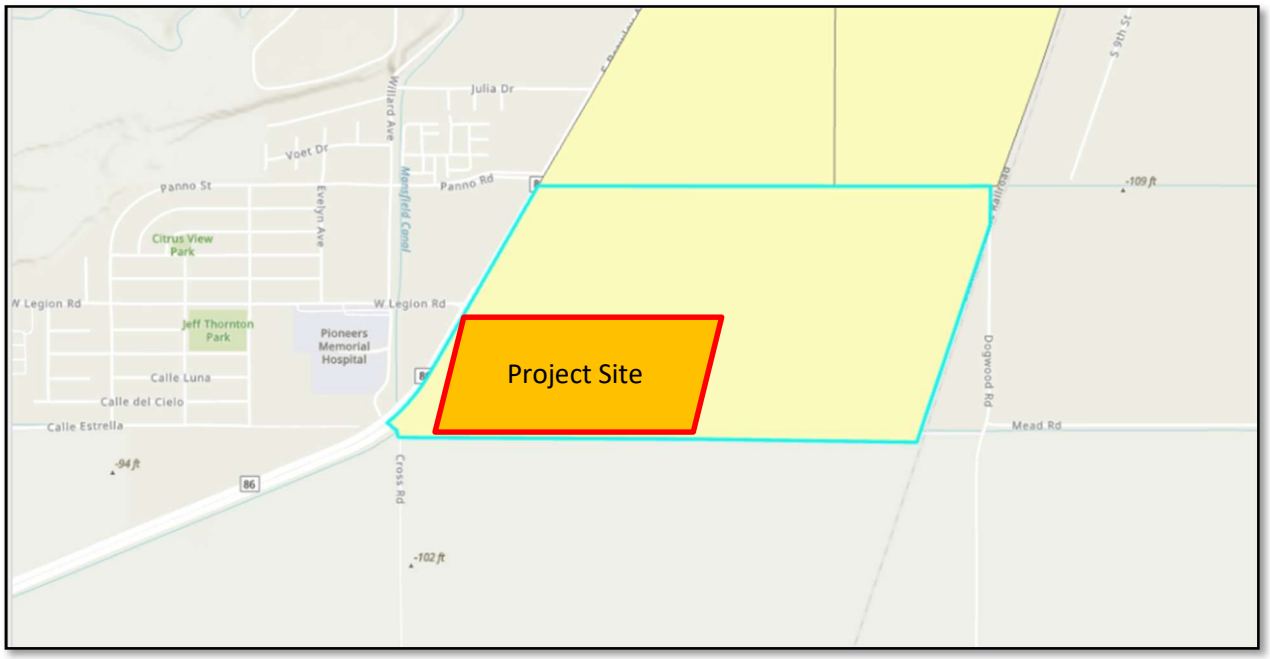
For the retail component of the project, the total work-based VMT/employee for the project's TAZ is 9.46 which is less than Imperial County's total work-based VMT/employee (10.04). Since the project's VMT/employee value (9.46) is less than Imperial County's VMT/employee value of 10.04, no mitigation is required.

TABLE 6 - VMT ASSESSMENT

Imperial County			
ID	**Purpose**	**Productions**	**Attractions**
1	Home-based Work	1,232,690	1,067,512
2	Home-based School	85,723	80,903
3	Home-based University	104,487	120,874
4	Home-based Shopping	246,748	237,524
5	Home-based Social-Recreational	591,550	538,702
6	Home-based Serve Passenger	284,806	281,670
7	Home-based Other	690,990	635,172
8	Work-Based Other	146,718	140,652
9	Other Based Other	406,998	408,156
	Total VMT	3,790,710	3,511,165
	Total Home-based VMT		3,236,994
	Total Work-based VMT		1,214,230
	Total Population	268,928	
	Total Employees	120,998	
	Total Home-based VMT/Capita	**12.04**	
	Total Work-based VMT/Employee	**10.04**	

TAZ:		**14049103**	
ID	**Purpose**	**Productions**	**Attractions**
1	Home-based Work	6,215	1,170
2	Home-based School	416	-
3	Home-based University	818	-
4	Home-based Shopping	1,590	984
5	Home-based Social-Recreational	2,696	2,061
6	Home-based Serve Passenger	949	424
7	Home-based Other	2,508	1,610
8	Work-Based Other	221	271
9	Other Based Other	1,881	1,263
	Total VMT	17,294	7,784
	Total Home-based VMT		15,192
	Total Work-based VMT		1,391
	Total Population	1,211	
	Total Employees	147	
	Total Home-based VMT/Capita	**12.55**	
	Total Work-based VMT/Employee	**9.46**	
	15% Below Imperial County VMT/Capita	10.67	
	Difference in Imperial County VMT/Employee	0.58 (10.04 - 9.46)	
	% Needed to Mitigate Impact (VMT/Capita)	11%	
	% Needed to Mitigate Impact (VMT/Employee)	0%	

EXHIBIT 9 – TRAFFIC ANALYSIS ZONE (TAZ) FOR PROJECT SITE



VMT MITIGATION

The California Air Pollution Control Officers Association's Handbook for *Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity, Designing for Local Government, Communities, and Project Developers Report, Chapter 3 – Transportation, December 2021*, (CAPCOA Report) quantifies the reduction in VMT associated with a particular mitigation measure. The CAPCOA VMT reduction strategies include built environment changes and transportation demand management actions.

The recommended mitigation measure for the Project found in the CAPCOA Report is T-1 (Increase Residential Density). This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of dwelling units compared to the average residential density in the U.S.

VMT Reduction Formula for T-1 is $A = (B – C)/C \times D$.

where,
A = percent reduction in GHG emissions from project VMT in study area (%)
B = residential density of Project development (du/acre)
C = residential density of typical development (9.1 du/acre per Ewing et al. 2007)
D = elasticity of VMT with respect to residential density (-0.22 per Stevens 2016)

Based on the Project description for the residential component which includes 408 units on approx. 29 acres, the CAPCOA T-1 formula was applied, as shown below:

$A = (B – C)/C \times D = ((408/29) – 9.1)/9.1 \times -0.22 = 12\%$

Based on the above calculation, the Project's VMT could be reduce by 12% which exceeds the 11% needed for the residential component of the Project. Therefore, in accordance with OPR Guidelines, the proposed Project is presumed to have a less than significant CEQA related transportation impact.

6 EXISTING CONDITIONS

6.1 SURROUNDING ROADWAY NETWORK

The characteristics of the roadway system in the vicinity of the project site are described below:

1st Street is oriented in the north-south direction and is currently constructed as a 4-lane Arterial. Raised medians are provided for the length of the corridor with dedicated left turn lanes at signalized intersections. Within the study area, the posted speed limit is 40 miles per hour (MPH). On-street parking is permitted in both directions within the study area. There are no bike lanes, but intermittent sidewalks provided within the study area.

Main Street is oriented in the east-west direction and is currently constructed as a 4-lane Arterial. The post speed limit is 30 MPH in the eastbound direction and 40 MPH westbound. On-street parking is prohibited in both directions within the study area. Sidewalks are generally provided on both sides of the roadway.

K Street is oriented in the east-west direction and is currently constructed as a 2-lane Collector. Within the study area, the Prima Facie speed limit is 25 MPH. On-street parking is provided in both directions within the study area. Class II bike lanes and sidewalks are provided on both sides of the roadway.

S Brawley Avenue is oriented in the north-south direction and is currently constructed as a 4-lane Arterial between K Street and Legion Road. The posted speed limit is 40 MPH. On-street parking is prohibited along both sides of the road. There are no bike lanes, but intermittent sidewalks provided on both sides of the road. This roadway will provide direct access to the project site.

Malan Street is oriented in the east-west direction and is currently constructed as a 2-lane Collector. On-street parking is permitted. Within the study area, the Prima Facie speed limit is 25 MPH. Class II bike lanes and intermittent sidewalks are provided on both sides of the roadway.

Wildcat Drive is oriented in the east-west direction and is currently constructed as a 2-lane Collector. Raised medians are provided for the length of the roadway with dedicated left turn lanes at both signalized and stop-controlled intersections. Within the study area, the Prima Facie speed limit is 25 MPH. Sidewalks are provided on the eastbound side of the road east of S Brawley Avenue, while available on both sides of the road west of S Brawley Avenue.

Legion Road is oriented in the east-west direction and is currently constructed as a 2-lane Collector west of S Brawley Avenue and a 4-lane Arterial east of S Brawley Avenue. Within the study area, the Prima Facie speed limit is 25 MPH. There are no bike lanes, but intermittent sidewalks are provided within the study area. The current Legion Road is approximately 400 feet in length extending eastward from S Brawley Avenue. Future access to the project site would require improvement of Legion Road to the centerline along a portion of the northern property boundary.

Imperial Avenue (SR-86) is oriented in the north-south direction and is currently constructed as a 4-lane Arterial with approximately 35 feet of separation between the two directions. On-street parking is prohibited along both sides of the road. Within the study area, the posted speed limit is 65 MPH. There are no bike lanes or sidewalks provided on both sides of the road.

Keystone Road is oriented in the east-west direction and is currently constructed as a 2-lane Collector. Within the study area, on-street parking is prohibited. There are no bike lanes or sidewalks provided on both sides of the road.

6.2 EXISTING CONDITIONS TRAFFIC ANALYSIS

6.2.1 Existing Intersection Evaluation

Exhibit 10 shows the existing lane geometry at the study intersections.

Exhibit 11 shows the existing daily and AM/PM peak hour traffic volumes at the study intersections.

Table 7 summarizes existing conditions AM/PM peak hour level of service for all study intersections. As previously discussed, LOS D or better is considered acceptable operating conditions for intersections. LOS E or F is considered unacceptable or deficient operating conditions at a study intersection.

Detailed HCM analysis worksheets are contained in **Appendix C**.

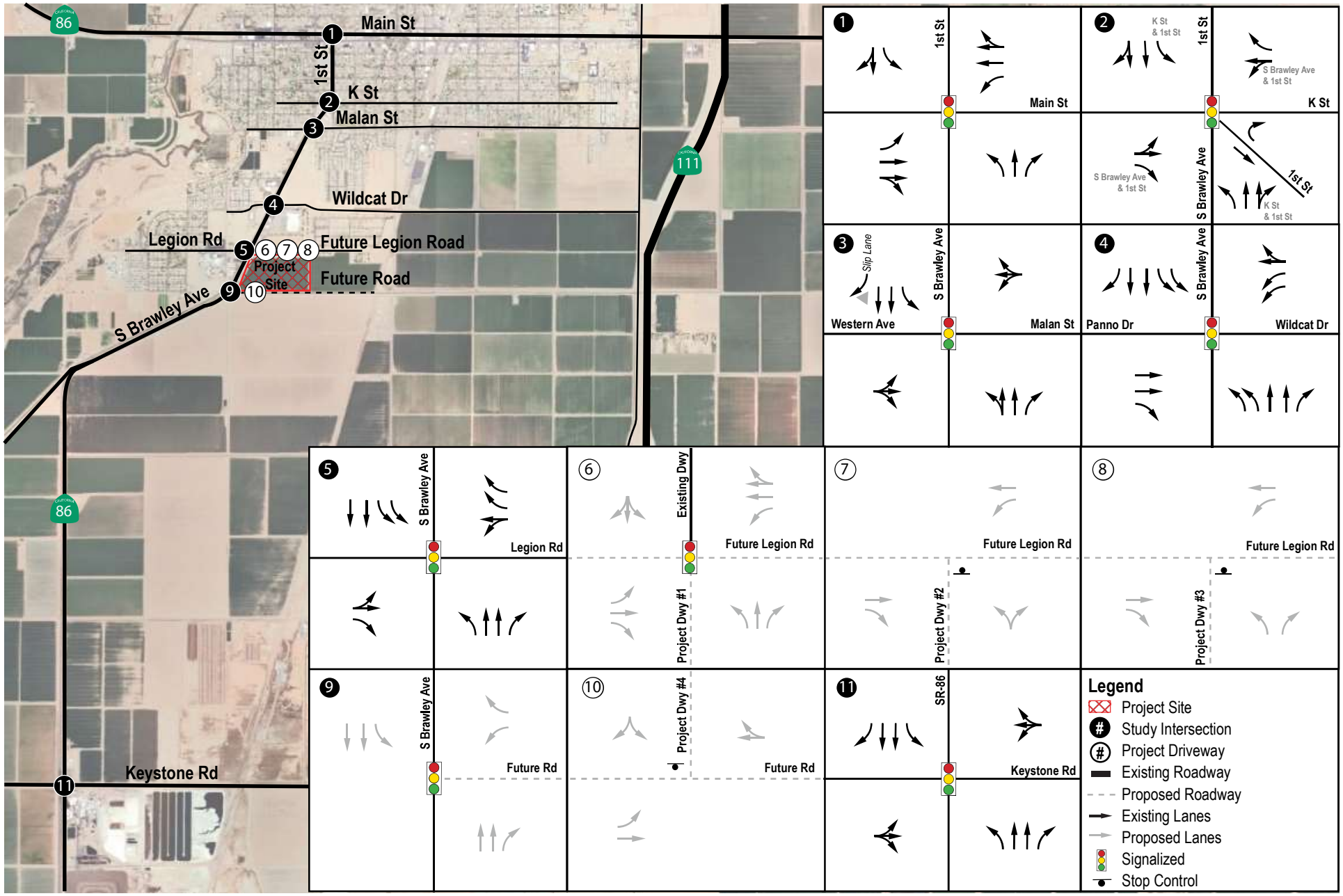
TABLE 7 – EXISTING CONDITIONS AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Existing Traffic Control	Existing Conditions	
		AM	PM
		Delay[(1)] - LOS	Delay[(1)] - LOS
1 - 1st Street & Main Street	Signal	27.3 - C	23.4 - C
2 - Brawley Avenue & 1st Street	Signal	24.4 - C	23.6 - C
3 - S Brawley Avenue & Malan Street	Signal	31.7 - C	30.6 - C
4 - S Brawley Avenue & Wildcat Drive	Signal	34.3 - C	29.2 - C
5 - S Brawley Avenue & Legion Road	Signal	34.1 - C	27.6 - C
6 - Project Driveway #1 & Future Legion Road	N/A	Does Not Exist Without Project	
7 - Project Driveway #2 & Future Legion Road	N/A	Does Not Exist Without Project	
8 - Project Driveway #3 & Future Legion Road	N/A	Does Not Exist Without Project	
9 - S Brawley Avenue & Future Road	N/A	Does Not Exist Without Project	
10 - Project Driveway #4 & Future Road	N/A	Does Not Exist Without Project	
11 - SR-86 & Keystone Road	Signal	30.0 - C	29.2 - C

Note: Deficient intersection operation indicated in **bold**.

(1) Average seconds of delay per vehicle.

LOS = level of service.



Not to Scale

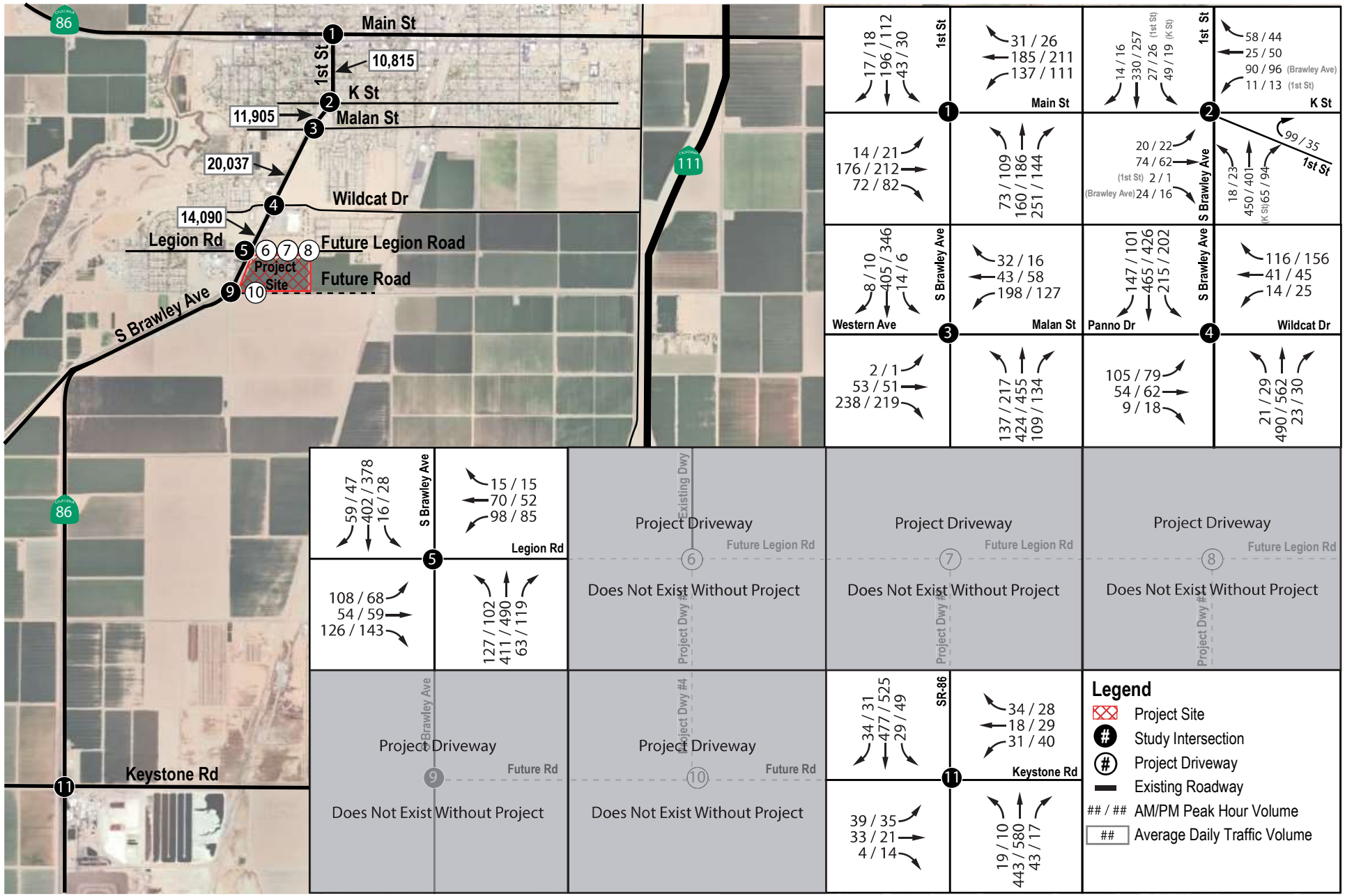
Existing and Proposed Lane Geometry

Exhibit 10

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

Existing Daily and AM/PM Peak Hour Traffic Volumes

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

Exhibit 11

6.2.2 Existing Roadway Segment Evaluation

Operating conditions and LOS for roadway segments are calculated based on the capacity of the roadway determined by the existing functional classification and a comparison to existing daily traffic volumes. **Table 8** summarizes existing conditions average daily traffic level of service for all study roadway segments based on the capacity threshold shown in Table 4. As shown, all study roadway segments are currently operating at LOS C or better.

TABLE 8 – EXISTING CONDITIONS ROADWAY SEGMENT LOS

Roadway	Segment	Classification	LOS E Capacity	Existing Condition		
				ADT	V/C	LOS
1st Street	Main St. to K St.	4-Lane Divided Arterial	36,000	10,815	0.30	A
	K St. to Malan St.	4-Lane Undivided Arterial	27,000	11,905	0.44	A
S Brawley Avenue	Malan St. to Wildcat Dr.	4-Lane Undivided Arterial	27,000	20,037	0.74	C
	Wildcat Dr. to Legion Rd.	4-Lane Undivided Arterial	27,000	14,090	0.52	A

Note: Deficient roadway segment operations shown in **bold.**

ADT= Average Daily Traffic

LOS= Level of Service

V/C= Volume to Capacity Ratio

6.3 ACTIVE TRANSPORTATION

6.3.1 Existing Pedestrian and Bicycle Facilities

Exhibit 12 shows the sidewalks that are provided within the study area.

1st Street – Within the study area, there are intermittent sidewalks provided within the study area.

Main Street – Sidewalks are generally provided on both sides of the roadway.

K Street – Within the study area, sidewalks are generally provided on both sides of the roadway.

S Brawley Avenue – Within the study area, there are intermittent sidewalks provided on both sides of the road.

Malan Street – Within the study area, sidewalks are provided intermittently on both sides of the roadway.

Wildcat Drive – Within the study area, sidewalks are only provided on the eastbound side of the road east of S Brawley Avenue, while sidewalks are available on both sides of the road west of S Brawley Avenue.

Legion Road – Within the study area, while sidewalks are available west of S Brawley Avenue, there are no sidewalks provided on either side of the road east of S Brawley Avenue. This project plans to provide continuous sidewalks along its frontage.

Imperial Avenue (SR-86) – Within the study area, there are no sidewalks provided on both sides of the road.

Keystone Road – Within the study area, there are no sidewalks provided on both sides of the road.

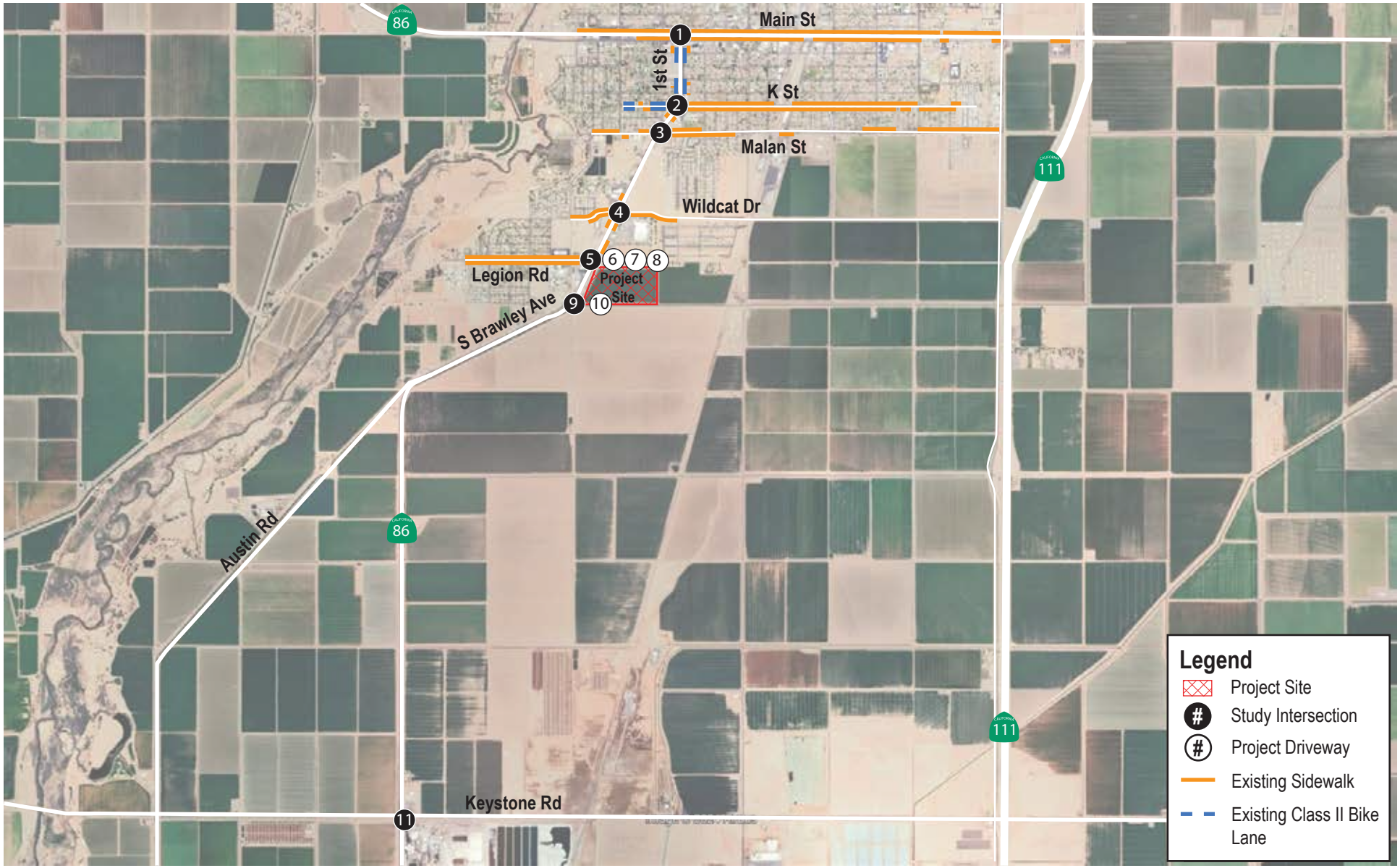
Exhibit 12 also shows the existing bicycle facilities within the project study area. As shown, there are currently Class II bicycle lanes provided on 1st Street and extend west along K Street.

6.3.2 Existing Transit Facilities

Imperial Valley Transit (IVT) operates the local bus service within the City of Brawley and provides access to employment centers, shopping centers, hospitals, the library, government offices, as well as other key locations in the region.

The Gold Line primarily serves Brawley and nearby communities and connects with other transit lines in the Imperial Valley Transit System. As shown in **Exhibit 13**, the closest bus stop to the project site is located on Legion Road approximately 1000' west of S Brawley Avenue.

According to the IVT Riders Guide, the Gold Line provides service between 8:17 AM and 5:12 PM Monday through Friday.



Not to Scale

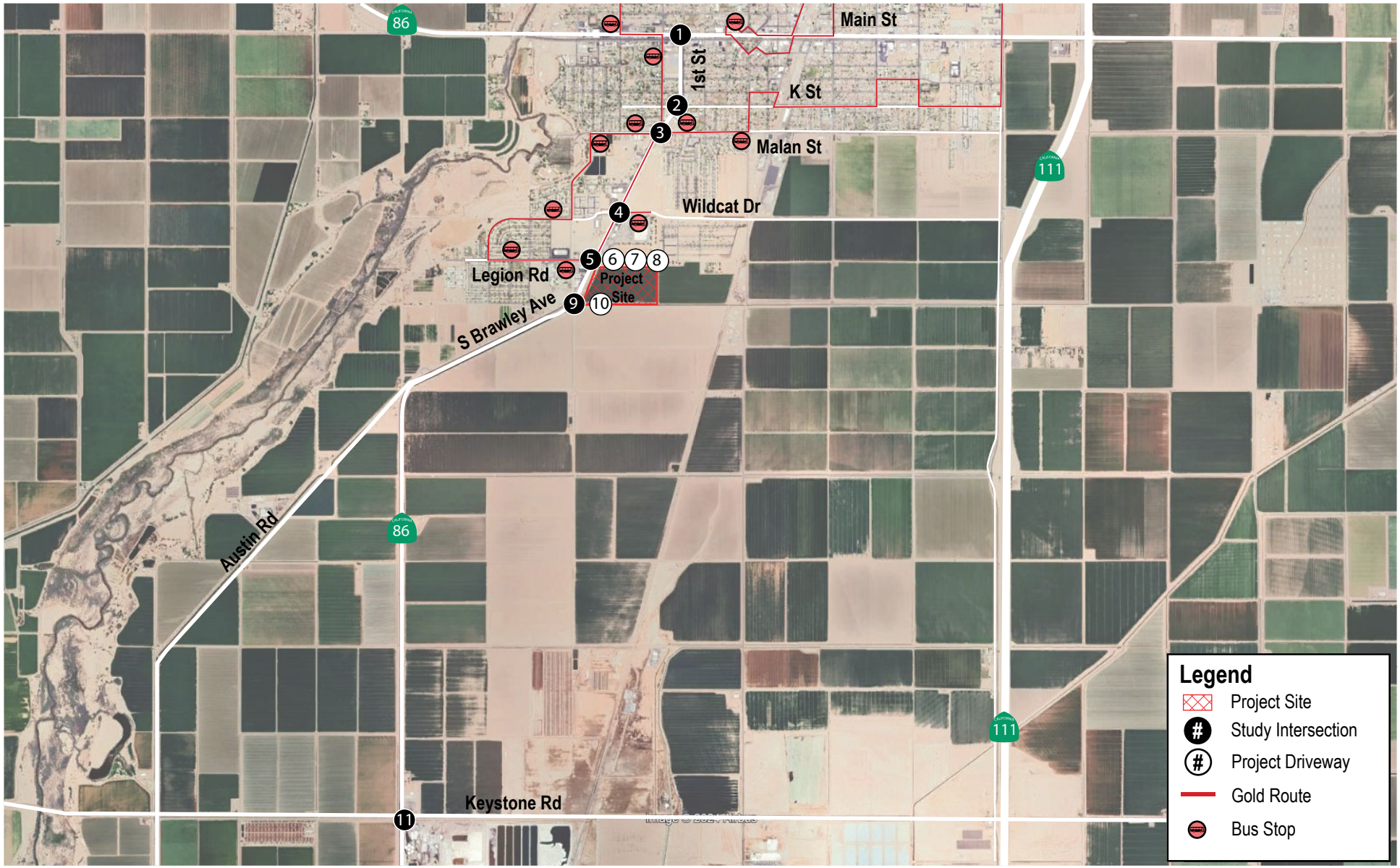
Michael Baker INTERNATIONAL

Existing Pedestrian and Bicycle Facilities

Nov 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

Exhibit 12



Not to Scale

Michael Baker INTERNATIONAL

Existing Transit Facilities

Nov 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

Exhibit 13

7 OPENING YEAR 2028 WITHOUT PROJECT CONDITIONS

7.1 OPENING YEAR 2028 WITHOUT PROJECT ANALYSIS

This scenario evaluates study intersections and roadway segments under the Opening Year 2028 Without Project conditions which represents existing plus cumulative (pending or approved projects) traffic. This analysis assumes the project will be constructed and occupied by Year 2028.

7.1.1 Cumulative Traffic

Based on coordination with City staff, one cumulative project was determined to add sufficient traffic to the study area for inclusion within the analysis, as noted below.

1.) **Brawley Travel Center** is located on the northwest corner of the Highway 111 & Highway 78 intersection in Brawley. The project consists of a new 26,102 square foot travel center/convenience store, a 16-pump (8 position) gasoline fueling area, a 5,085 square foot fuel tank area, an RV dump station, 10 RV parking spaces and 94 vehicle parking spaces on the eastern portion of the site fronting both Highway 111 and Main Street (Highway 78). The western portion of the site would be dedicated to heavy truck use. This project is expected to generate approximately 3,354 daily vehicle trips with 262 AM and 262 PM peak hour trips.

The Brawley Travel Center project will be complete and in operation by 2025. The location of this cumulative project is identified in **Exhibit 14** and **Exhibit 15**.

Table 9 provides a trip generation summary of the cumulative project traffic.

TABLE 9 – CUMULATIVE PROJECTS TRIP GENERATION SUMMARY

Project	Land Use	Intensity	ADT	AM Peak Hour			PM Peak Hour		
				Total	Inbound	Outbound	Total	Inbound	Outbound
Travel America - Travel Center	Tire Store (848)	14.000 KSF	388	37	24	13	53	23	30
	Convenience Store/Gas Station (945)	16.000 VFP	5,532	506	253	253	430	215	215
	Truck Stop (950)	10 VFP	2,240	140	69	71	154	82	72
	Total:		**3,354**	**262**	**136**	**126**	**262**	**132**	**130**

Notes:
VFP = Vehicle Fueling Position
KSF = Thousand Square Feet

7.1.2 Opening Year 2028 Without Project Intersection Evaluation

The Opening Year 2028 Without Project scenario accounts for the addition of cumulative traffic volumes onto the existing traffic volumes. **Exhibit 14** shows the Opening Year 2024 Without Project daily and AM/PM peak hour volumes within the study area.

Table 10 summarizes Opening Year 2028 Without Project AM/PM peak hour level of service for all study intersections. Detailed HCM analysis worksheets are contained in **Appendix D**.

TABLE 10 – OPENING YEAR 2028 WITHOUT PROJECT AM/PM PEAK HOUR INTERSECTION LOS

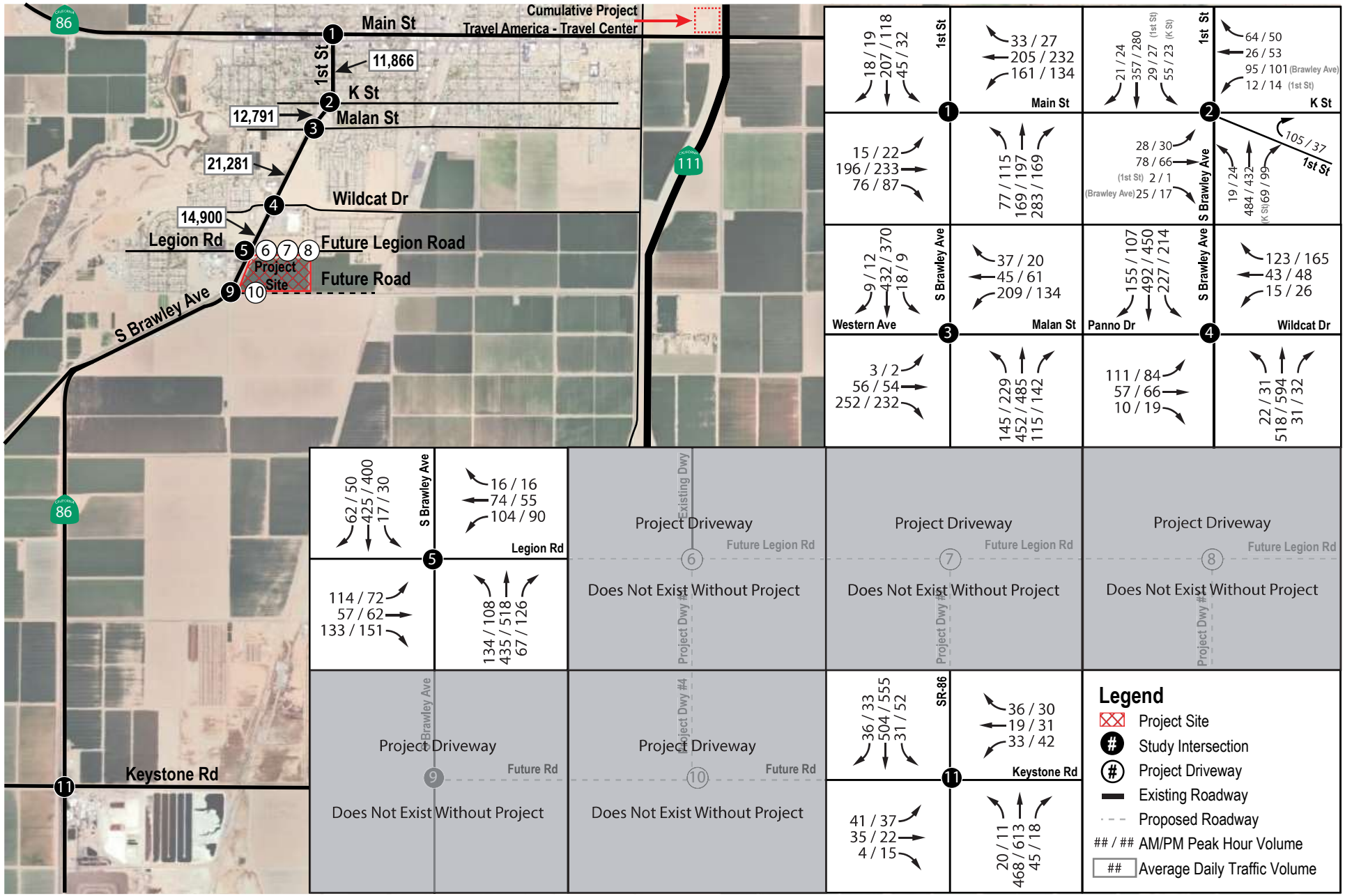
Study Intersection	Traffic Control	Opening Year 2028 Without Project	
		AM	PM
		Delay[(1)] - LOS	Delay[(1)] - LOS
1 - 1st Street & Main Street	Signal	32.6 - C	26.2 - C
2 - Brawley Avenue & 1st Street	Signal	25.8 - C	25.3 - C
3 - S Brawley Avenue & Malan Street	Signal	34.2 - C	32.7 - C
4 - S Brawley Avenue & Wildcat Drive	Signal	37.6 - D	30.5 - C
5 - S Brawley Avenue & Legion Road	Signal	36.0 - D	28.6 - C
6 - Project Driveway #1 & Future Legion Road	N/A	Does Not Exist Without Project	
7 - Project Driveway #2 & Future Legion Road	N/A	Does Not Exist Without Project	
8 - Project Driveway #3 & Future Legion Road	N/A	Does Not Exist Without Project	
9 - S Brawley Avenue & Future Road	N/A	Does Not Exist Without Project	
10 - Project Driveway #4 & Future Road	N/A	Does Not Exist Without Project	
11 - SR-86 & Keystone Road	Signal	30.8 - C	30.1 - C

Note: Deficient intersection operation indicated in **bold**.

(1) Average seconds of delay per vehicle.

LOS = level of service.

As shown, all study intersections are forecast to operate LOS D or better during the AM/PM peak hours.



Not to Scale

Opening Year 2028 without Project
Daily and AM/PM Peak Hour Traffic Volumes

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

Exhibit 14

7.1.3 Opening Year 2028 Without Project Roadway Segment Evaluation

Table 11 summarizes Opening Year 2028 Without Project conditions average daily traffic level of service for all study roadway segments based on the ADT threshold table. As shown, all study roadway segments are forecast to operate at LOS C or better under Opening Year 2028 Without Project conditions.

TABLE 11 – OPENING YEAR 2028 WITHOUT PROJECT CONDITIONS ROADWAY SEGMENT LOS

Roadway	Segment	Classification	LOS E Capacity	Opening Year 2028 Without Project		
				ADT	V/C	LOS
1st Street	Main St. to K St.	4-Lane Divided Arterial	36,000	11,866	0.33	A
	K St. to Malan St.	4-Lane Undivided Arterial	27,000	12,791	0.47	A
S Brawley Avenue	Malan St. to Wildcat Dr.	4-Lane Undivided Arterial	27,000	21,281	0.79	C
	Wildcat Dr. to Legion Rd.	4-Lane Undivided Arterial	27,000	14,900	0.55	A

Note: Deficient roadway segment operations shown in **bold.**

ADT= Average Daily Traffic

LOS= Level of Service

V/C= Volume to Capacity Ratio

8 OPENING YEAR 2028 PLUS PROJECT CONDITIONS

Opening Year 2028 Plus Project traffic volumes were derived by adding trips forecast to be generated by the project to Opening Year 2028 Without Project traffic volumes. **Exhibit 15** shows the Opening Year 2024 Plus Project daily and AM/PM peak hour volumes within the study area.

8.1 OPENING YEAR 2028 PLUS PROJECT INTERSECTION EVALUATION

Table 12 compares Opening Year 2028 Without Project intersection operations to Opening Year 2028 Plus Project intersection operations for all study intersections. Detailed HCM analysis worksheets are contained in **Appendix E**.

TABLE 12 – OPENING YEAR 2028 WITHOUT PROJECT & OPENING YEAR 2028 PLUS PROJECT AM/PM PEAK HOUR INTERSECTION LOS

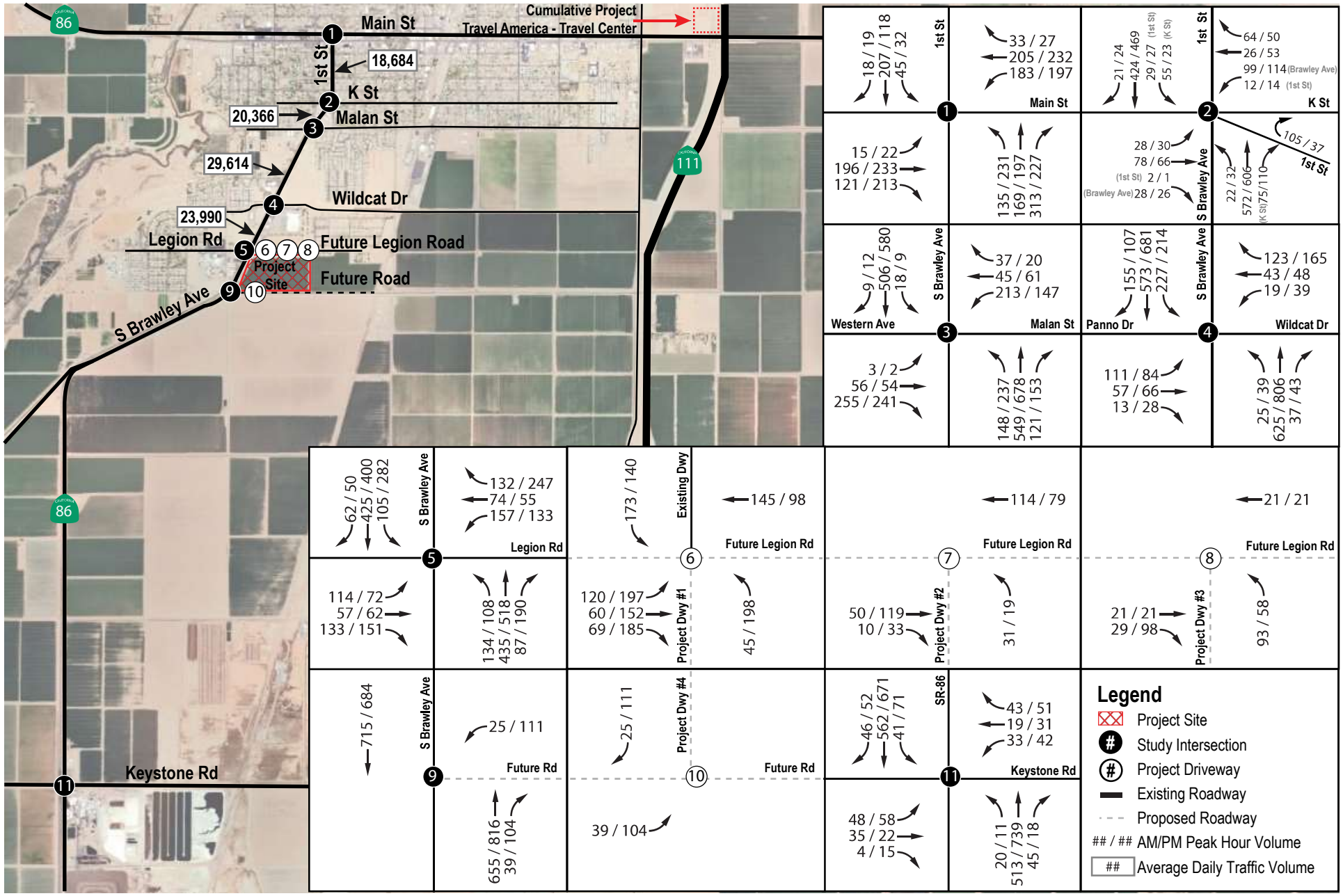
Study Intersection	Traffic Control	Opening Year 2028 Conditions Without Project				Opening Year 2028 Plus Project Conditions			
		AM		PM		AM		PM	
		Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
1 - 1st Street & Main Street	Signal	32.6	C	26.2	C	45.9	D	38.4	D
2 - 1st Street & K Street	Signal	25.8	C	25.3	C	26.4	C	26.7	C
3 - S Brawley Avenue & Malan Street	Signal	34.2	C	32.7	C	35.5	D	36.2	D
4 - S Brawley Avenue & Wildcat Drive	Signal	37.6	D	30.5	C	39.8	D	31.9	C
5 - S Brawley Avenue & Legion Road	Signal	36.0	D	28.6	C	39.6	D	45.9	D
6 - Project Driveway #1 & Future Legion Road	Signal	Does Not Exist Without Project				21.0	C	26.8	C
7 - Project Driveway #2 & Future Legion Road	OWSC	Does Not Exist Without Project				9.6	A	9.8	A
8 - Project Driveway #3 & Future Legion Road	OWSC	Does Not Exist Without Project				9.2	A	9.0	A
9 - S Brawley Avenue & Future Mead Road	Signal	Does Not Exist Without Project				2.4	A	4.3	A
10 - Project Driveway #4 & Future Mead Road	OWSC	Does Not Exist Without Project				8.4	A	8.7	A
11 - SR-86 & Keystone Road	Signal	30.8	C	30.1	C	32.9	C	37.3	D

Note: Deficient intersection operation indicated in **bold**.

[1] Average seconds of delay per vehicle.

LOS = Level of Service. OWSC = One-Way Stop Control.

As shown, all study intersections are forecast to operate at acceptable LOS D or better. Therefore, no improvements are required. It may be noted that a new traffic signal is assumed at S Brawley Avenue & Future Road (Study Int. #9) and Project Driveway #1 & Future Legion Road (Study Int. #6) to be designed and constructed by the project. Coordination with City staff will be necessary to address permits, utilities, plans and construction of a new signal at these two locations.



Not to Scale

Opening Year 2028 Plus Project
Daily and AM/PM Peak Hour Traffic Volumes

Michael Baker INTERNATIONAL

Oct 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

Exhibit 15

8.1.1 Opening Year 2028 Plus Project Roadway Segment Evaluation

Table 13 provides a comparison of Opening Year 2028 Without Project and Opening Year 2028 Plus Project conditions average daily traffic LOS for all study roadway segments.

TABLE 13 – OPENING YEAR 2028 WITHOUT PROJECT & OPENING YEAR 2028 PLUS PROJECT ROADWAY SEGMENT LOS COMPARISON

Roadway	Segment	Classification (No. Lanes)	LOS E Capacity	Opening Year 2028 Without Project			Opening Year 2028 Plus Project			Δ V/C	Improv. Warranted?
				ADT	V/C	LOS	ADT	V/C	LOS		
1st Street	Main St. to K St.	4-Lane Divided Arterial	36,000	11,866	0.33	A	18,684	0.52	A	0.189	No
	K St. to Malan St.	4-Lane Undivided Arterial	27,000	12,791	0.47	A	20,366	0.75	C	0.281	No
S Brawley Avenue	Malan St. to Wildcat Dr.	4-Lane Undivided Arterial	27,000	21,281	0.79	C	**29,614**	**1.10**	**F**	0.309	No
	Wildcat Dr. to Legion Rd.	4-Lane Undivided Arterial	27,000	14,900	0.55	A	23,990	0.89	D	0.337	No

Note: Deficient roadway segment operations shown in **bold**.
LOS = Level of Service
V/C = Volume to Capacity Ratio
Δ = Difference

As shown, S Brawley Avenue from Malan Street to Wildcat Drive is forecast to operate at LOS F under Opening Year 2028 Plus Project conditions. As discussed in Section 4.1.2 in this report, if traffic generated by the project causes a roadway to degrade to LOS E or below, the project shall build a roadway segment to its ultimate mobility element classification if not currently constructed as such. However, this section of S Brawley Avenue is built to its ultimate classification (i.e. 4-lane Arterial). In addition, the intersections at S Brawley Avenue & Malan Street and S Brawley Avenue & Wildcat Drive are forecast to operate at acceptable conditions (LOS C) during the AM and PM peak hour. Therefore, improvements are not recommended on S Brawley Avenue from Malan Street to Wildcat Drive.

9 SUMMARY & CONCLUSIONS

The approximately 66-acre project site is located in the northern portion of the City of Brawley in south-central Imperial County, California. The project proposes an amendment to the Brawley Gateway Specific Plan to subdivide the property and allow for future commercial and multi-family residential uses.

9.1 CEQA ANALYSIS SUMMARY

In December 2018, new California Environmental Quality Act (CEQA) guidelines were approved that shift transportation analysis from delay and operations to vehicle miles traveled (VMT) when evaluating transportation Impacts under CEQA. This change in methodology is a result of Senate Bill 743 (SB 743), which was signed into law in September 2013. The Governor's Office of Planning and Research (OPR) released *Technical Advisory on Evaluating Transportation Impacts in CEQA* in December 2018 (Technical Advisory) that contains recommendations regarding assessment of VMT, screening criteria, thresholds of significance, and approach to mitigating impacts. Statewide implementation VMT as the metric for evaluating transportation impacts under CEQA occurred on July 1, 2020. The City of Brawley does not have VMT guidelines, and therefore, OPR's Technical Advisory was used to evaluate the project's transportation impacts based on VMT. The project is not screened out from needing a VMT analysis for both the residential and commercial components of the site. As such, a detailed VMT analysis is required and provided in this report.

9.1.1 VMT Impact Mitigation Options

As noted in section 5.3, for the residential component of the project, the total home-based VMT/capita for the project's TAZ is 12.55 which is slightly higher than Imperial County's total home-based VMT/capita (12.04). For the project to have a less-than-significant impact, the total VMT/capita would need to be 10.67 which is 15% below Imperial County's VMT/capita. As shown, an 11% reduction in VMT/capita is needed to mitigate the impact.

The recommended mitigation measure for the Project found in the CAPCOA Report is T-1 (Increase Residential Density). This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of dwelling units compared to the average residential density in the U.S.

VMT Reduction Formula for T-1 is A = (B – C)/C x D.

where,
A = percent reduction in GHG emissions from project VMT in study area (%)
B = residential density of Project development (du/acre)
C = residential density of typical development (9.1 du/acre per Ewing et al. 2007)
D = elasticity of VMT with respect to residential density (-0.22 per Stevens 2016)

Based on the Project description for the residential component which includes 408 units on approx. 29 acres, the CAPCOA T-1 formula was applied, as shown below:

A = (B – C)/C x D = ((408/29) – 9.1)/9.1 x -0.22 = 12%

Based on the above calculation, the Project's VMT could be reduce by 12% which exceeds the 11% needed for the residential component of the Project. Therefore, in accordance with OPR Guidelines, the proposed Project is presumed to have a less than significant CEQA related transportation impact.

9.2 LOCAL MOBILITY ASSESSMENT (LEVEL OF SERVICE) SUMMARY

While transportation impacts are based on VMT, the City also requires analysis of intersection and roadway segment operating conditions for their Transportation Impact Analysis (TIA). For purposes of this analysis, level of service (LOS) D or better is considered acceptable operating conditions at study intersections and roadway segments. LOS E and F are considered deficient operating conditions.

Under the Opening Year 2028 Without and With Project conditions, all study intersections are forecast to operate at acceptable LOS D or better. It may be noted that a new traffic signal is assumed at S Brawley Avenue & Future Road (Study Int. #9) and Project Driveway #1 & Future Legion Road (Study Int. #6) to be designed and constructed by the project. Coordination with City staff will be necessary to address permits, utilities, plans and construction of a new signal at these two locations.

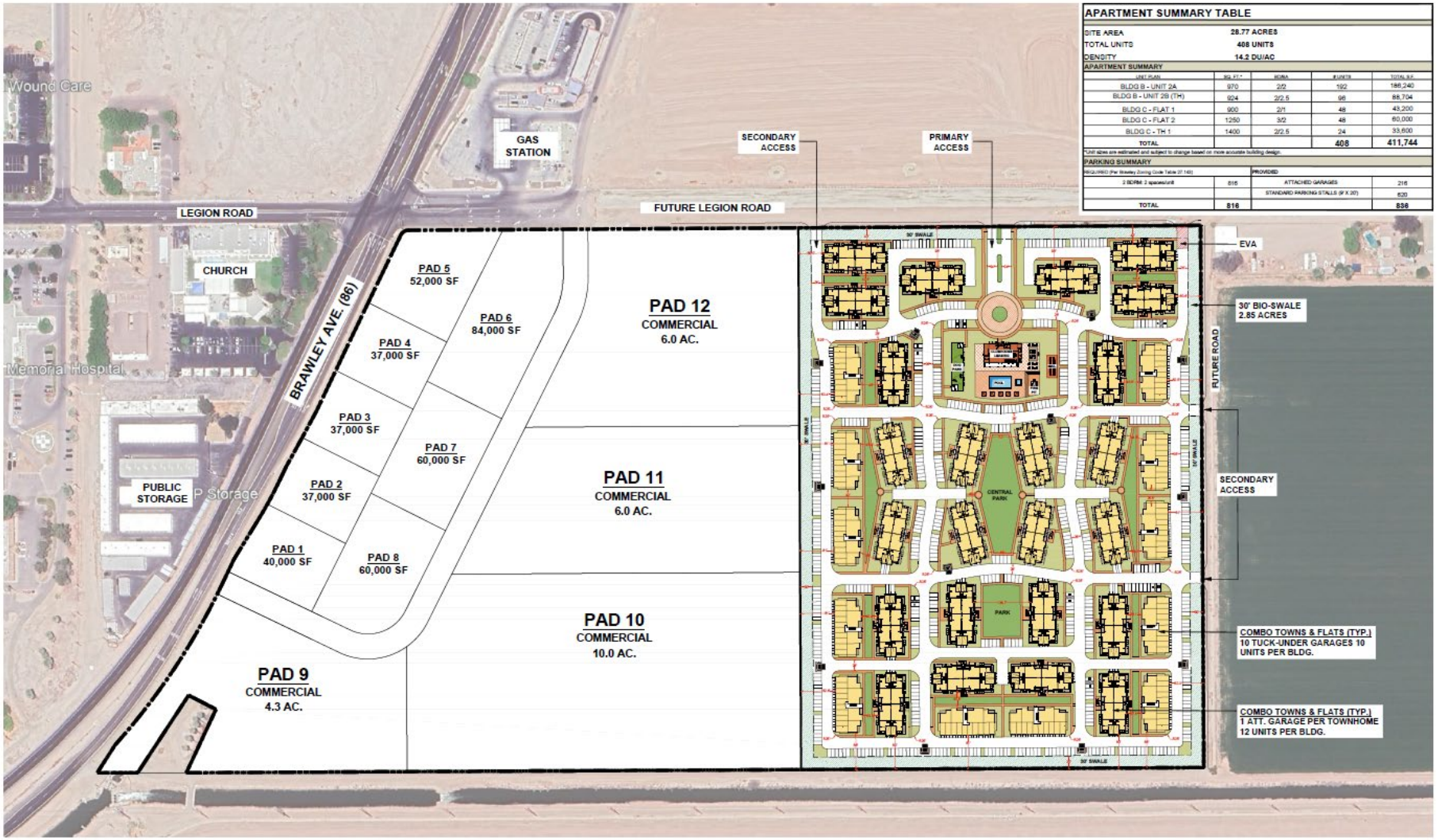
S Brawley Avenue from Malan Street to Wildcat Drive is forecast to operate at LOS F under Opening Year 2028 Plus Project conditions. As discussed in Section 4.1.2 in this report, if traffic generated by the project causes a roadway to degrade to LOS E or below, the project shall build a roadway segment to its ultimate mobility element classification if not currently constructed as such. However, this section of S Brawley Avenue is built to its ultimate classification (i.e. 4-lane Arterial). In addition, the intersections at S Brawley Avenue & Malan Street and S Brawley Avenue & Wildcat Drive are forecast to operate at acceptable conditions (LOS C) during the AM and PM peak hour. Therefore, widening S Brawley Avenue from Malan Street to Wildcat Drive is not recommended.

Michael Baker
INTERNATIONAL

Appendix A:
TIA Scoping Memo

Section 1 - Site Plan

Exhibit 1: Site Plan



Section 2 - Trip Generation Tables

Table 1: Trip Generation Rates

Land Use	ITE Code [1]	Daily Trip Rate	AM Peak Hour Rate		PM Peak Hour Rate	
			Total	In : Out	Total	In : Out
Multi-Family Residential	220	6.74 /DU	0.40 /DU	24% : 76%	0.51 /DU	63% : 37%
Shopping Plaza	821	67.52 /KSF	1.73 /KSF	62% : 38%	5.91 /KSF	49% : 51%
Shopping Center	820	37.01 /KSF	0.84 /KSF	62% : 38%	3.40 /KSF	48% : 52%
Hotel	310	7.99 /Room	0.46 /KSF	56% : 44%	0.59 /KSF	51% : 49%

[1] Source: ITE Trip Generation Manual, 11th Edition.

Table 2: Trip Generation (Vehicles)

Land Use	Pad	Intensity	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
				Total	In : Out	Total	In : Out
Multi-Family Residential	-	408 DU	2750	163	39 : 124	208	131 : 77
Shopping Plaza	1 thru 8	85 KSF	5739	147	91 : 56	441	216 : 225
Shopping Center	10 thru 12	240 KSF	8882	202	125 : 77	816	392 : 424
Pass-By Trips Reduction (34%)[1]			-3020	-69	-43 : -26	-277	-133 : -144
Sub-Total Shopping Center Trips			***5862***	***133***	***83 : 51***	***539***	***259 : 280***
Hotel	9	100 Rooms	799	46	26 : 20	59	30 : 29
TOTAL TRIP GENERATION			**15150**	**489**	**239 : 251**	**1247**	**636 : 611**

Notes:

DU = Dwelling Unit

KSF = 1,000 Square Feet

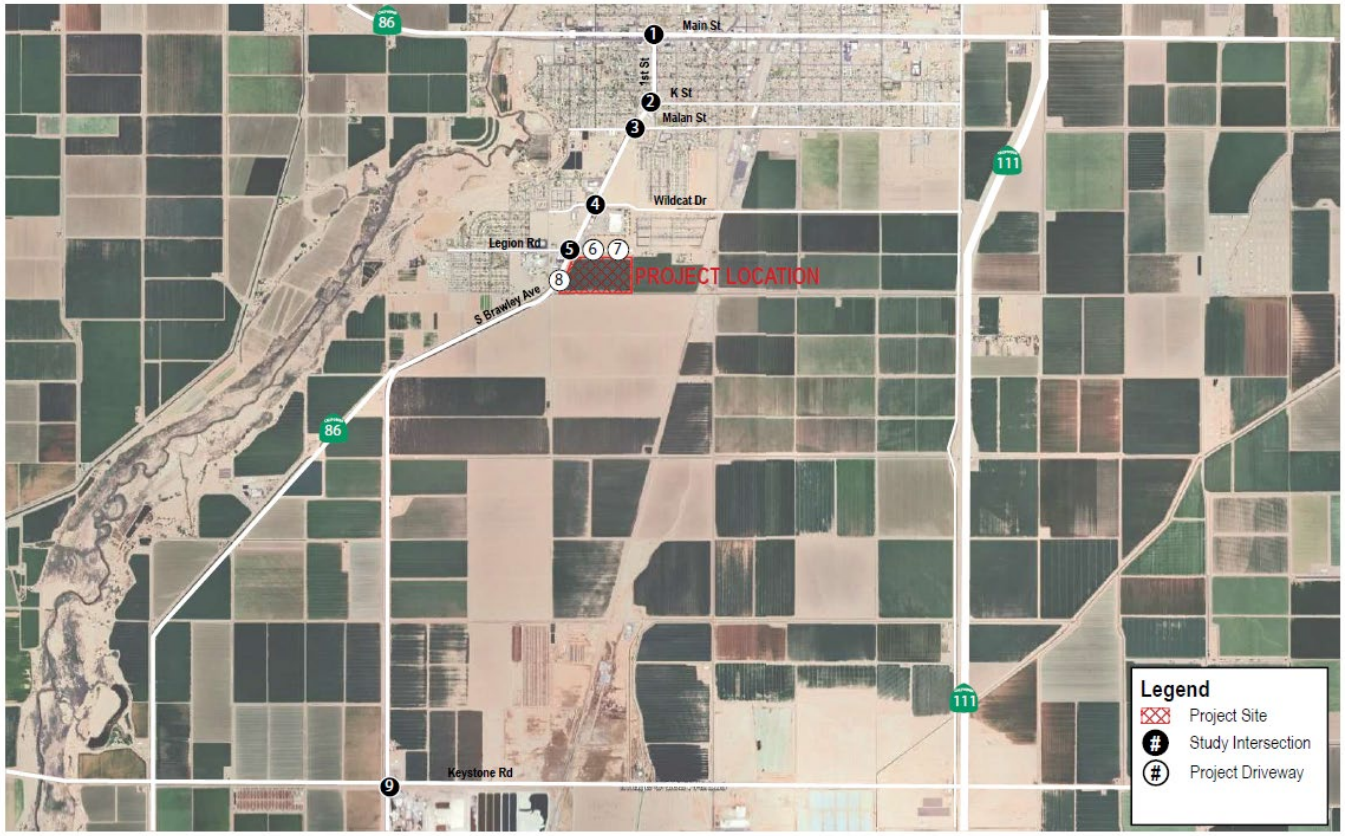
[1] *ITE Trip Generation Handbook*

Section 3 – Study Intersections

ID	Table 3 - Study Intersections		
1	1st Street (SR-86) & Main Street	7	Legion Road (SR-86) & Project Driveway #2
2	1st Street (SR-86) & K Street	8	Brawley Avenue (SR-86) & Project Driveway #3
3	1st Street (SR-86) & Malan Street	9	SR-86 & Keystone Road
4	Brawley Avenue (SR-86) & Wildcat Drive		
5	Brawley Avenue (SR-86) & Legion Road		
6	Legion Road & Project Driveway #1		

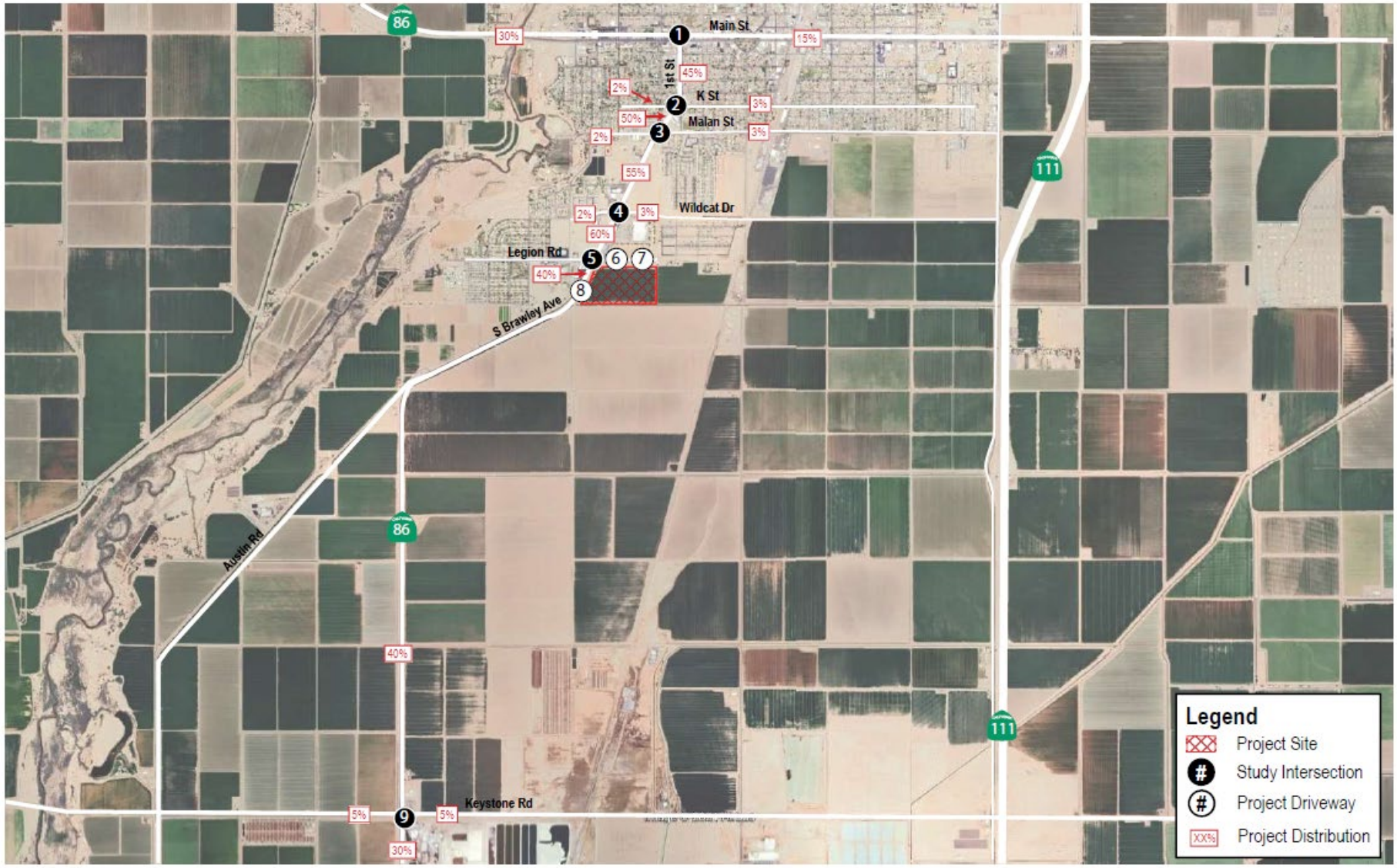
Section 4 - Study Area

Exhibit 2: Study Area



Section 5 - Trip Distribution

Exhibit 3: Study Area Trip Distribution Percentages



Section 6 - Ambient Growth

Annual Ambient Growth Rate: 1.0% per year (linear)

The data listed below was reviewed in order to estimate a background ambient growth rate. The highest value was assumed in an effort to be conservative.

1) According to the American Community Survey, U.S. Census Bureau, Imperial County's population reduced from 179,215 in 2021 to 178,713 in 2022, which is a reduction of 0.3%.
2) To provide a conservative analysis and in anticipation of future growth in the next 3 to 5 years, this analysis will assume a growth rate of 1.0% per year in the Opening Year analysis scenarios.

Section 7 - Existing Conditions

Michael Baker will use a count vendor (NDS or Counts Unlimited) to collect new AM and PM peak hour traffic counts at the study intersections including pedestrian and bicyclists listed in Section 3. Data collection will occur on Tuesdays, Wednesdays, or Thursdays during non-holiday weeks when local schools are in session.

Section 8 - Analysis Scenarios

The proposed analysis scenarios are listed below.

1. Existing Conditions (E)
2. Forecast Opening Year (E + Ambient Growth, A)
3. Forecast Opening Year Plus Project (E + A + P)
4. Forecast Cumulative (E + A + Cumulative Projects, C)
5. Forecast Cumulative With Project (E + A + C + P)

Section 9 - Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guidelines)

1) Provide a Traffic Signal Warrant analysis at the intersection of Brawley Avenue (SR-86) & Project Driveway #3.
2)

Section 10 – Items which may be requested from City staff

1) Traffic signal timings.
2) Cumulative project information.
3) Recent traffic count data if available.

Section 11 – Vehicle Miles Traveled (VMT) Analysis

The City of Brawley requires the detailed VMT analysis. Screening criteria to determine if a project is anticipated to result in a less than significant impact along with VMT metrics and thresholds of significance are based on the Governors Office of Planning and Research (OPR) Guidelines. Projects that meet the screening criteria identified in **Table 4** are assumed to result in a less than significant transportation impact under CEQA and do not require a detailed quantitative VMT assessment. Michael Baker has

conducted a preliminary assessment of the screening criteria and has determined that **the Project does not meet any of the Screening Criteria. Thus, a project specific VMT assessment would be required.**

In order to evaluate the Project's VMT, the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS) Travel Demand Forecast Model will be used to determine the Project effects on VMT. Has the City of Brawley prepared any VMT models? If not, Michael Baker will coordinate with City staff and our subconsultant, Translutions, to run a VMT model in order to determine the project VMT. The modeling results will be reviewed and then used to determine if the project results in a significant VMT impact. If a significant VMT impact is identified, Michael Baker will determine appropriate mitigation measures to reduce the impact to below a level of significance. Potential mitigation measures may include Transportation Demand Managements (TDM) strategies effective in reducing VMT. Please let us know if the City concurs with this approach to the VMT analysis.

Table 4: Screening Criteria for Development Projects Exempt from VMT Calculation

Screening Criteria	Description of Screening Criteria	Project Evaluation	Result
Non-Retail Project Trip Generation Screening Criteria	Does the development project generate a net increase of 110 or more daily vehicle trips using the most recent edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual?	Project is anticipated to generate approximately 15,150 daily trips.	Does Not Meet Criteria
Retail Project Site Plan Screening Criteria	Does the project contain retail uses that exceed 50,000 square feet of gross floor area?	Project contains approximately 325,000 SF of retail uses which exceeds the 50,000 SF criteria.	Does Not Meet Criteria
Proximity to Transit Based Screening Criteria	Is the project located within a one-half mile radius of a major transit stop or an existing stop along a high-quality transit corridor?	The project is located within ½ mile of a major transit stop or existing stop along a high-quality transit corridor. There are additional criteria that need to apply such as: Does the project have a FAR less than 0.75? Yes. Does the project provide more parking than required by City Code? Yes. Is the project inconsistent with the SCAG RTP/SCS? Unknown.	Does Not Meet Criteria

Residential Land Use Based Screening Criteria	Are 100% of the residential units, excluding manager's units, set aside for lower income households?	The residential portion of the Project is not 100% affordable housing.	Does Not Meet Criteria

MEMORANDUM

To: Juan Manuel Cabrera (jcabrera@brawley-ca.gov)
City of Brawley

From: BenJetta Johnson, PE, PTOE (benjetta.johnson@NV5.com)
cc: James Miller, PE (james.miller@NV5.com)

Date: September 25, 2024

Re: YK Master Plan – Brawley Mixed Use Development
Traffic Impact Analysis Scoping Agreement

NV5 Engineers and Consultants has reviewed the Traffic Impact Analysis (TIA) scoping documentation provided by Michael Baker International Inc., for the proposed Brawley Mixed Use development. The purpose of a TIA is to identify and disclose any potential transportation impacts associated with the project development on local area roadways and intersections. The scope and analyses approach provided is deemed sufficient to proceed with the formal TIA report and is consistent with the Local Mobility Analysis (LMA) criteria identified in the County of Imperial Department of Public Works Study and Report Policy. Based on our review, the scoping documentation includes the following:

X	Exhibit 1 : Site Plan
X	Trip Generation & Distribution – Daily, AM and PM peak hour trips (determined by the Institute of Transportation Engineers (ITE) Trip Generation manual, 11th Edition or other pre-approved source)
X	Study Intersections and Site Driveway Locations
X	Ambient Growth Rate based on local census data
X	Operational Analysis of Peak-Hour (6-9 AM and 4-7 PM) conditions under the following scenarios: ○ Existing Conditions ○ Forecast Opening Year, ○ Forecast Opening Year Plus Project, ○ Forecast Cumulative, and ○ Forecast Cumulative Plus Project
X	Vehicle Miles Traveled (VMT) Analysis and Screening Criteria

In addition to the above-mentioned information, we recommend that the final TIA submittal include the following data which will facilitate a prompt review of the development impacts:

- Full size Site Plan that identifies:
  - Driveway locations and access type (ex. Full access, partial access, right in/out only),
  - Pedestrian/bicycle access and on-site pedestrian circulation,
  - Location/distance of closest existing transit stop (measure as walking distance to project entrance/or middle of parcel).
  - Location of any planned trails within ¼ mile of the project location.
  - Parking: vehicle (including accessible spaces), bicycle (racks/secure storage), motorcycle.
- Land Use and Zoning (current and proposed rezoning, if required)
- Weekday 24-hour Average Daily Traffic (ADT) counts should be collected for all study roadway segments.
- VMT assessment as required by CEQA/Governors Office of Planning (OPR) Guidelines
  - Travel Demand Forecast and local VMT Model documentation
  - Transportation Demand Management (TDM) strategies
- Mitigation for Project impacts, if necessary

This page intentionally left blank

Michael Baker
INTERNATIONAL

Appendix B: Traffic Count Data & Signal Timing Sheets

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)
E/W: Main Street (SR-86)
Weather: Clear

File Name : 01_BWY_1st_Main AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

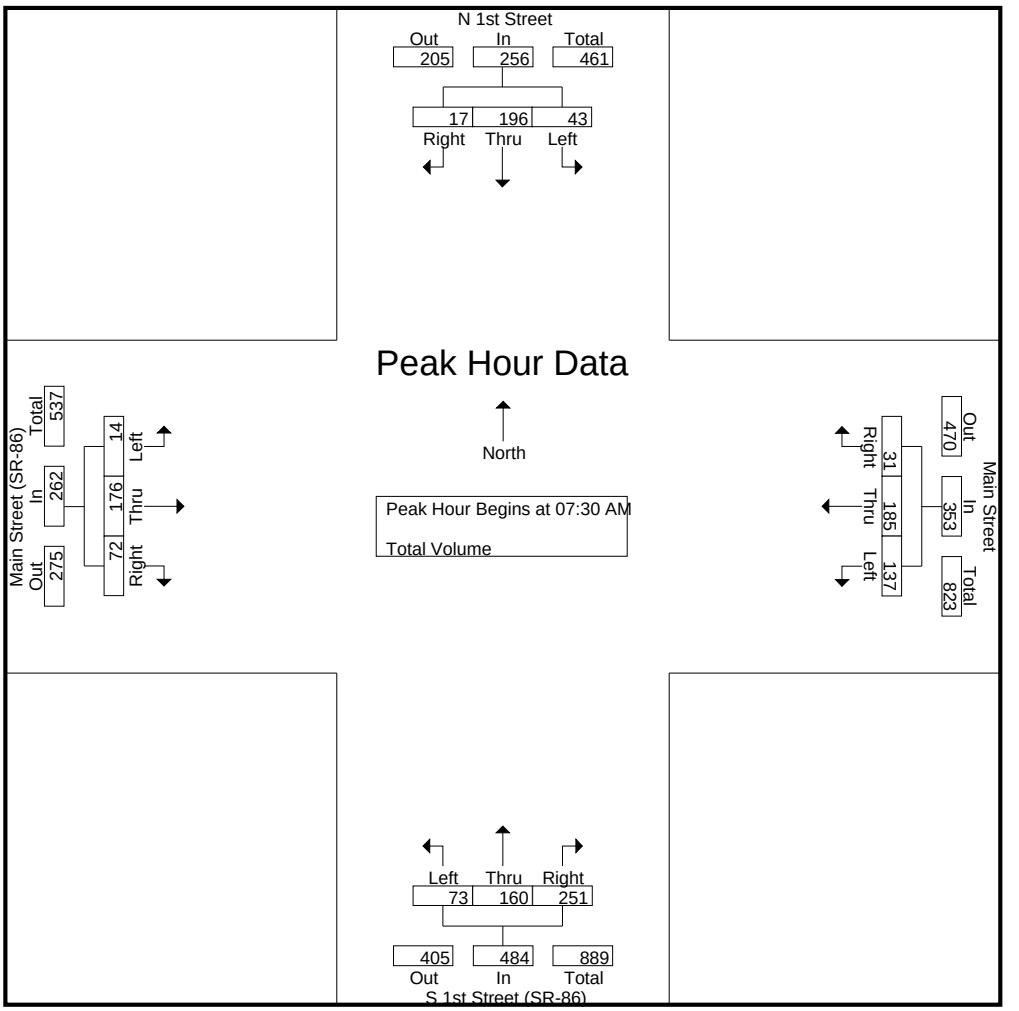
	N 1st Street Southbound				Main Street Westbound				S 1st Street (SR-86) Northbound				Main Street (SR-86) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	29	1	33	13	36	3	52	11	15	24	50	3	32	4	39	174
07:15 AM	6	23	2	31	20	23	3	46	12	24	43	79	2	31	15	48	204
07:30 AM	4	41	3	48	27	31	7	65	18	45	72	135	0	45	9	54	302
07:45 AM	22	42	3	67	34	38	13	85	21	52	86	159	5	40	28	73	384
Total	35	135	9	179	94	128	26	248	62	136	225	423	10	148	56	214	1064
08:00 AM	11	77	8	96	54	67	7	128	19	37	54	110	2	53	19	74	408
08:15 AM	6	36	3	45	22	49	4	75	15	26	39	80	7	38	16	61	261
08:30 AM	8	38	7	53	20	35	4	59	16	21	26	63	5	40	13	58	233
08:45 AM	10	25	2	37	22	34	3	59	10	22	29	61	5	45	17	67	224
Total	35	176	20	231	118	185	18	321	60	106	148	314	19	176	65	260	1126
Grand Total	70	311	29	410	212	313	44	569	122	242	373	737	29	324	121	474	2190
Apprch %	17.1	75.9	7.1		37.3	55	7.7		16.6	32.8	50.6		6.1	68.4	25.5		
Total %	3.2	14.2	1.3	18.7	9.7	14.3	2	26	5.6	11.1	17	33.7	1.3	14.8	5.5	21.6	

	N 1st Street Southbound				Main Street Westbound				S 1st Street (SR-86) Northbound				Main Street (SR-86) 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	4	41	3	48	27	31	7	65	18	45	72	135	0	45	9	54	302
07:45 AM	**22**	42	3	67	34	38	**13**	85	**21**	**52**	**86**	**159**	5	40	**28**	73	384
08:00 AM	11	**77**	**8**	**96**	**54**	**67**	7	**128**	19	37	54	110	2	**53**	19	**74**	**408**
08:15 AM	6	36	3	45	22	49	4	75	15	26	39	80	**7**	38	16	61	261
Total Volume	43	196	17	256	137	185	31	353	73	160	251	484	14	176	72	262	1355
% App. Total	16.8	76.6	6.6		38.8	52.4	8.8		15.1	33.1	51.9		5.3	67.2	27.5		
PHF	.489	.636	.531	.667	.634	.690	.596	.689	.869	.769	.730	.761	.500	.830	.643	.885	.830

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)
E/W: Main Street (SR-86)
Weather: Clear

File Name : 01_BWY_1st_Main AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 2



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				07:30 AM				07:30 AM				07:45 AM			
+0 mins.	**22**	42	3	67	27	31	7	65	18	45	72	135	5	40	**28**	73
+15 mins.	11	**77**	**8**	**96**	34	38	**13**	85	**21**	**52**	**86**	**159**	2	**53**	19	**74**
+30 mins.	6	36	3	45	**54**	**67**	7	**128**	19	37	54	110	**7**	38	16	61
+45 mins.	8	38	7	53	22	49	4	75	15	26	39	80	5	40	13	58
Total Volume	47	193	21	261	137	185	31	353	73	160	251	484	19	171	76	266
% App. Total	18	73.9	8		38.8	52.4	8.8		15.1	33.1	51.9		7.1	64.3	28.6	
PHF	.534	.627	.656	.680	.634	.690	.596	.689	.869	.769	.730	.761	.679	.807	.679	.899

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)
E/W: Main Street (SR-86)
Weather: Clear

File Name : 01_BWY_1st_Main PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

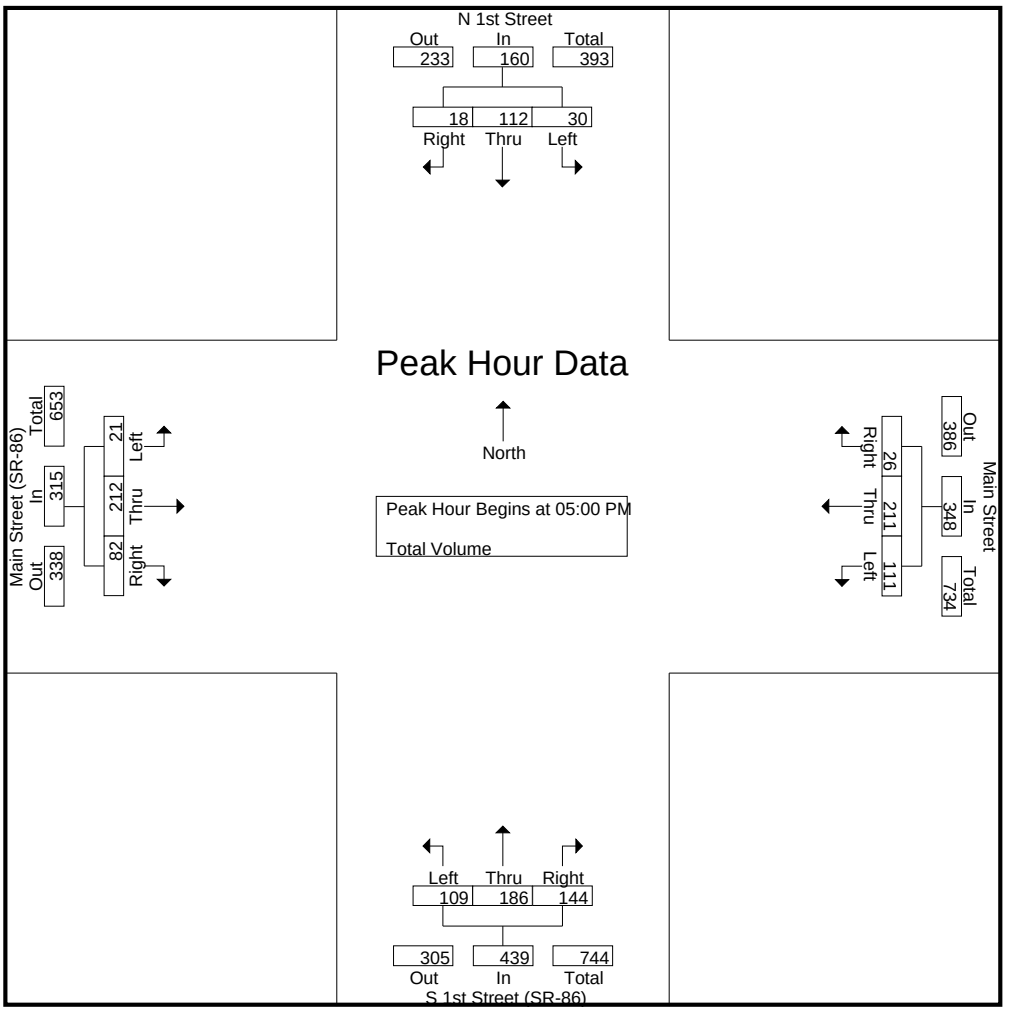
	N 1st Street Southbound				Main Street Westbound				S 1st Street (SR-86) Northbound				Main Street (SR-86) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	11	27	5	43	31	58	8	97	37	42	32	111	8	52	17	77	328
04:15 PM	5	22	1	28	32	46	5	83	22	29	28	79	6	75	22	103	293
04:30 PM	5	27	2	34	38	59	5	102	33	32	33	98	8	48	26	82	316
04:45 PM	5	23	5	33	29	64	4	97	24	33	30	87	5	54	23	82	299
Total	26	99	13	138	130	227	22	379	116	136	123	375	27	229	88	344	1236
05:00 PM	4	27	2	33	45	56	6	107	29	32	33	94	2	55	31	88	322
05:15 PM	5	25	5	35	32	50	7	89	27	50	37	114	6	52	25	83	321
05:30 PM	12	26	5	43	28	60	7	95	22	45	40	107	6	47	16	69	314
05:45 PM	9	34	6	49	6	45	6	57	31	59	34	124	7	58	10	75	305
Total	30	112	18	160	111	211	26	348	109	186	144	439	21	212	82	315	1262
Grand Total	56	211	31	298	241	438	48	727	225	322	267	814	48	441	170	659	2498
Apprch %	18.8	70.8	10.4		33.1	60.2	6.6		27.6	39.6	32.8		7.3	66.9	25.8		
Total %	2.2	8.4	1.2	11.9	9.6	17.5	1.9	29.1	9	12.9	10.7	32.6	1.9	17.7	6.8	26.4	

	N 1st Street Southbound				Main Street Westbound				S 1st Street (SR-86) Northbound				Main Street (SR-86) 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	4	27	2	33	**45**	56	6	**107**	29	32	33	94	2	55	**31**	**88**	**322**
05:15 PM	5	25	5	35	32	50	**7**	89	27	50	37	114	6	52	25	83	321
05:30 PM	**12**	26	5	43	28	**60**	7	95	22	45	**40**	107	6	47	16	69	314
05:45 PM	9	**34**	**6**	**49**	6	45	6	57	**31**	**59**	34	**124**	**7**	**58**	10	75	305
Total Volume	30	112	18	160	111	211	26	348	109	186	144	439	21	212	82	315	1262
% App. Total	18.8	70	11.2		31.9	60.6	7.5		24.8	42.4	32.8		6.7	67.3	26		
PHF	.625	.824	.750	.816	.617	.879	.929	.813	.879	.788	.900	.885	.750	.914	.661	.895	.980

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)
E/W: Main Street (SR-86)
Weather: Clear

File Name : 01_BWY_1st_Main PM
Site Code : 12224889
Start Date : 10/16/2024
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:

	05:00 PM				04:30 PM				05:00 PM				04:15 PM			
+0 mins.	4	27	2	33	38	59	5	102	29	32	33	94	6	**75**	22	**103**
+15 mins.	5	25	5	35	29	**64**	4	97	27	50	37	114	**8**	48	26	82
+30 mins.	**12**	26	5	43	**45**	56	6	**107**	22	45	**40**	107	5	54	23	82
+45 mins.	9	**34**	**6**	**49**	32	50	**7**	89	**31**	**59**	34	**124**	2	55	**31**	88
Total Volume	30	112	18	160	144	229	22	395	109	186	144	439	21	232	102	355
% App. Total	18.8	70	11.2		36.5	58	5.6		24.8	42.4	32.8		5.9	65.4	28.7	
PHF	.625	.824	.750	.816	.800	.895	.786	.923	.879	.788	.900	.885	.656	.773	.823	.862

Location: Brawley
N/S: 1st Street
E/W: Main Street

Date: 10/16/2024
Day: Wednesday

PEDESTRIANS

	North Leg 1st Street Pedestrians	East Leg Main Street Pedestrians	South Leg 1st Street Pedestrians	West Leg Main Street Pedestrians	
7:00 AM	4	0	1	1	6
7:15 AM	0	2	1	0	3
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	3	0	0	0	3
8:15 AM	2	0	0	0	2
8:30 AM	4	0	0	1	5
8:45 AM	2	0	1	0	3
TOTAL VOLUMES:	15	3	3	2	23

	North Leg 1st Street Pedestrians	East Leg Main Street Pedestrians	South Leg 1st Street Pedestrians	West Leg Main Street Pedestrians	
4:00 PM	2	4	0	0	6
4:15 PM	1	0	0	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1
5:00 PM	2	1	0	1	4
5:15 PM	0	0	1	0	1
5:30 PM	4	1	0	0	5
5:45 PM	0	0	1	0	1
TOTAL VOLUMES:	9	6	3	1	19

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Brawley
N/S: 1st Street
E/W: Main Street

Date: 10/16/2024
Day: Wednesday

BICYCLES

	Southbound 1st Street			Westbound Main Street			Northbound 1st Street			Eastbound Main Street			
	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	1	0	0	0	0	0	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	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	1	1
TOTAL VOLUMES:	0	0	0	0	0	1	0	0	0	0	0	1	2

	Southbound 1st Street			Westbound Main Street			Northbound 1st Street			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	1	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	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	1	0	0	0	0	0	0	0	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)/Brawley Avenue
E/W: K Street/S 1st Street
Weather: Clear

File Name : 02_BWY_Braw_K AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

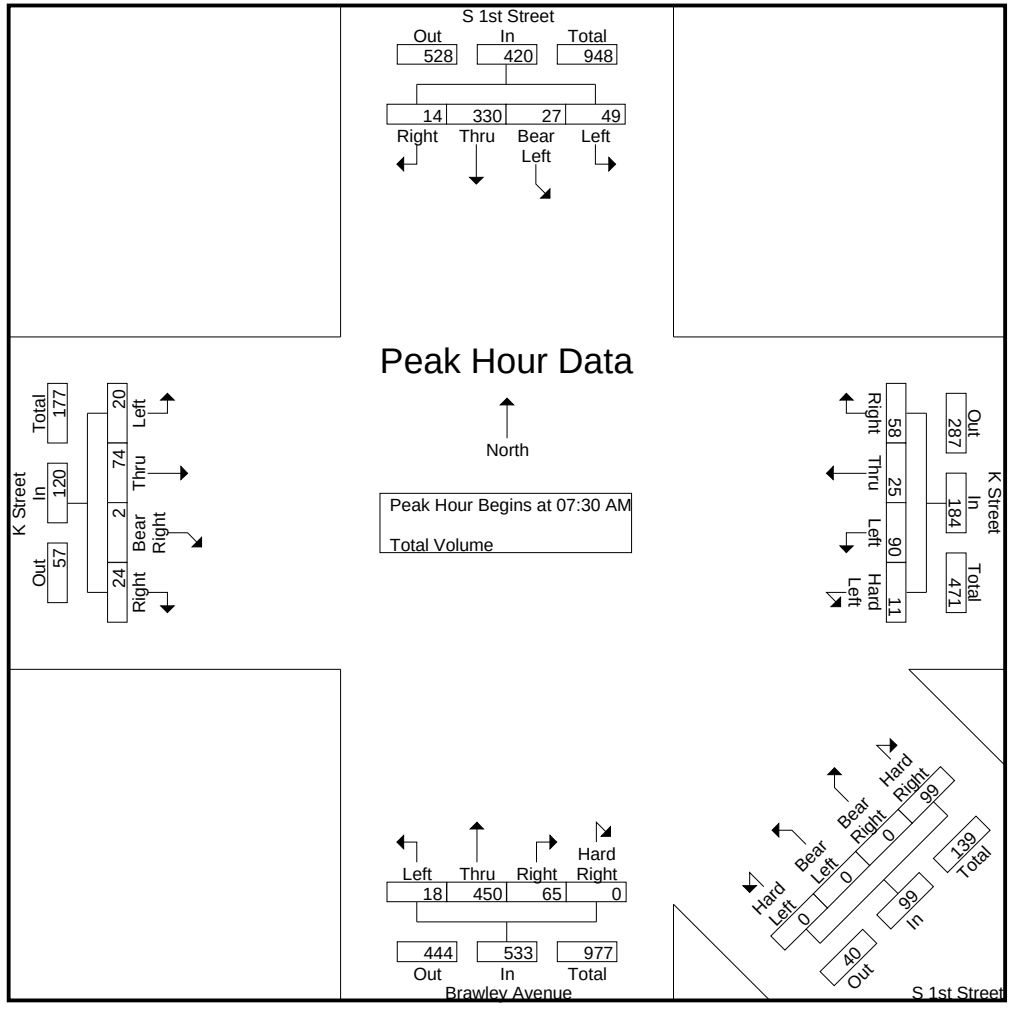
	S 1st Street Southbound					K Street Westbound					S 1st Street Northwestbound					Brawley Avenue Northbound					K Street Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
07:00 AM	2	3	42	1	48	3	13	4	2	22	0	0	0	1	1	0	46	17	0	63	0	5	1	1	7	141
07:15 AM	2	6	52	2	62	1	14	6	4	25	0	0	0	3	3	11	84	3	0	98	4	8	1	2	15	203
07:30 AM	11	6	55	4	76	1	12	5	7	25	0	0	0	20	20	3	120	22	0	145	4	23	1	3	31	297
07:45 AM	14	6	90	3	113	1	23	5	25	54	0	0	0	27	27	4	165	21	0	190	2	29	0	7	38	422
Total	29	21	239	10	299	6	62	20	38	126	0	0	0	51	51	18	415	63	0	496	10	65	3	13	91	1063
08:00 AM	17	6	115	6	144	3	28	5	15	51	0	0	0	33	33	8	89	12	0	109	8	13	1	9	31	368
08:15 AM	7	9	70	1	87	6	27	10	11	54	0	0	0	19	19	3	76	10	0	89	6	9	0	5	20	269
08:30 AM	4	9	60	6	79	1	8	11	9	29	0	0	0	3	3	0	56	17	0	73	4	7	0	0	11	195
08:45 AM	1	3	59	2	65	0	13	8	4	25	0	0	0	3	3	1	57	6	0	64	1	30	0	4	35	192
Total	29	27	304	15	375	10	76	34	39	159	0	0	0	58	58	12	278	45	0	335	19	59	1	18	97	1024
Grand Total	58	48	543	25	674	16	138	54	77	285	0	0	0	109	109	30	693	108	0	831	29	124	4	31	188	2087
Apprch %	8.6	7.1	80.6	3.7		5.6	48.4	18.9	27		0	0	0	100		3.6	83.4	13	0		15.4	66	2.1	16.5		
Total %	2.8	2.3	26	1.2	32.3	0.8	6.6	2.6	3.7	13.7	0	0	0	5.2	5.2	1.4	33.2	5.2	0	39.8	1.4	5.9	0.2	1.5	9	

	S 1st Street Southbound					K Street Westbound					S 1st Street Northwestbound					Brawley Avenue Northbound					K Street Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	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	11	6	55	4	76	1	12	5	7	25	0	0	0	20	20	3	120	**22**	0	145	4	23	**1**	3	31	297
07:45 AM	14	6	90	3	113	1	23	5	**25**	**54**	0	0	0	27	27	4	**165**	21	0	**190**	2	**29**	0	7	**38**	**422**
08:00 AM	**17**	6	**115**	**6**	**144**	3	**28**	5	15	51	0	0	0	**33**	**33**	**8**	89	12	0	109	**8**	13	1	**9**	31	368
08:15 AM	7	**9**	70	1	87	**6**	27	**10**	11	54	0	0	0	19	19	3	76	10	0	89	6	9	0	5	20	269
Total Volume	49	27	330	14	420	11	90	25	58	184	0	0	0	99	99	18	450	65	0	533	20	74	2	24	120	1356
% App. Total	11.7	6.4	78.6	3.3		6	48.9	13.6	31.5		0	0	0	100		3.4	84.4	12.2	0		16.7	61.7	1.7	20		
PHF	.721	.750	.717	.583	.729	.458	.804	.625	.580	.852	.000	.000	.000	.750	.750	.563	.682	.739	.000	.701	.625	.638	.500	.667	.789	.803

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)/Brawley Avenue
E/W: K Street/S 1st Street
Weather: Clear

File Name : 02_BWY_Braw_K AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 2



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)/Brawley Avenue
E/W: K Street/S 1st Street
Weather: Clear

File Name : 02_BWY_Braw_K AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 3

	S 1st Street Southbound					K Street Westbound					S 1st Street Northwestbound					Brawley Avenue Northbound					K Street Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	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					07:45 AM					07:30 AM					07:15 AM					07:30 AM					
+0 mins.	14	6	90	3	113	1	23	5	**25**	**54**	0	0	0	20	20	**11**	84	3	0	98	4	23	**1**	3	31	
+15 mins.	**17**	6	**115**	**6**	**144**	3	**28**	5	15	51	0	0	0	27	27	3	120	**22**	0	145	2	**29**	0	7	**38**	
+30 mins.	7	**9**	70	1	87	**6**	27	10	11	54	0	0	0	**33**	**33**	4	**165**	21	0	**190**	**8**	13	1	**9**	31	
+45 mins.	4	9	60	6	79	1	8	**11**	9	29	0	0	0	19	19	8	89	12	0	109	6	9	0	5	20	
Total Volume	42	30	335	16	423	11	86	31	60	188	0	0	0	99	99	26	458	58	0	542	20	74	2	24	120	
% App. Total	9.9	7.1	79.2	3.8		5.9	45.7	16.5	31.9		0	0	0	100		4.8	84.5	10.7	0		16.7	61.7	1.7	20		
PHF	.618	.833	.728	.667	.734	.458	.768	.705	.600	.870	.000	.000	.000	.750	.750	.591	.694	.659	.000	.713	.625	.638	.500	.667	.789	

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)/Brawley Avenue
E/W: K Street/S 1st Street
Weather: Clear

File Name : 02_BWY_Braw_K PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

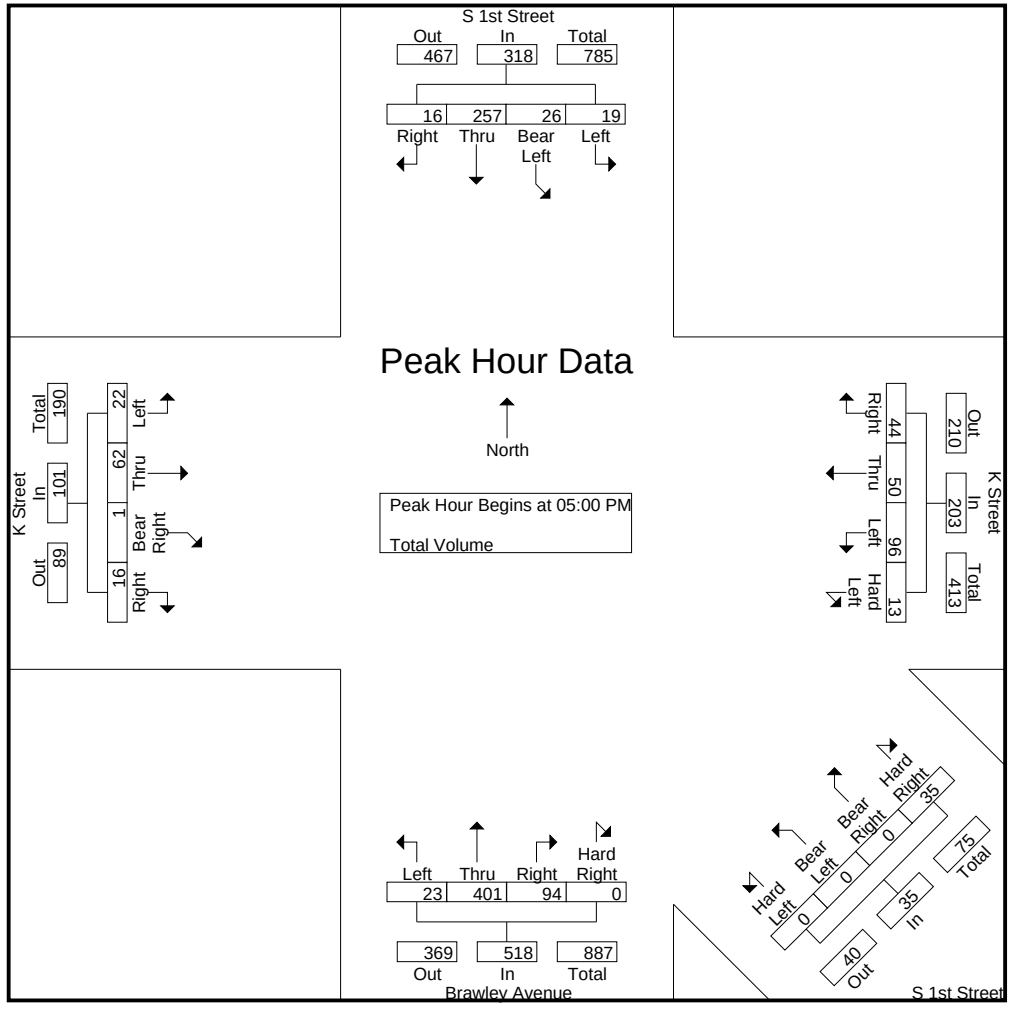
	S 1st Street Southbound					K Street Westbound					S 1st Street Northwestbound					Brawley Avenue Northbound					K Street Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
04:00 PM	4	5	64	5	78	2	23	9	9	43	0	0	0	10	10	8	80	17	0	105	2	18	0	8	28	264
04:15 PM	6	3	51	4	64	2	25	4	9	40	0	0	0	6	6	8	71	12	0	91	1	12	0	2	15	216
04:30 PM	7	5	68	4	84	2	22	18	6	48	0	0	0	8	8	1	83	22	0	106	1	10	1	3	15	261
04:45 PM	4	6	67	3	80	1	19	8	6	34	0	0	0	13	13	2	71	28	0	101	7	18	1	2	28	256
Total	21	19	250	16	306	7	89	39	30	165	0	0	0	37	37	19	305	79	0	403	11	58	2	15	86	997
05:00 PM	11	5	86	3	105	1	33	9	7	50	0	0	0	7	7	8	82	30	0	120	4	9	1	4	18	300
05:15 PM	5	3	63	7	78	6	20	11	15	52	0	0	0	13	13	8	101	24	0	133	5	17	0	3	25	301
05:30 PM	2	8	57	2	69	0	23	19	7	49	0	0	0	8	8	5	98	20	0	123	7	21	0	6	34	283
05:45 PM	1	10	51	4	66	6	20	11	15	52	0	0	0	7	7	2	120	20	0	142	6	15	0	3	24	291
Total	19	26	257	16	318	13	96	50	44	203	0	0	0	35	35	23	401	94	0	518	22	62	1	16	101	1175
Grand Total	40	45	507	32	624	20	185	89	74	368	0	0	0	72	72	42	706	173	0	921	33	120	3	31	187	2172
Apprch %	6.4	7.2	81.2	5.1		5.4	50.3	24.2	20.1		0	0	0	100		4.6	76.7	18.8	0		17.6	64.2	1.6	16.6		
Total %	1.8	2.1	23.3	1.5	28.7	0.9	8.5	4.1	3.4	16.9	0	0	0	3.3	3.3	1.9	32.5	8	0	42.4	1.5	5.5	0.1	1.4	8.6	

	S 1st Street Southbound					K Street Westbound					S 1st Street Northwestbound					Brawley Avenue Northbound					K Street Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	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	**11**	5	**86**	3	**105**	1	**33**	9	7	50	0	0	0	7	7	**8**	82	**30**	0	120	4	9	**1**	4	18	300
05:15 PM	5	3	63	**7**	78	**6**	20	11	**15**	**52**	0	0	0	**13**	**13**	8	101	24	0	133	5	17	0	3	25	**301**
05:30 PM	2	8	57	2	69	0	23	**19**	7	49	0	0	0	8	8	5	98	20	0	123	**7**	**21**	0	**6**	**34**	283
05:45 PM	1	**10**	51	4	66	6	20	11	15	52	0	0	0	7	7	2	**120**	20	0	**142**	6	15	0	3	24	291
Total Volume	19	26	257	16	318	13	96	50	44	203	0	0	0	35	35	23	401	94	0	518	22	62	1	16	101	1175
% App. Total	6	8.2	80.8	5		6.4	47.3	24.6	21.7		0	0	0	100		4.4	77.4	18.1	0		21.8	61.4	1	15.8		
PHF	.432	.650	.747	.571	.757	.542	.727	.658	.733	.976	.000	.000	.000	.673	.673	.719	.835	.783	.000	.912	.786	.738	.250	.667	.743	.976

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)/Brawley Avenue
E/W: K Street/S 1st Street
Weather: Clear

File Name : 02_BWY_Braw_K PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 2



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: 1st Street (SR-86)/Brawley Avenue
E/W: K Street/S 1st Street
Weather: Clear

File Name : 02_BWY_Braw_K PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 3

	S 1st Street Southbound					K Street Westbound					S 1st Street Northwestbound					Brawley Avenue Northbound					K Street Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	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:																									
	04:30 PM					05:00 PM					04:30 PM					05:00 PM					04:45 PM					
+0 mins.	7	5	68	4	84	1	**33**	9	7	50	0	0	0	8	8	**8**	82	**30**	0	120	**7**	18	**1**	2	28	
+15 mins.	4	**6**	67	3	80	**6**	20	11	**15**	**52**	0	0	0	**13**	**13**	8	101	24	0	133	4	9	1	4	18	
+30 mins.	**11**	5	**86**	3	**105**	0	23	**19**	7	49	0	0	0	7	7	5	98	20	0	123	5	17	0	3	25	
+45 mins.	5	3	63	**7**	78	6	20	11	15	52	0	0	0	13	13	2	**120**	20	0	**142**	7	**21**	0	**6**	**34**	
Total Volume	27	19	284	17	347	13	96	50	44	203	0	0	0	41	41	23	401	94	0	518	23	65	2	15	105	
% App. Total	7.8	5.5	81.8	4.9		6.4	47.3	24.6	21.7		0	0	0	100		4.4	77.4	18.1	0		21.9	61.9	1.9	14.3		
PHF	.614	.792	.826	.607	.826	.542	.727	.658	.733	.976	.000	.000	.000	.788	.788	.719	.835	.783	.000	.912	.821	.774	.500	.625	.772	

Location: Brawley
N/S: Brawley Avenue
E/W: K Street
NWB: S 1st Street

Date: 10/16/2024
Day: Wednesday

PEDESTRIANS

	North Leg S 1st Street Pedestrians	East Leg K Street Pedestrians	Southeast Leg S 1st Street Pedestrians	South Leg Brawley Avenue Pedestrians	West Leg K Street Pedestrians	
7:00 AM	1	0	0	0	0	1
7:15 AM	1	0	0	0	0	1
7:30 AM	0	6	1	0	0	7
7:45 AM	0	0	0	0	0	0
8:00 AM	8	0	5	3	0	16
8:15 AM	0	0	0	0	0	0
8:30 AM	0	0	0	2	2	4
8:45 AM	0	0	1	2	0	3
TOTAL VOLUMES:	10	6	7	7	2	32

	North Leg S 1st Street Pedestrians	East Leg K Street Pedestrians	Southeast Leg S 1st Street Pedestrians	South Leg Brawley Avenue Pedestrians	West Leg K Street Pedestrians	
4:00 PM	0	0	0	0	2	2
4:15 PM	0	2	1	0	0	3
4:30 PM	0	1	0	0	2	3
4:45 PM	0	0	0	0	1	1
5:00 PM	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	1
5:45 PM	0	0	0	0	1	1
TOTAL VOLUMES:	0	3	1	0	7	11

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Brawley
N/S: Brawley Avenue
E/W: K Street
NWB: S 1st Street

Date: 10/16/2024
Day: Wednesday

BICYCLES

	Southbound S 1st Street				Westbound K Street				Northwestbound S 1st Street				Northbound Brawley Avenue				Eastbound K Street				
	Left	B Left	Thru	Right	H Left	Left	Thru	Right	H Left	B Left	B Right	H Right	Left	Thru	Right	H Right	Left	Thru	B Right	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2

	Southbound S 1st Street				Westbound K Street				Northwestbound S 1st Street				Northbound Brawley Avenue				Eastbound K Street				
	Left	B Left	Thru	Right	H Left	Left	Thru	Right	H Left	B Left	B Right	H Right	Left	Thru	Right	H Right	Left	Thru	B Right	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	0	1	0	0	0	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	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	1	0	1	0	0	0	0	4	0	2	0	0	0	2	1	0	11

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: W Malan Street
Weather: Clear

File Name : 03_BWY_Braw_Malan AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

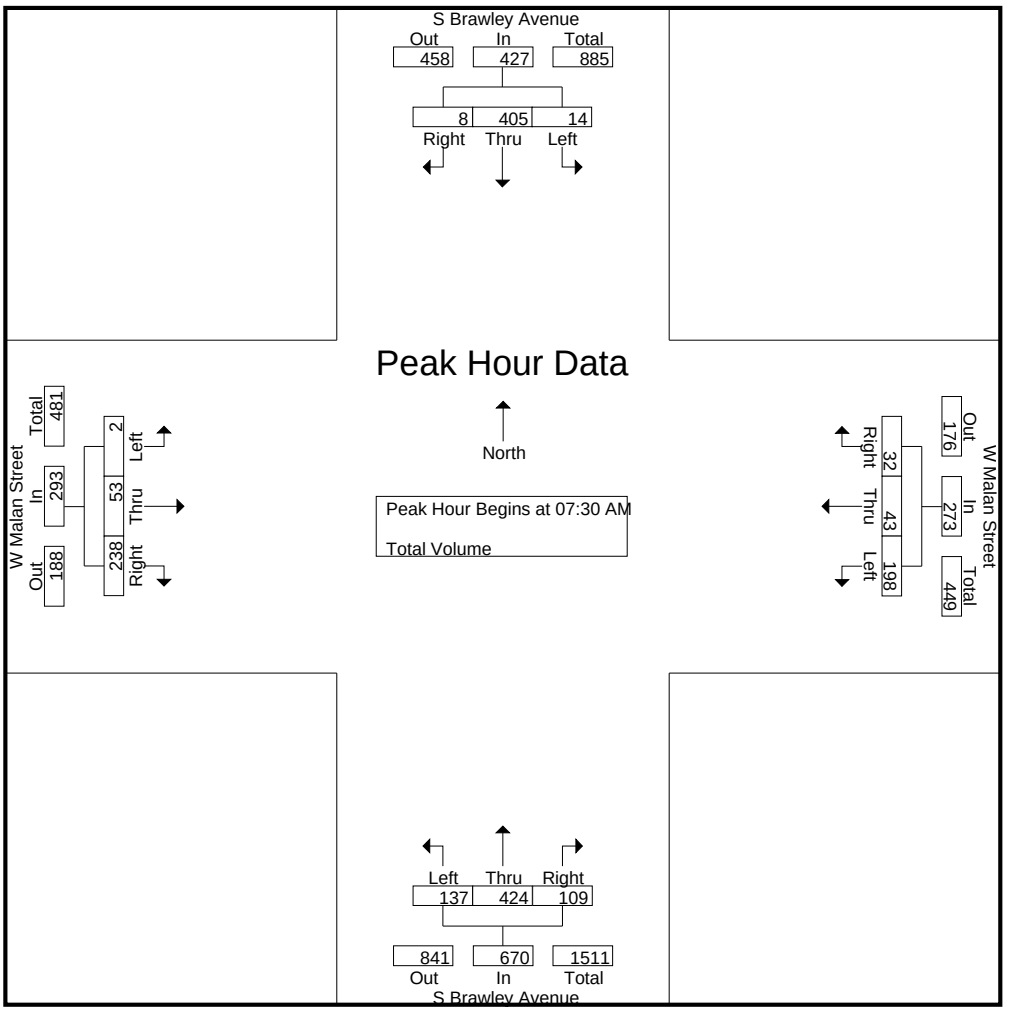
	S Brawley Avenue Southbound				W Malan Street Westbound				S Brawley Avenue Northbound				W Malan Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	59	1	61	25	6	1	32	28	65	13	106	0	5	34	39	238
07:15 AM	1	70	0	71	27	10	2	39	24	97	22	143	1	14	47	62	315
07:30 AM	3	67	1	71	39	10	10	59	35	115	31	181	1	10	63	74	385
07:45 AM	2	102	2	106	51	7	14	72	29	141	35	205	1	20	54	75	458
Total	7	298	4	309	142	33	27	202	116	418	101	635	3	49	198	250	1396
08:00 AM	7	135	2	144	57	16	3	76	39	83	32	154	0	12	61	73	447
08:15 AM	2	101	3	106	51	10	5	66	34	85	11	130	0	11	60	71	373
08:30 AM	2	73	0	75	22	10	3	35	24	65	15	104	0	8	48	56	270
08:45 AM	2	74	1	77	33	8	0	41	29	60	15	104	1	7	48	56	278
Total	13	383	6	402	163	44	11	218	126	293	73	492	1	38	217	256	1368
Grand Total	20	681	10	711	305	77	38	420	242	711	174	1127	4	87	415	506	2764
Apprch %	2.8	95.8	1.4		72.6	18.3	9		21.5	63.1	15.4		0.8	17.2	82		
Total %	0.7	24.6	0.4	25.7	11	2.8	1.4	15.2	8.8	25.7	6.3	40.8	0.1	3.1	15	18.3	

	S Brawley Avenue Southbound				W Malan Street Westbound				S Brawley Avenue Northbound				W Malan Street 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	3	67	1	71	39	10	10	59	35	115	31	181	**1**	10	**63**	74	385
07:45 AM	2	102	2	106	51	7	**14**	72	29	**141**	**35**	**205**	1	**20**	54	**75**	**458**
08:00 AM	**7**	**135**	2	**144**	**57**	**16**	3	**76**	**39**	83	32	154	0	12	61	73	447
08:15 AM	2	101	**3**	106	51	10	5	66	34	85	11	130	0	11	60	71	373
Total Volume	14	405	8	427	198	43	32	273	137	424	109	670	2	53	238	293	1663
% App. Total	3.3	94.8	1.9		72.5	15.8	11.7		20.4	63.3	16.3		0.7	18.1	81.2		
PHF	.500	.750	.667	.741	.868	.672	.571	.898	.878	.752	.779	.817	.500	.663	.944	.977	.908

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: W Malan Street
Weather: Clear

File Name : 03_BWY_Braw_Malan AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 2



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				07:30 AM				07:15 AM				07:30 AM			
+0 mins.	2	102	2	106	39	10	10	59	24	97	22	143	**1**	10	**63**	74
+15 mins.	**7**	**135**	2	**144**	51	7	**14**	72	35	115	31	181	1	**20**	54	**75**
+30 mins.	2	101	**3**	106	**57**	**16**	3	**76**	29	**141**	**35**	**205**	0	12	61	73
+45 mins.	2	73	0	75	51	10	5	66	**39**	83	32	154	0	11	60	71
Total Volume	13	411	7	431	198	43	32	273	127	436	120	683	2	53	238	293
% App. Total	3	95.4	1.6		72.5	15.8	11.7		18.6	63.8	17.6		0.7	18.1	81.2	
PHF	.464	.761	.583	.748	.868	.672	.571	.898	.814	.773	.857	.833	.500	.663	.944	.977

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: W Malan Street
Weather: Clear

File Name : 03_BWY_Braw_Malan PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

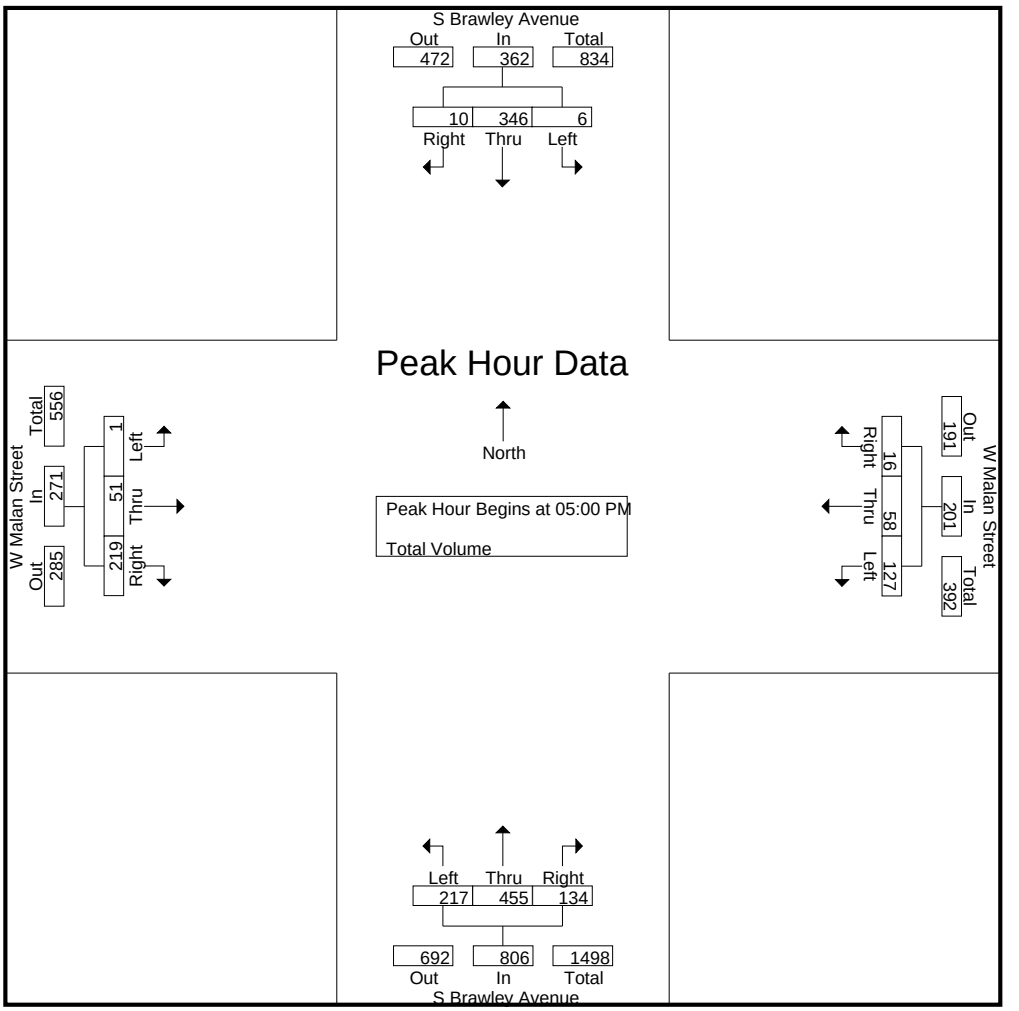
	S Brawley Avenue Southbound				W Malan Street Westbound				S Brawley Avenue Northbound				W Malan Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	80	5	88	37	11	4	52	53	91	26	170	2	7	54	63	373
04:15 PM	1	79	4	84	36	9	2	47	45	85	26	156	0	14	57	71	358
04:30 PM	5	88	2	95	32	6	1	39	56	107	39	202	3	10	42	55	391
04:45 PM	0	85	4	89	39	20	4	63	49	82	21	152	2	6	47	55	359
Total	9	332	15	356	144	46	11	201	203	365	112	680	7	37	200	244	1481
05:00 PM	3	114	3	120	45	13	3	61	48	114	38	200	0	12	57	69	450
05:15 PM	1	85	3	89	30	14	3	47	61	115	35	211	0	8	64	72	419
05:30 PM	1	82	4	87	27	17	3	47	65	117	29	211	1	13	49	63	408
05:45 PM	1	65	0	66	25	14	7	46	43	109	32	184	0	18	49	67	363
Total	6	346	10	362	127	58	16	201	217	455	134	806	1	51	219	271	1640
Grand Total	15	678	25	718	271	104	27	402	420	820	246	1486	8	88	419	515	3121
Apprch %	2.1	94.4	3.5		67.4	25.9	6.7		28.3	55.2	16.6		1.6	17.1	81.4		
Total %	0.5	21.7	0.8	23	8.7	3.3	0.9	12.9	13.5	26.3	7.9	47.6	0.3	2.8	13.4	16.5	

	S Brawley Avenue Southbound				W Malan Street Westbound				S Brawley Avenue Northbound				W Malan Street 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	**3**	**114**	3	**120**	**45**	13	3	**61**	48	114	**38**	200	0	12	57	69	**450**
05:15 PM	1	85	3	89	30	14	3	47	61	115	35	**211**	0	8	**64**	**72**	419
05:30 PM	1	82	**4**	87	27	**17**	3	47	**65**	**117**	29	211	**1**	13	49	63	408
05:45 PM	1	65	0	66	25	14	**7**	46	43	109	32	184	0	**18**	49	67	363
Total Volume	6	346	10	362	127	58	16	201	217	455	134	806	1	51	219	271	1640
% App. Total	1.7	95.6	2.8		63.2	28.9	8		26.9	56.5	16.6		0.4	18.8	80.8		
PHF	.500	.759	.625	.754	.706	.853	.571	.824	.835	.972	.882	.955	.250	.708	.855	.941	.911

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: W Malan Street
Weather: Clear

File Name : 03_BWY_Braw_Malan PM
Site Code : 12224889
Start Date : 10/16/2024
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:

	04:30 PM				04:45 PM				05:00 PM				05:00 PM			
+0 mins.	**5**	88	2	95	39	**20**	**4**	**63**	48	114	**38**	200	0	12	57	69
+15 mins.	0	85	**4**	89	**45**	13	3	61	61	115	35	**211**	0	8	**64**	**72**
+30 mins.	3	**114**	3	**120**	30	14	3	47	**65**	**117**	29	211	**1**	13	49	63
+45 mins.	1	85	3	89	27	17	3	47	43	109	32	184	0	**18**	49	67
Total Volume	9	372	12	393	141	64	13	218	217	455	134	806	1	51	219	271
% App. Total	2.3	94.7	3.1		64.7	29.4	6		26.9	56.5	16.6		0.4	18.8	80.8	
PHF	.450	.816	.750	.819	.783	.800	.813	.865	.835	.972	.882	.955	.250	.708	.855	.941

Location: Brawley
N/S: S Brawley Avenue
E/W: W Malan Street

Date: 10/16/2024
Day: Wednesday

PEDESTRIANS

	North Leg S Brawley Avenue	East Leg W Malan Street	South Leg S Brawley Avenue	West Leg W Malan Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
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	0	0	0	0
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	0	2	0	0	2

	North Leg S Brawley Avenue	East Leg W Malan Street	South Leg S Brawley Avenue	West Leg W Malan Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	1	1	1	3
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	1	1	0	2
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	2	2	1	5

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Brawley
N/S: S Brawley Avenue
E/W: W Malan Street

Date: 10/16/2024
Day: Wednesday

BICYCLES

	Southbound S Brawley Avenue			Westbound W Malan Street			Northbound S Brawley Avenue			Eastbound W Malan Street			
	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	1	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	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	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	1	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	0	2	0	0	0	3

	Southbound S Brawley Avenue			Westbound W Malan Street			Northbound S Brawley Avenue			Eastbound W Malan Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	2
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	1	0	0	0	1	0	2
5:30 PM	0	1	0	0	0	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	2	0	0	0	0	1	1	0	0	1	1	6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Panno Drive/Wildcat Drive
Weather: Clear

File Name : 04_BWY_Braw_Panno AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

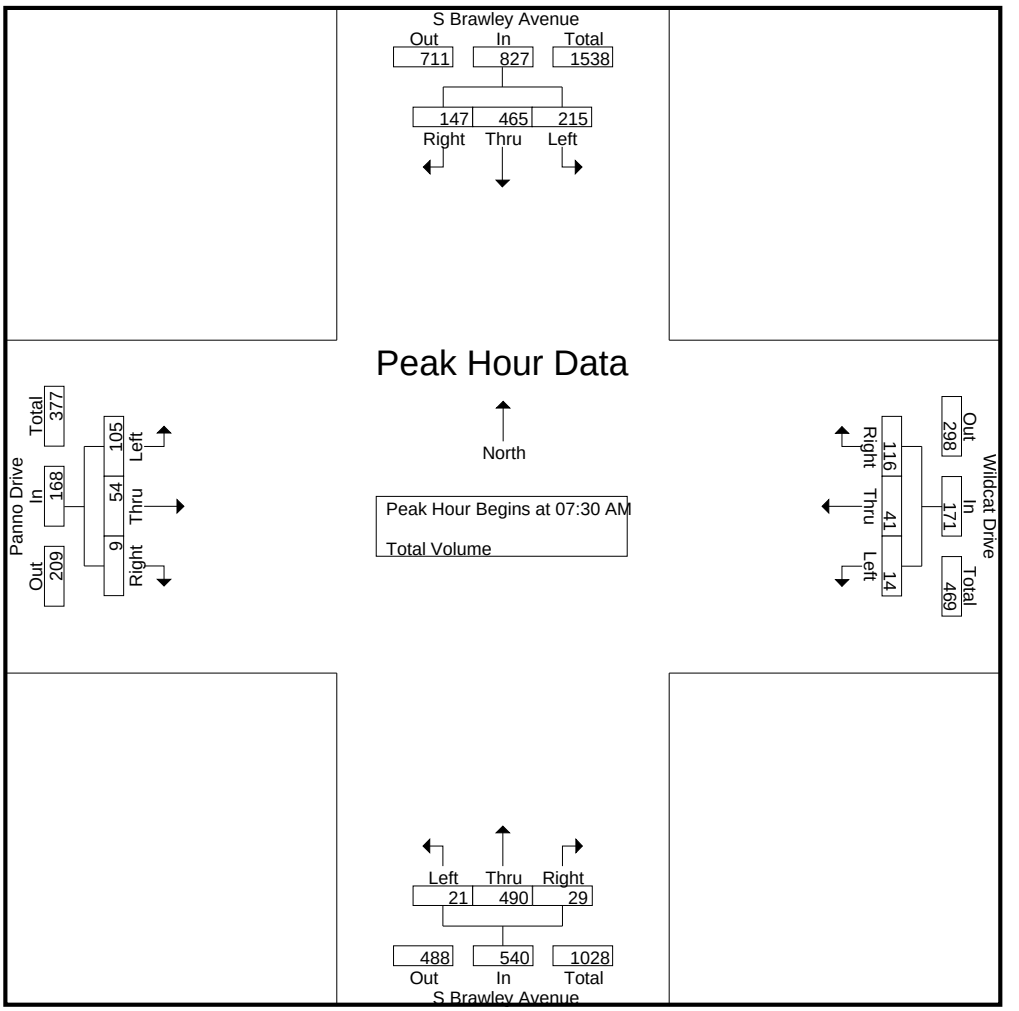
	S Brawley Avenue Southbound				Wildcat Drive Westbound				S Brawley Avenue Northbound				Panno Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	26	82	9	117	1	8	19	28	2	82	2	86	3	9	7	19	250
07:15 AM	33	108	8	149	0	2	27	29	5	106	6	117	22	12	6	40	335
07:30 AM	36	122	14	172	3	12	27	42	2	133	7	142	35	16	3	54	410
07:45 AM	40	104	41	185	5	18	34	57	4	163	12	179	40	17	2	59	480
Total	135	416	72	623	9	40	107	156	13	484	27	524	100	54	18	172	1475
08:00 AM	71	127	46	244	2	6	25	33	9	106	7	122	19	11	2	32	431
08:15 AM	68	112	46	226	4	5	30	39	6	88	3	97	11	10	2	23	385
08:30 AM	35	84	21	140	3	17	28	48	3	71	3	77	11	10	4	25	290
08:45 AM	35	72	17	124	2	8	23	33	5	82	8	95	8	9	4	21	273
Total	209	395	130	734	11	36	106	153	23	347	21	391	49	40	12	101	1379
Grand Total	344	811	202	1357	20	76	213	309	36	831	48	915	149	94	30	273	2854
Apprch %	25.4	59.8	14.9		6.5	24.6	68.9		3.9	90.8	5.2		54.6	34.4	11		
Total %	12.1	28.4	7.1	47.5	0.7	2.7	7.5	10.8	1.3	29.1	1.7	32.1	5.2	3.3	1.1	9.6	

	S Brawley Avenue Southbound				Wildcat Drive Westbound				S Brawley Avenue Northbound				Panno Drive 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	36	122	14	172	3	12	27	42	2	133	7	142	35	16	**3**	54	410
07:45 AM	40	104	41	185	**5**	**18**	**34**	**57**	4	**163**	**12**	**179**	**40**	**17**	2	**59**	**480**
08:00 AM	**71**	**127**	**46**	**244**	2	6	25	33	**9**	106	7	122	19	11	2	32	431
08:15 AM	68	112	46	226	4	5	30	39	6	88	3	97	11	10	2	23	385
Total Volume	215	465	147	827	14	41	116	171	21	490	29	540	105	54	9	168	1706
% App. Total	26	56.2	17.8		8.2	24	67.8		3.9	90.7	5.4		62.5	32.1	5.4		
PHF	.757	.915	.799	.847	.700	.569	.853	.750	.583	.752	.604	.754	.656	.794	.750	.712	.889

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Panno Drive/Wildcat Drive
Weather: Clear

File Name : 04_BWY_Braw_Panno AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 2



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				07:45 AM				07:15 AM				07:15 AM			
+0 mins.	36	122	14	172	**5**	**18**	**34**	**57**	5	106	6	117	22	12	**6**	40
+15 mins.	40	104	41	185	2	6	25	33	2	133	7	142	35	16	3	54
+30 mins.	**71**	**127**	**46**	**244**	4	5	30	39	4	**163**	**12**	**179**	**40**	**17**	2	**59**
+45 mins.	68	112	46	226	3	17	28	48	**9**	106	7	122	19	11	2	32
Total Volume	215	465	147	827	14	46	117	177	20	508	32	560	116	56	13	185
% App. Total	26	56.2	17.8		7.9	26	66.1		3.6	90.7	5.7		62.7	30.3	7	
PHF	.757	.915	.799	.847	.700	.639	.860	.776	.556	.779	.667	.782	.725	.824	.542	.784

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Panno Drive/Wildcat Drive
Weather: Clear

File Name : 04_BWY_Braw_Panno PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

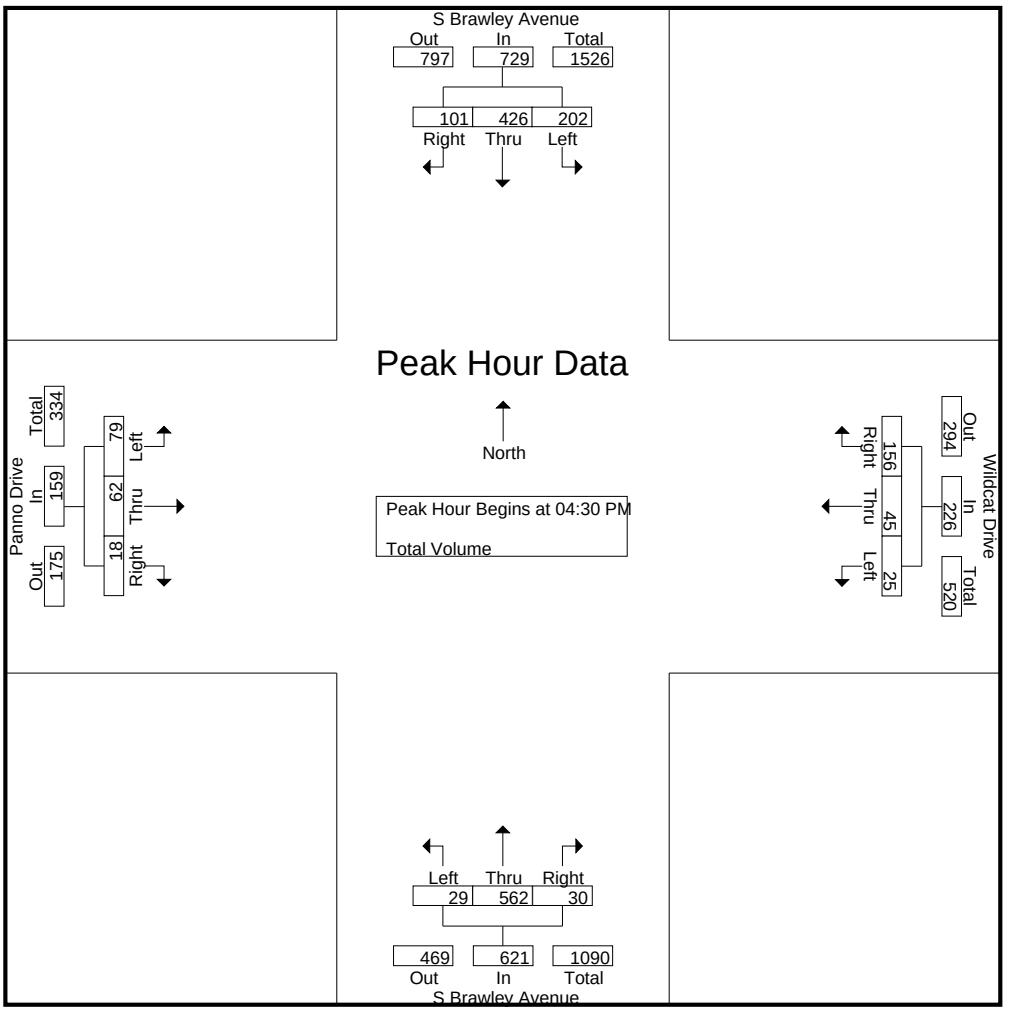
	S Brawley Avenue Southbound				Wildcat Drive Westbound				S Brawley Avenue Northbound				Panno Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	61	97	26	184	8	10	31	49	6	144	3	153	11	14	5	30	416
04:15 PM	49	86	35	170	4	8	42	54	4	101	9	114	13	15	4	32	370
04:30 PM	52	96	25	173	6	11	42	59	10	138	13	161	18	22	4	44	437
04:45 PM	52	102	25	179	8	14	38	60	4	117	3	124	15	10	4	29	392
Total	214	381	111	706	26	43	153	222	24	500	28	552	57	61	17	135	1615
05:00 PM	46	120	21	187	3	9	36	48	10	139	6	155	30	24	7	61	451
05:15 PM	52	108	30	190	8	11	40	59	5	168	8	181	16	6	3	25	455
05:30 PM	58	80	21	159	5	12	58	75	12	143	7	162	15	9	4	28	424
05:45 PM	35	72	22	129	1	7	29	37	6	154	8	168	24	8	1	33	367
Total	191	380	94	665	17	39	163	219	33	604	29	666	85	47	15	147	1697
Grand Total	405	761	205	1371	43	82	316	441	57	1104	57	1218	142	108	32	282	3312
Apprch %	29.5	55.5	15		9.8	18.6	71.7		4.7	90.6	4.7		50.4	38.3	11.3		
Total %	12.2	23	6.2	41.4	1.3	2.5	9.5	13.3	1.7	33.3	1.7	36.8	4.3	3.3	1	8.5	

	S Brawley Avenue Southbound				Wildcat Drive Westbound				S Brawley Avenue Northbound				Panno Drive 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 04:30 PM																	
04:30 PM	**52**	96	25	173	6	11	**42**	59	**10**	138	**13**	161	18	22	4	44	437
04:45 PM	52	102	25	179	**8**	**14**	38	**60**	4	117	3	124	15	10	4	29	392
05:00 PM	46	**120**	21	187	3	9	36	48	10	139	6	155	**30**	**24**	**7**	**61**	451
05:15 PM	52	108	**30**	**190**	8	11	40	59	5	**168**	8	**181**	16	6	3	25	**455**
Total Volume	202	426	101	729	25	45	156	226	29	562	30	621	79	62	18	159	1735
% App. Total	27.7	58.4	13.9		11.1	19.9	69		4.7	90.5	4.8		49.7	39	11.3		
PHF	.971	.888	.842	.959	.781	.804	.929	.942	.725	.836	.577	.858	.658	.646	.643	.652	.953

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Panno Drive/Wildcat Drive
Weather: Clear

File Name : 04_BWY_Braw_Panno PM
Site Code : 12224889
Start Date : 10/16/2024
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:

	04:30 PM				04:45 PM				05:00 PM				04:15 PM			
+0 mins.	**52**	96	25	173	**8**	**14**	38	60	10	139	6	155	13	15	4	32
+15 mins.	52	102	25	179	3	9	36	48	5	**168**	**8**	**181**	18	22	4	44
+30 mins.	46	**120**	21	187	8	11	40	59	**12**	143	7	162	15	10	4	29
+45 mins.	52	108	**30**	**190**	5	12	**58**	**75**	6	154	8	168	**30**	**24**	**7**	**61**
Total Volume	202	426	101	729	24	46	172	242	33	604	29	666	76	71	19	166
% App. Total	27.7	58.4	13.9		9.9	19	71.1		5	90.7	4.4		45.8	42.8	11.4	
PHF	.971	.888	.842	.959	.750	.821	.741	.807	.688	.899	.906	.920	.633	.740	.679	.680

Location: Brawley
N/S: S Brawley Avenue
E/W: Panno Drive/Wildcat Drive

Date: 10/16/2024
Day: Wednesday

PEDESTRIANS

	North Leg S Brawley Avenue Pedestrians	East Leg Wildcat Drive Pedestrians	South Leg S Brawley Avenue Pedestrians	West Leg Panno Drive Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	2	3	1	6
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	3	3	1	7

	North Leg S Brawley Avenue Pedestrians	East Leg Wildcat Drive Pedestrians	South Leg S Brawley Avenue Pedestrians	West Leg Panno Drive 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	1	0	1
5:30 PM	0	0	1	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	0	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Brawley
N/S: S Brawley Avenue
E/W: Panno Drive/Wildcat Drive

Date: 10/16/2024
Day: Wednesday

BICYCLES

	Southbound S Brawley Avenue			Westbound Wildcat Drive			Northbound S Brawley Avenue			Eastbound Panno Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	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	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:	1	0	0	0	0	1	0	0	0	0	1	0	3

	Southbound S Brawley Avenue			Westbound Wildcat Drive			Northbound S Brawley Avenue			Eastbound Panno Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	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	0	0	0	1	0	1
5:15 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	1	1	0	1	0	0	3	0	7

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Legion Road
Weather: Clear

File Name : 05_BWY_Braw_Leg AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

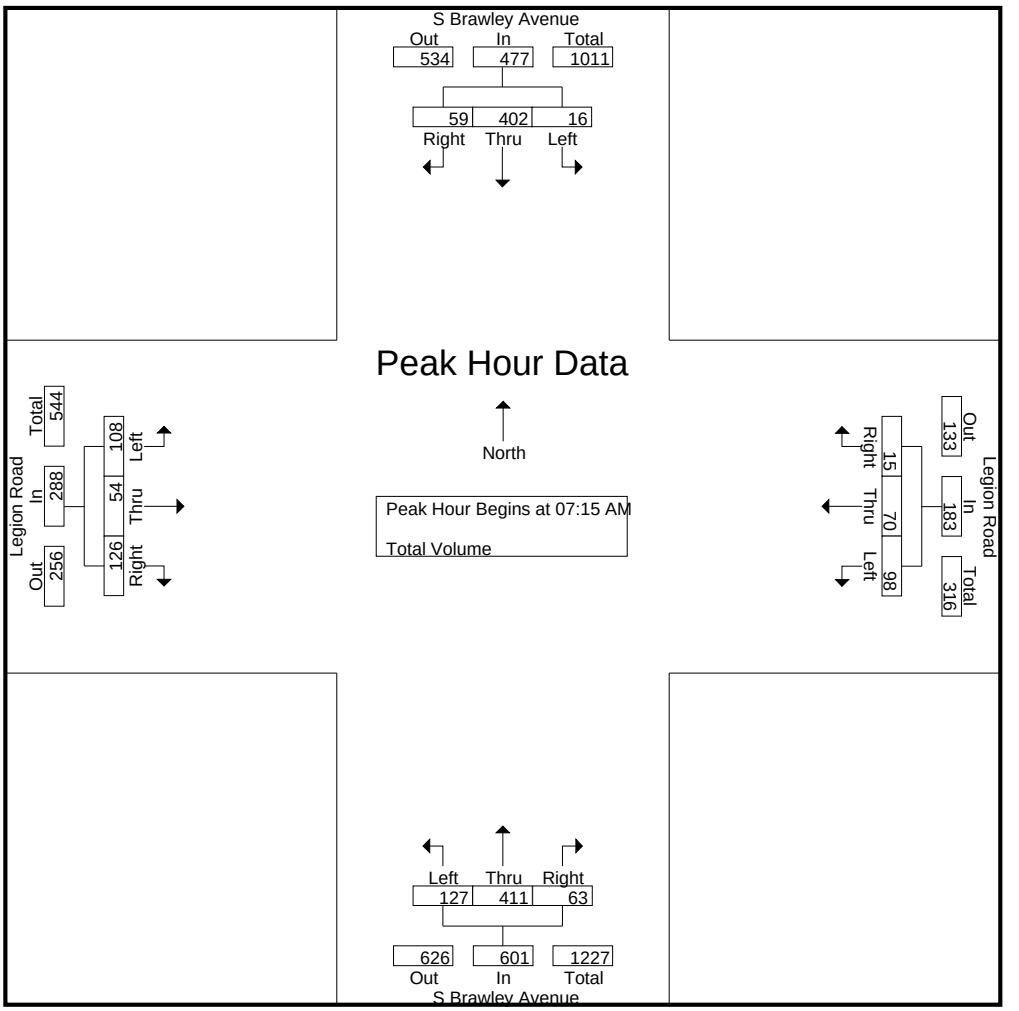
	S Brawley Avenue Southbound				Legion Road Westbound				S Brawley Avenue Northbound				Legion Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	77	8	90	19	6	0	25	23	71	19	113	8	8	30	46	274
07:15 AM	3	91	7	101	31	11	3	45	21	90	16	127	16	10	34	60	333
07:30 AM	4	119	11	134	25	12	6	43	30	110	16	156	32	14	34	80	413
07:45 AM	3	97	24	124	25	25	3	53	36	117	16	169	38	22	35	95	441
Total	15	384	50	449	100	54	12	166	110	388	67	565	94	54	133	281	1461
08:00 AM	6	95	17	118	17	22	3	42	40	94	15	149	22	8	23	53	362
08:15 AM	8	105	17	130	23	19	4	46	30	67	18	115	7	12	16	35	326
08:30 AM	7	78	11	96	23	18	6	47	20	53	9	82	11	9	22	42	267
08:45 AM	11	70	9	90	21	7	6	34	34	66	9	109	17	14	23	54	287
Total	32	348	54	434	84	66	19	169	124	280	51	455	57	43	84	184	1242
Grand Total	47	732	104	883	184	120	31	335	234	668	118	1020	151	97	217	465	2703
Apprch %	5.3	82.9	11.8		54.9	35.8	9.3		22.9	65.5	11.6		32.5	20.9	46.7		
Total %	1.7	27.1	3.8	32.7	6.8	4.4	1.1	12.4	8.7	24.7	4.4	37.7	5.6	3.6	8	17.2	

	S Brawley Avenue Southbound				Legion Road Westbound				S Brawley Avenue Northbound				Legion 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	3	91	7	101	**31**	11	3	45	21	90	**16**	127	16	10	34	60	333
07:30 AM	4	**119**	11	**134**	25	12	**6**	43	30	110	16	156	32	14	34	80	413
07:45 AM	3	97	**24**	124	25	**25**	3	**53**	36	**117**	16	**169**	**38**	**22**	**35**	**95**	**441**
08:00 AM	**6**	95	17	118	17	22	3	42	**40**	94	15	149	22	8	23	53	362
Total Volume	16	402	59	477	98	70	15	183	127	411	63	601	108	54	126	288	1549
% App. Total	3.4	84.3	12.4		53.6	38.3	8.2		21.1	68.4	10.5		37.5	18.8	43.8		
PHF	.667	.845	.615	.890	.790	.700	.625	.863	.794	.878	.984	.889	.711	.614	.900	.758	.878

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Legion Road
Weather: Clear

File Name : 05_BWY_Braw_Leg AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 2



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				07:45 AM				07:15 AM				07:15 AM			
+0 mins.	4	**119**	11	**134**	**25**	**25**	3	**53**	21	90	**16**	127	16	10	34	60
+15 mins.	3	97	**24**	124	17	22	3	42	30	110	16	156	32	14	34	80
+30 mins.	6	95	17	118	23	19	4	46	36	**117**	16	**169**	**38**	**22**	**35**	**95**
+45 mins.	**8**	105	17	130	23	18	**6**	47	**40**	94	15	149	22	8	23	53
Total Volume	21	416	69	506	88	84	16	188	127	411	63	601	108	54	126	288
% App. Total	4.2	82.2	13.6		46.8	44.7	8.5		21.1	68.4	10.5		37.5	18.8	43.8	
PHF	.656	.874	.719	.944	.880	.840	.667	.887	.794	.878	.984	.889	.711	.614	.900	.758

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Legion Road
Weather: Clear

File Name : 05_BWY_Braw_Leg PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

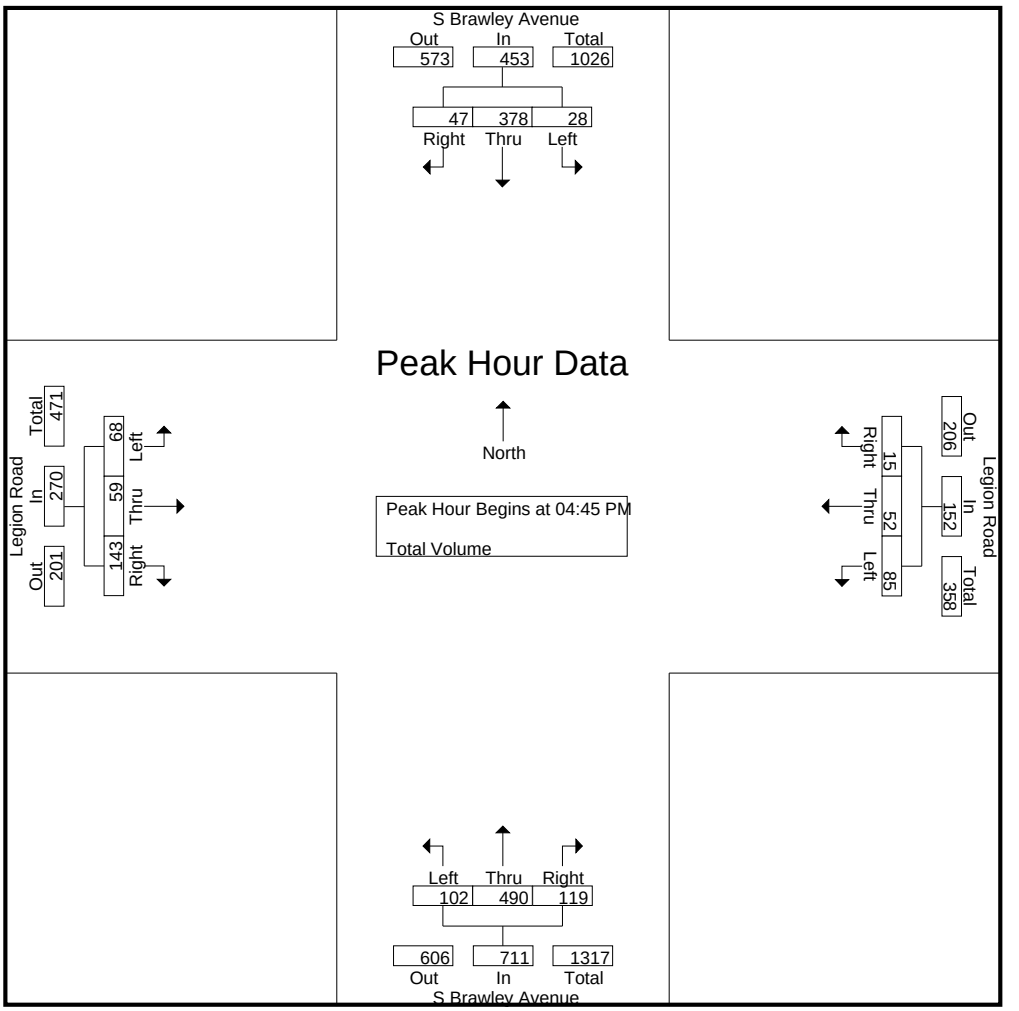
	S Brawley Avenue Southbound				Legion Road Westbound				S Brawley Avenue Northbound				Legion Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	89	11	104	32	9	4	45	30	117	24	171	12	15	36	63	383
04:15 PM	6	90	8	104	20	13	1	34	20	97	29	146	18	10	28	56	340
04:30 PM	3	83	11	97	24	15	1	40	16	117	26	159	25	15	49	89	385
04:45 PM	5	94	12	111	25	14	4	43	27	92	21	140	14	10	35	59	353
Total	18	356	42	416	101	51	10	162	93	423	100	616	69	50	148	267	1461
05:00 PM	7	119	14	140	28	13	4	45	22	109	34	165	22	24	44	90	440
05:15 PM	7	94	8	109	13	14	3	30	27	140	35	202	13	12	36	61	402
05:30 PM	9	71	13	93	19	11	4	34	26	149	29	204	19	13	28	60	391
05:45 PM	7	64	9	80	20	14	3	37	35	105	29	169	21	9	16	46	332
Total	30	348	44	422	80	52	14	146	110	503	127	740	75	58	124	257	1565
Grand Total	48	704	86	838	181	103	24	308	203	926	227	1356	144	108	272	524	3026
Apprch %	5.7	84	10.3		58.8	33.4	7.8		15	68.3	16.7		27.5	20.6	51.9		
Total %	1.6	23.3	2.8	27.7	6	3.4	0.8	10.2	6.7	30.6	7.5	44.8	4.8	3.6	9	17.3	

	S Brawley Avenue Southbound				Legion Road Westbound				S Brawley Avenue Northbound				Legion 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	5	94	12	111	25	**14**	**4**	43	**27**	92	21	140	14	10	35	59	353
05:00 PM	7	**119**	**14**	**140**	**28**	13	4	**45**	22	109	34	165	**22**	**24**	**44**	**90**	**440**
05:15 PM	7	94	8	109	13	14	3	30	27	140	**35**	202	13	12	36	61	402
05:30 PM	**9**	71	13	93	19	11	4	34	26	**149**	29	**204**	19	13	28	60	391
Total Volume	28	378	47	453	85	52	15	152	102	490	119	711	68	59	143	270	1586
% App. Total	6.2	83.4	10.4		55.9	34.2	9.9		14.3	68.9	16.7		25.2	21.9	53		
PHF	.778	.794	.839	.809	.759	.929	.938	.844	.944	.822	.850	.871	.773	.615	.813	.750	.901

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Brawley
N/S: S Brawley Avenue
E/W: Legion Road
Weather: Clear

File Name : 05_BWY_Braw_Leg PM
Site Code : 12224889
Start Date : 10/16/2024
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:

	04:30 PM				04:00 PM				05:00 PM				04:30 PM			
+0 mins.	3	83	11	97	**32**	9	**4**	**45**	22	109	34	165	**25**	15	**49**	89
+15 mins.	5	94	12	111	20	13	1	34	27	140	**35**	202	14	10	35	59
+30 mins.	**7**	**119**	**14**	**140**	24	**15**	1	40	26	**149**	29	**204**	22	**24**	44	**90**
+45 mins.	7	94	8	109	25	14	4	43	**35**	105	29	169	13	12	36	61
Total Volume	22	390	45	457	101	51	10	162	110	503	127	740	74	61	164	299
% App. Total	4.8	85.3	9.8		62.3	31.5	6.2		14.9	68	17.2		24.7	20.4	54.8	
PHF	.786	.819	.804	.816	.789	.850	.625	.900	.786	.844	.907	.907	.740	.635	.837	.831

Location: Brawley
N/S: S Brawley Avenue
E/W: Legion Road

Date: 10/16/2024
Day: Wednesday

PEDESTRIANS

	North Leg S Brawley Avenue	East Leg Legion Road	South Leg S Brawley Avenue	West Leg Legion Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	2	0	0	0	2
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 S Brawley Avenue	East Leg Legion Road	South Leg S Brawley Avenue	West Leg Legion Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	2	0	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	2	0	0	0	2
5:45 PM	1	0	0	0	1
TOTAL VOLUMES:	5	0	0	0	5

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Brawley
N/S: S Brawley Avenue
E/W: Legion Road

Date: 10/16/2024
Day: Wednesday

BICYCLES

	Southbound S Brawley Avenue			Westbound Legion Road			Northbound S Brawley Avenue			Eastbound Legion 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	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 S Brawley Avenue			Westbound Legion Road			Northbound S Brawley Avenue			Eastbound Legion 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	1	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	0	0	0	0	0	1	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	1	0	0	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Imperial Avenue (SR-86)
E/W: W Keystone Road
Weather: Clear

File Name : 06_CIM_Imp_Key AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

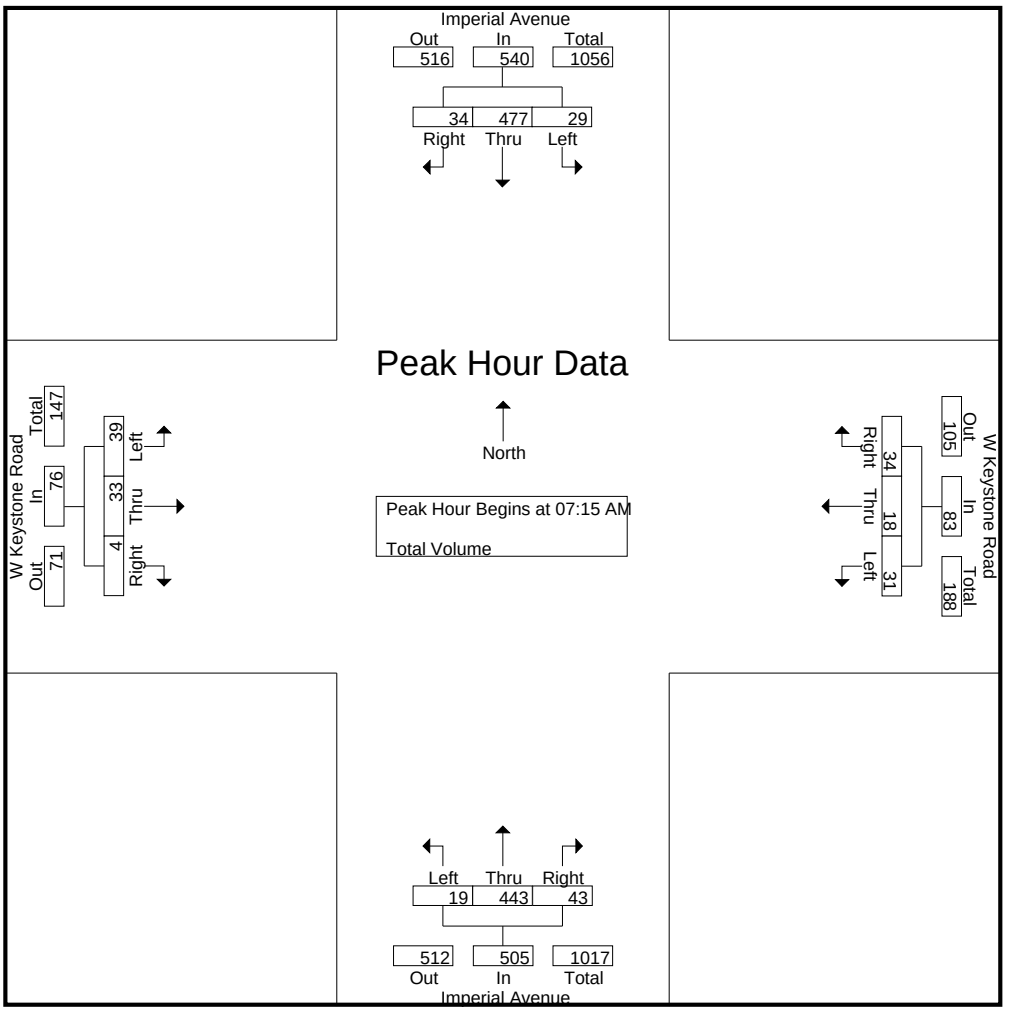
	Imperial Avenue Southbound				W Keystone Road Westbound				Imperial Avenue Northbound				W Keystone Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	6	95	8	109	4	6	7	17	8	72	6	86	4	5	2	11	223
07:15 AM	1	113	4	118	4	2	6	12	4	89	7	100	15	9	2	26	256
07:30 AM	10	125	15	150	4	5	9	18	3	119	5	127	8	11	1	20	315
07:45 AM	13	125	8	146	15	5	6	26	8	126	16	150	11	7	0	18	340
Total	30	458	35	523	27	18	28	73	23	406	34	463	38	32	5	75	1134
08:00 AM	5	114	7	126	8	6	13	27	4	109	15	128	5	6	1	12	293
08:15 AM	6	113	8	127	8	4	7	19	2	80	9	91	6	8	3	17	254
08:30 AM	2	93	6	101	8	5	2	15	3	57	5	65	6	6	2	14	195
08:45 AM	7	110	4	121	2	4	7	13	5	91	8	104	4	4	1	9	247
Total	20	430	25	475	26	19	29	74	14	337	37	388	21	24	7	52	989
Grand Total	50	888	60	998	53	37	57	147	37	743	71	851	59	56	12	127	2123
Apprch %	5	89	6		36.1	25.2	38.8		4.3	87.3	8.3		46.5	44.1	9.4		
Total %	2.4	41.8	2.8	47	2.5	1.7	2.7	6.9	1.7	35	3.3	40.1	2.8	2.6	0.6	6	

	Imperial Avenue Southbound				W Keystone Road Westbound				Imperial Avenue Northbound				W Keystone 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	1	113	4	118	4	2	6	12	4	89	7	100	**15**	9	**2**	**26**	256
07:30 AM	10	**125**	**15**	**150**	4	5	9	18	3	119	5	127	8	**11**	1	20	315
07:45 AM	**13**	125	8	146	**15**	5	6	26	**8**	**126**	**16**	**150**	11	7	0	18	**340**
08:00 AM	5	114	7	126	8	**6**	**13**	**27**	4	109	15	128	5	6	1	12	293
Total Volume	29	477	34	540	31	18	34	83	19	443	43	505	39	33	4	76	1204
% App. Total	5.4	88.3	6.3		37.3	21.7	41		3.8	87.7	8.5		51.3	43.4	5.3		
PHF	.558	.954	.567	.900	.517	.750	.654	.769	.594	.879	.672	.842	.650	.750	.500	.731	.885

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Imperial Avenue (SR-86)
E/W: W Keystone Road
Weather: Clear

File Name : 06_CIM_Imp_Key AM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 2



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				07:30 AM				07:15 AM				07:15 AM			
+0 mins.	10	**125**	**15**	**150**	4	5	9	18	4	89	7	100	**15**	9	**2**	**26**
+15 mins.	**13**	125	8	146	**15**	5	6	26	3	119	5	127	8	**11**	1	20
+30 mins.	5	114	7	126	8	**6**	**13**	**27**	**8**	**126**	**16**	**150**	11	7	0	18
+45 mins.	6	113	8	127	8	4	7	19	4	109	15	128	5	6	1	12
Total Volume	34	477	38	549	35	20	35	90	19	443	43	505	39	33	4	76
% App. Total	6.2	86.9	6.9		38.9	22.2	38.9		3.8	87.7	8.5		51.3	43.4	5.3	
PHF	.654	.954	.633	.915	.583	.833	.673	.833	.594	.879	.672	.842	.650	.750	.500	.731

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Imperial Avenue (SR-86)
E/W: W Keystone Road
Weather: Clear

File Name : 06_CIM_Imp_Key PM
Site Code : 12224889
Start Date : 10/16/2024
Page No : 1

Groups Printed- Total Volume

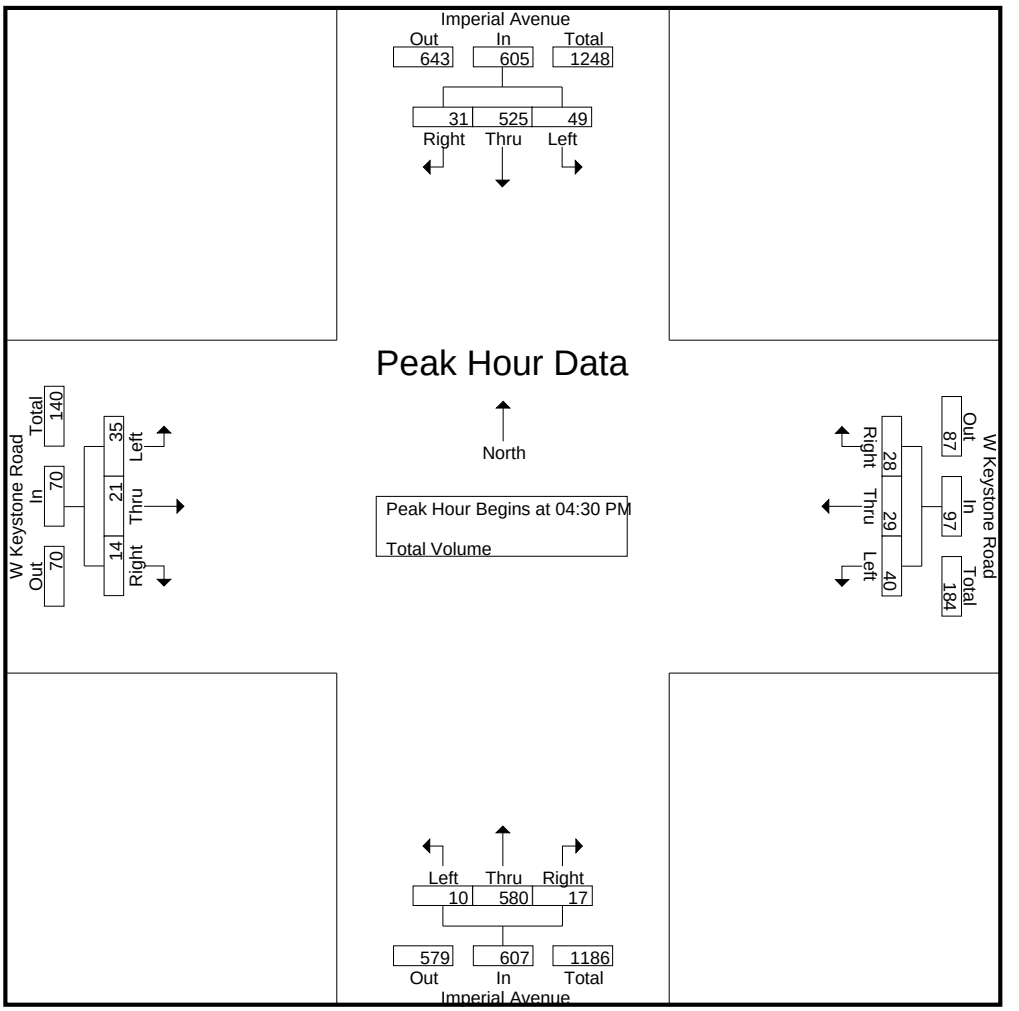
	Imperial Avenue Southbound				W Keystone Road Westbound				Imperial Avenue Northbound				W Keystone Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	9	130	4	143	4	9	4	17	2	109	5	116	10	4	6	20	296
04:15 PM	10	101	8	119	5	11	7	23	5	112	8	125	12	2	4	18	285
04:30 PM	11	128	12	151	12	6	5	23	5	143	6	154	4	1	5	10	338
04:45 PM	13	125	8	146	4	8	8	20	0	117	5	122	12	6	4	22	310
Total	43	484	32	559	25	34	24	83	12	481	24	517	38	13	19	70	1229
05:00 PM	12	130	5	147	15	9	6	30	3	138	3	144	8	6	3	17	338
05:15 PM	13	142	6	161	9	6	9	24	2	182	3	187	11	8	2	21	393
05:30 PM	5	93	5	103	11	5	6	22	3	169	4	176	7	0	3	10	311
05:45 PM	7	88	5	100	10	4	11	25	1	134	2	137	4	1	3	8	270
Total	37	453	21	511	45	24	32	101	9	623	12	644	30	15	11	56	1312
Grand Total	80	937	53	1070	70	58	56	184	21	1104	36	1161	68	28	30	126	2541
Apprch %	7.5	87.6	5		38	31.5	30.4		1.8	95.1	3.1		54	22.2	23.8		
Total %	3.1	36.9	2.1	42.1	2.8	2.3	2.2	7.2	0.8	43.4	1.4	45.7	2.7	1.1	1.2	5	

	Imperial Avenue Southbound				W Keystone Road Westbound				Imperial Avenue Northbound				W Keystone 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 04:30 PM																	
04:30 PM	11	128	**12**	151	12	6	5	23	**5**	143	**6**	154	4	1	**5**	10	338
04:45 PM	**13**	125	8	146	4	8	8	20	0	117	5	122	**12**	6	4	**22**	310
05:00 PM	12	130	5	147	**15**	**9**	6	**30**	3	138	3	144	8	6	3	17	338
05:15 PM	13	**142**	6	**161**	9	6	**9**	24	2	**182**	3	**187**	11	**8**	2	21	**393**
Total Volume	49	525	31	605	40	29	28	97	10	580	17	607	35	21	14	70	1379
% App. Total	8.1	86.8	5.1		41.2	29.9	28.9		1.6	95.6	2.8		50	30	20		
PHF	.942	.924	.646	.939	.667	.806	.778	.808	.500	.797	.708	.811	.729	.656	.700	.795	.877

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Imperial Avenue (SR-86)
E/W: W Keystone Road
Weather: Clear

File Name : 06_CIM_Imp_Key PM
Site Code : 12224889
Start Date : 10/16/2024
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:

	04:30 PM				05:00 PM				05:00 PM				04:00 PM			
+0 mins.	11	128	**12**	151	**15**	**9**	6	**30**	**3**	138	3	144	10	4	**6**	20
+15 mins.	**13**	125	8	146	9	6	9	24	2	**182**	3	**187**	**12**	2	4	18
+30 mins.	12	130	5	147	11	5	6	22	3	169	**4**	176	4	1	5	10
+45 mins.	13	**142**	6	**161**	10	4	**11**	25	1	134	2	137	12	**6**	4	**22**
Total Volume	49	525	31	605	45	24	32	101	9	623	12	644	38	13	19	70
% App. Total	8.1	86.8	5.1		44.6	23.8	31.7		1.4	96.7	1.9		54.3	18.6	27.1	
PHF	.942	.924	.646	.939	.750	.667	.727	.842	.750	.856	.750	.861	.792	.542	.792	.795

Location: County of Imperial
N/S: Imperial Avenue
E/W: W Keystone Road

Date: 10/16/2024
Day: Wednesday

PEDESTRIANS

	North Leg Imperial Avenue	East Leg W Keystone Road	South Leg Imperial Avenue	West Leg W Keystone 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 Imperial Avenue	East Leg W Keystone Road	South Leg Imperial Avenue	West Leg W Keystone 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

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: County of Imperial
N/S: Imperial Avenue
E/W: W Keystone Road

Date: 10/16/2024
Day: Wednesday

BICYCLES

	Southbound Imperial Avenue			Westbound W Keystone Road			Northbound Imperial Avenue			Eastbound W Keystone 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	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 Imperial Avenue			Westbound W Keystone Road			Northbound Imperial Avenue			Eastbound W Keystone 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	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Counts Unimited, Inc.

PO Box 1178
Corona, CA 92878
(951) 268-6268
email: counts@countsunlimited.com

City of Brawley
Brawley Avenue
B/ Main Street - K Street
24 Hour Directional Volume Count

BWY001
Site Code: 122-24889

Start Time	10/16/24 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		15	116			12	69				
12:15		6	99			8	75				
12:30		7	82			8	76				
12:45		3	86	31	383	9	77	37	297	68	680
01:00		8	81			6	68				
01:15		6	82			1	73				
01:30		3	90			6	66				
01:45		3	110	20	363	1	71	14	278	34	641
02:00		3	81			3	124				
02:15		3	115			0	102				
02:30		3	97			3	**81**				
02:45		6	128	15	421	4	**97**	10	404	25	825
03:00		4	129			8	**121**				
03:15		7	79			5	**115**				
03:30		6	99			7	76				
03:45		9	102	26	409	7	85	27	397	53	806
04:00		9	91			9	78				
04:15		17	81			9	64				
04:30		18	90			18	84				
04:45		26	84	70	346	18	80	54	306	124	652
05:00		19	93			25	105				
05:15		53	**121**			31	78				
05:30		40	**112**			32	69				
05:45		56	**141**	168	467	20	66	108	318	276	785
06:00		26	**98**			30	78				
06:15		34	80			32	84				
06:30		40	100			54	73				
06:45		44	108	144	386	55	67	171	302	315	688
07:00		48	92			48	57				
07:15		92	80			62	46				
07:30		**131**	79			76	77				
07:45		**192**	65	463	316	**113**	51	299	231	762	547
08:00		**112**	67			**144**	57				
08:15		**93**	65			**87**	53				
08:30		69	70			**79**	63				
08:45		62	51	336	253	65	68	375	241	711	494
09:00		50	53			54	35				
09:15		65	44			62	39				
09:30		75	49			73	47				
09:45		62	35	252	181	67	34	256	155	508	336
10:00		70	45			62	23				
10:15		70	23			61	28				
10:30		65	33			59	23				
10:45		74	21	279	122	63	17	245	91	524	213
11:00		77	18			68	15				
11:15		83	27			51	9				
11:30		77	18			85	16				
11:45		109	12	346	75	71	12	275	52	621	127
Total		2150	3722	2150	3722	1871	3072	1871	3072	4021	6794
Combined Total		5872		5872		4943		4943		10815	
AM Peak	-	07:30	-	-	-	07:45	-	-	-	-	-
Vol.	-	528	-	-	-	423	-	-	-	-	-
P.H.F.		0.688				0.734					
PM Peak	-	-	05:15	-	-	-	02:30	-	-	-	-
Vol.	-	-	472	-	-	-	414	-	-	-	-
P.H.F.			0.837				0.855				
Percentage		36.6%	63.4%			37.9%	62.1%				
ADT/AADT		ADT 10,815		AADT 10,815							

Counts Unimited, Inc.

PO Box 1178
Corona, CA 92878
(951) 268-6268
email: counts@countsunlimited.com

City of Brawley
Brawley Avenue
B/ K Street - Malan Street
24 Hour Directional Volume Count

BWY002
Site Code: 122-24889

Start Time	10/16/24 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		15	126			7	84				
12:15		11	111			9	87				
12:30		9	86			7	89				
12:45		6	104	41	427	8	77	31	337	72	764
01:00		10	99			7	88				
01:15		7	109			2	80				
01:30		6	102			6	80				
01:45		2	112	25	422	1	75	16	323	41	745
02:00		4	88			1	125				
02:15		4	110			0	102				
02:30		4	95			3	**97**				
02:45		9	129	21	422	6	**109**	10	433	31	855
03:00		8	127			8	**126**				
03:15		10	84			6	**116**				
03:30		10	115			6	89				
03:45		8	117	36	443	10	95	30	426	66	869
04:00		12	105			8	95				
04:15		18	91			10	78				
04:30		22	106			21	93				
04:45		25	101	77	403	18	88	57	354	134	757
05:00		24	**120**			28	123				
05:15		60	**133**			34	86				
05:30		54	**123**			38	86				
05:45		55	**142**	193	518	30	74	130	369	323	887
06:00		31	106			38	85				
06:15		40	87			36	86				
06:30		55	101			73	79				
06:45		59	112	185	406	60	66	207	316	392	722
07:00		63	84			56	60				
07:15		**98**	89			68	50				
07:30		**145**	83			**70**	85				
07:45		**190**	66	496	322	**120**	58	314	253	810	575
08:00		**109**	81			**152**	60				
08:15		89	73			**102**	48				
08:30		73	73			68	56				
08:45		64	54	335	281	76	63	398	227	733	508
09:00		57	61			52	38				
09:15		78	47			82	33				
09:30		86	52			89	45				
09:45		65	37	286	197	78	37	301	153	587	350
10:00		71	45			78	30				
10:15		88	24			79	34				
10:30		70	34			79	19				
10:45		93	22	322	125	73	16	309	99	631	224
11:00		88	18			84	8				
11:15		88	21			66	6				
11:30		85	21			103	18				
11:45		110	13	371	73	90	10	343	42	714	115
Total		2388	4039	2388	4039	2146	3332	2146	3332	4534	7371
Combined Total		6427		6427		5478		5478		11905	
AM Peak	-	07:15	-	-	-	07:30	-	-	-	-	-
Vol.	-	542	-	-	-	444	-	-	-	-	-
P.H.F.		0.713				0.730					
PM Peak	-	-	05:00	-	-	-	02:30	-	-	-	-
Vol.	-	-	518	-	-	-	448	-	-	-	-
P.H.F.			0.912				0.889				
Percentage		37.2%	62.8%			39.2%	60.8%				
ADT/AADT		ADT 11,905		AADT 11,905							

Counts Unimited, Inc.

PO Box 1178
Corona, CA 92878
(951) 268-6268
email: counts@countsunlimited.com

City of Brawley
Brawley Avenue
B/ Malan Street - Wildcat Drive
24 Hour Directional Volume Count

BWY003
Site Code: 122-24889

Start	10/16/24	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		17	179			11	160				
12:15		16	161			11	154				
12:30		13	147			9	165				
12:45		10	172	56	659	12	147	43	626	99	1285
01:00		8	153			7	160				
01:15		12	160			7	153				
01:30		4	181			8	158				
01:45		5	166	29	660	3	142	25	613	54	1273
02:00		6	153			3	202				
02:15		4	179			0	177				
02:30		7	163			6	**196**				
02:45		7	196	24	691	8	**204**	17	779	41	1470
03:00		12	162			14	**209**				
03:15		9	150			16	**210**				
03:30		11	200			8	186				
03:45		14	177	46	689	11	180	49	785	95	1474
04:00		15	186			13	184				
04:15		17	156			14	170				
04:30		26	198			30	173				
04:45		35	170	93	710	36	179	93	706	186	1416
05:00		30	**205**			48	187				
05:15		80	**224**			64	190				
05:30		69	**216**			76	159				
05:45		62	**207**	241	852	80	129	268	665	509	1517
06:00		49	177			59	153				
06:15		63	175			71	163				
06:30		99	160			137	127				
06:45		119	145	330	657	128	120	395	563	725	1220
07:00		104	137			117	103				
07:15		**155**	134			149	103				
07:30		**195**	126			**172**	116				
07:45		**237**	109	691	506	**185**	99	623	421	1314	927
08:00		**150**	115			**244**	99				
08:15		129	112			**226**	81				
08:30		110	117			140	75				
08:45		113	83	502	427	124	81	734	336	1236	763
09:00		118	103			132	72				
09:15		126	72			122	66				
09:30		133	74			169	66				
09:45		117	59	494	308	132	51	555	255	1049	563
10:00		126	58			138	48				
10:15		130	52			154	48				
10:30		117	47			136	34				
10:45		155	33	528	190	148	33	576	163	1104	353
11:00		148	27			153	16				
11:15		162	26			140	13				
11:30		126	28			158	17				
11:45		161	20	597	101	157	12	608	58	1205	159
Total		3631	6450	3631	6450	3986	5970	3986	5970	7617	12420
Combined Total		10081		10081		9956		9956		20037	
AM Peak	-	07:15	-	-	-	07:30	-	-	-	-	-
Vol.	-	737	-	-	-	827	-	-	-	-	-
P.H.F.		0.777				0.847					
PM Peak	-	-	05:00	-	-	-	02:30	-	-	-	-
Vol.	-	-	852	-	-	-	819	-	-	-	-
P.H.F.			0.951				0.975				
Percentage		36.0%	64.0%			40.0%	60.0%				
ADT/AADT		ADT 20,037		AADT 20,037							

Counts Unimited, Inc.

PO Box 1178
Corona, CA 92878
(951) 268-6268
email: counts@countsunlimited.com

City of Brawley
Brawley Avenue
B/ Wildcat Drive - Legion Road
24 Hour Directional Volume Count

BWY004
Site Code: 122-24889

Start	10/16/24	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		14	119			9	86				
12:15		16	128			10	100				
12:30		13	115			9	95				
12:45		10	133	53	495	9	85	37	366	90	861
01:00		9	116			5	98				
01:15		8	123			4	97				
01:30		4	135			6	95				
01:45		4	132	25	506	4	100	19	390	44	896
02:00		5	108			1	123				
02:15		4	145			0	110				
02:30		7	121			5	105				
02:45		5	141	21	515	6	**124**	12	462	33	977
03:00		9	129			12	**151**				
03:15		6	121			15	**147**				
03:30		11	162			8	**121**				
03:45		14	144	40	556	5	108	40	527	80	1083
04:00		13	153			9	110				
04:15		15	114			13	94				
04:30		19	161			27	106				
04:45		31	124	78	552	30	114	79	424	157	976
05:00		27	**155**			39	130				
05:15		72	**181**			57	119				
05:30		57	**162**			68	89				
05:45		58	**168**	214	666	61	74	225	412	439	1078
06:00		52	142			41	101				
06:15		57	126			57	95				
06:30		74	116			111	69				
06:45		107	108	290	492	93	64	302	329	592	821
07:00		86	102			90	58				
07:15		**117**	99			114	55				
07:30		**142**	99			**128**	63				
07:45		**179**	83	524	383	**111**	42	443	218	967	601
08:00		**122**	85			**131**	49				
08:15		97	87			**118**	41				
08:30		77	98			91	41				
08:45		95	65	391	335	78	45	418	176	809	511
09:00		84	74			86	38				
09:15		92	55			76	33				
09:30		108	56			109	44				
09:45		86	42	370	227	83	30	354	145	724	372
10:00		83	48			93	29				
10:15		102	35			112	34				
10:30		85	34			81	20				
10:45		112	25	382	142	84	22	370	105	752	247
11:00		111	17			103	15				
11:15		133	21			93	10				
11:30		93	26			107	13				
11:45		123	17	460	81	87	11	390	49	850	130
Total		2848	4950	2848	4950	2689	3603	2689	3603	5537	8553
Combined Total		7798		7798		6292		6292		14090	
AM Peak	-	07:15	-	-	-	07:30	-	-	-	-	-
Vol.	-	560	-	-	-	488	-	-	-	-	-
P.H.F.		0.782				0.931					
PM Peak	-	-	05:00	-	-	-	02:45	-	-	-	-
Vol.	-	-	666	-	-	-	543	-	-	-	-
P.H.F.			0.920				0.899				
Percentage		36.5%	63.5%			42.7%	57.3%				
ADT/AADT		ADT 14,090		AADT 14,090							

© 2017 California Department of Transportation, All Rights Reserved

Location: Rte 86 @ 1St / Main St (Jct 78) **Designed By:**

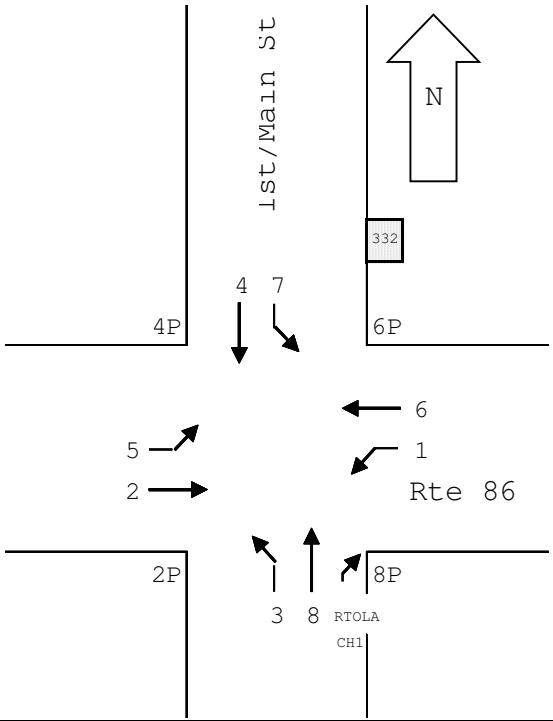
System: **District:** 11 **Installed By:**

Master At: Rte 86 @ Western Ave **I/C:** Western **Service Info:**

Timing Change:	Date Start:	Date End:	Designed:	Installed:
4/1/2021				9/30/2021

		FLASH
PHASE	1) SB left from Rte 86 to 1st St	[ ]
	2) NB Thru at Rte 86	[ ]
	3) WB left from 1st St to Rte 86	[ ]
	4) EB Thru at 1st St /Main St	[ ]
	5) NB left from Rte 86 to 1st St	[ ]
	6) SB Thru at Rte 86	[ ]
	7) EB left from 1st St to Rte 86	[ ]
	8) WB Thru at 1st St /Main St	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout



Comments and Notes:

FZ 2 PED 88', FZ 4 PED 80', FZ 6 PED 58', FZ 8 PED 81'
FZ 1 BIKE 90', FZ 2 BIKE 85', FZ 3 BIKE 80', FZ 4 BIKE 85', FZ 5 BIKE 80', FZ 6 BIKE 70', FZ 7 BIKE 90', FZ 8 BIKE 90'
RTOLA = FZ1

RAM Checksum

Page 2:	573C	Page 8:	AA38
Page 3:	BF93	Page 9:	FE08
Page 4:	87B4	Page 10:	3ED4
Page 5:	191A	Page 11:	33DF
Page 6:	191A	Page 12:	D68F
Page 7:	DB38	Page 13:	80C7

Post Mile: PM 20.628 Rte 86 @ 1st St/ Main St (JCT 78)

Printed: 12/9/2021

© 2017 California Department of Transportation, All Rights Reserved

CONFIGURATION PHASE FLAGS

Cabinet (9-3)
332
Configuration
CALTRANS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 7 8
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . 4 . . . 8
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 7 8
Pedestrian Calls	. 2 . 4 . 6 . 8
Yellow Start Overlaps	. . . . .
Startup All-Red	6.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlaps	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . 4 . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	 8

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

© 2017 California Department of Transportation, All Rights Reserved

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	10	0	10	0	10	0	10
Flash Don't Walk	0	25	0	23	0	17	0	23
Minimum Green	8	6	8	8	8	6	8	6
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	30	0	0	0	30	0	0
Max Green 1	20	40	30	25	20	40	15	25
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	2.0	5.5	3.0	3.0	2.0	6.0	3.0	6.0
Maximum Gap	2.0	5.5	3.0	3.0	2.0	6.0	3.0	6.0
Minimum Gap	2.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0
Add Per Vehicle	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Reduce Gap By	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1
Reduce Every	1.0	0.8	1.0	1.0	1.0	0.8	1.0	0.8
Yellow	3.7	4.4	3.7	3.7	3.7	3.7	3.7	4.4
All-Red	1.0	2.0	2.0	1.0	1.0	2.0	1.0	2.0
Ped/Bike (2-3)	**-1-**	**-2-**	**-3-**	**-4-**	**-5-**	**-6-**	**-7-**	**-8-**
--- Walk 2 ---	0	0	0	10	0	0	0	10
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	110		. . . . .	48			15	33	18	20	15	32	13	20
Plan 2	Green Factor	110		. . . . .	51			16	30	20	20	15	30	13	20
Plan 3	Green Factor	130		. . . . .				25	41	20	20	20	45	13	20
Plan 4	Green Factor			. . . . .											
Plan 5	Green Factor			. . . . .											
Plan 6	Green Factor			. . . . .											
Plan 7	Green Factor			. . . . .											
Plan 8	Green Factor			. . . . .											
Plan 9	Green Factor			. . . . .											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . 5 . . .	. . . . .	. . . . .	. . . . .
Plan 2	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . 5 . . .	. . . . .	. . . . .	. . . . .
Plan 3	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . 5 . . .	. . . . .	. . . . .	. . . . .
Plan 4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-29
254 = Flash
255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

DETECTORS

Detector Attributes (5-1)				Slot
Det	Type	Phases	Lock	
1	COUNT+CALL+EXTEND	1	NO	I1U
2	COUNT+CALL+EXTEND	1	NO	I1L
3	CALL+EXTEND	. 2	NO	I2U
4	COUNT+CALL+EXTEND	. 2	NO	I2L
5	COUNT+CALL+EXTEND	. 2	NO	I3U
6	CALL+EXTEND	. 2	NO	I3L
7	LIMITED	. 2	NO	I4U
8	COUNT+CALL+EXTEND	. 2	NO	I4L
9	COUNT+CALL+EXTEND	. . 3	NO	I5U
10	COUNT+CALL+EXTEND	. . 3	NO	I5L
11	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6U
12	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6L
13	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I7U
14	CALL+EXTEND	. . . 4 . . .	NO	I7L
15	LIMITED	. . . 4 . . .	NO	I8U
16	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I8L
17	COUNT+CALL+EXTEND	1	NO	I9U
18	COUNT+CALL+EXTEND	. . 3	NO	I9L
19	COUNT+CALL+EXTEND	. 2	NO	I10U
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L
21	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1U
22	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1L
23	CALL+EXTEND	. . . . . 6 . .	NO	J2U
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L
25	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J3U
26	CALL+EXTEND	. . . . . 6 . .	NO	J3L
27	LIMITED	. . . . . 6 . .	NO	J4U
28	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J4L
29	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5U
30	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5L
31	COUNT+CALL+EXTEND	1	NO	J6U
32	COUNT+CALL+EXTEND	 8	NO	J6L
33	CALL+EXTEND	1	NO	J7U
34	CALL+EXTEND	 8	NO	J7L
35	LIMITED	 8	NO	J8U
36	COUNT+CALL+EXTEND	 8	NO	J8L
37	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9U
38	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J9L
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U
40	COUNT+CALL+EXTEND	 8	NO	J10L
41	PEDESTRIAN	. 2	NO	I12U
42	PEDESTRIAN	. . . 4 . . .	NO	I12L
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U
44	PEDESTRIAN	 8	NO	I13L

Detector Configuration (5-2)				
Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

© 2017 California Department of Transportation, All Rights Reserved

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
0700	2	A
1000	3	A
1830	255	A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	1	1

© 2017 California Department of Transportation, All Rights Reserved

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Daylight Saving (8-1)

Enabl	YES	Month	Sunday
	Start	MAR	2nd
	End	NOV	1st

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	. . . . .
Holiday	. . . . .

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1	0700	1830	M T W T F S S	16	. . . 4 . . . 8
2			. . . . .		. . . . .
3			. . . . .		. . . . .
4			. . . . .		. . . . .
5			. . . . .		. . . . .
6			. . . . .		. . . . .
7			. . . . .		. . . . .
8			. . . . .		. . . . .
9			. . . . .		. . . . .
10			. . . . .		. . . . .
11			. . . . .		. . . . .
12			. . . . .		. . . . .
13			. . . . .		. . . . .
14			. . . . .		. . . . .
15			. . . . .		. . . . .
16			. . . . .		. . . . .

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

© 2017 California Department of Transportation, All Rights Reserved

COMMUNICATIONS

C2 (6-1-1)	
Address	2
Protocol	AB3418
Access Level	0
Baud	9600
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Access Levels:

0-Full Access
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan
4-Reserved
5-Full Access with No Set Pattern
6-Full Access with No Set Time
7-Full Access with No Set Pattern, Manual Plan
8-Full Access with No Set Time, Pattern, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	
Protocol	AB3418
Port	27000
Type	STATIC
Central Access	0
Field Access	0

IP Address	0	.	0	.	0	.	0
Netmask	255	.	255	.	255	.	0
Broadcast	0	.	0	.	0	.	255
Gateway	0	.	0	.	0	.	254

© 2017 California Department of Transportation, All Rights Reserved

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		. . . .	. . . .	1 2 3 4 5 6 7 8	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)

PR 1	PR 2	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		1 2 3 . . 6 . .	. . . .	. . . .	. 2 . . . 6 . .	. . . .	. . . 4 . . . 8	. . . . . .	. . . . . .	. . . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	. . . 4 . . 7 .	. . . .

Configuration (3-2-6)

PR 1	PR 2	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. 2 . . 5 . . .	. . . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . . 4 . . 7 .	. . . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	1 . . . . 6 . .	. . . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . 3 8	. . . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

© 2017 California Department of Transportation, All Rights Reserved

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:
- 0 Unused (no output)
- 1-8 Vehicle 1-8
- 9-14 Overlap A-F
- 21-28 Ped 1-8
- 41-47 Special Functions
- 41 Protected Permissive Flashing Phase 1
- 43 Protected Permissive Flashing Phase 3
- 45 Protected Permissive Flashing Phase 5
- 47 Protected Permissive Flashing Phase 7
- 51-57 Special Functions
- 71-72 Seven Wire I/C

\+ middle output of loadswitches 3 and 6 Channel 9 and 10

© 2017 California Department of Transportation, All Rights Reserved

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	NONE	0	0
Plan 11-19	. . . . .	0.0	NONE	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	120

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

© 2017 California Department of Transportation, All Rights Reserved

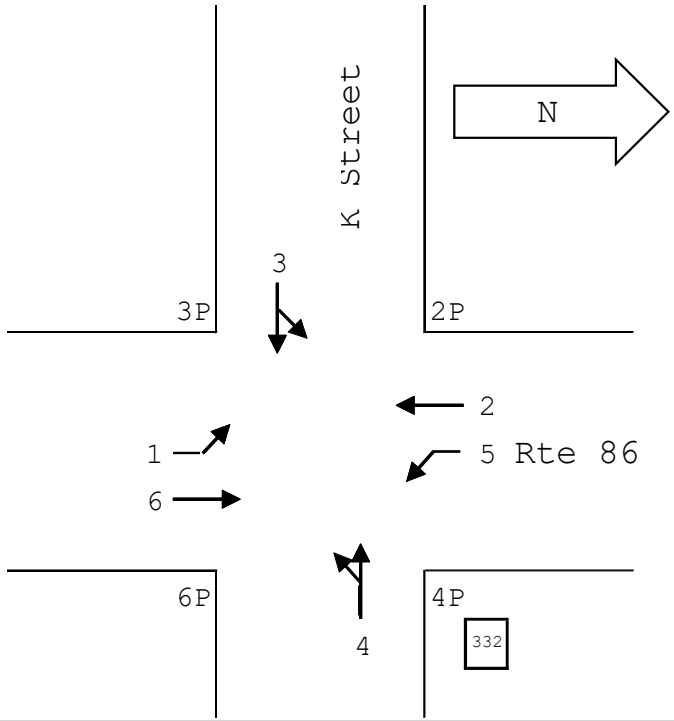
2070 Controller TSCP Timing Chart

Location: Rte 86 @ K Street
System:
District: 11
Master At: N/A STANDALONE CTSCP
I/C: 1st, Malan
Designed By:
Installed By:
Service Info:

Timing Change:	Date Start:	Date End:	Designed:	Installed:
3/22/2021				3/31/2021

		FLASH
PHASE	1) NB Left from Rte 86 to K St	[ ]
	2) SB Thru at Rte 86	[ ]
	3) EB thru & left from K St to Rte 86	[ ]
	4) WB thru & left from K St to Rte 86	[ ]
	5) SB Left from Rte 86 to K St	[ ]
	6) NB Thru at Rte 86	[ ]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout



Comments and Notes:
FZ 2 PED 72', FZ 3 PED 97', FZ 4 PED 96', FZ 6 PED 58'
FZ 1 BIKE 70', FZ 2 BIKE 95', FZ 3 BIKE 105', FZ 4 BIKE 100', FZ 5 BIKE 60', FZ 6 BIKE 70'

RAM Checksum

Page 2: E564	Page 8: 85AF
Page 3: 3CD3	Page 9: D2FD
Page 4: F29E	Page 10: 97CC
Page 5: 191A	Page 11: 7D1C
Page 6: 191A	Page 12: 7F42
Page 7: 6181	Page 13: 80C7

Post Mile: PM 20.250 Rte 86 @ K Street

Printed: 3/22/2021

© 2017 California Department of Transportation, All Rights Reserved

CONFIGURATION PHASE FLAGS

Cabinet (9-3)
332
Configuration
CALTRANS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	. . . 4 . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 . .
Pedestrian Calls	. 2 3 4 . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	6.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlaps	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. 2 . . . . .
P3	. . 3 . . . .
P4	. . . 4 . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

© 2017 California Department of Transportation, All Rights Reserved

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	12	12	12	0	12	0	10
Flash Don't Walk	0	21	28	27	0	17	0	10
Minimum Green	7	8	8	8	6	6	10	10
Det Limit	0	0	0	0	0	0	10	10
Max Initial	0	30	0	0	0	30	10	10
Max Green 1	20	50	28	28	20	50	50	50
Max Green 2	0	0	0	0	0	0	50	50
Max Green 3	0	0	0	0	0	0	50	50
Extension	2.0	6.0	4.0	4.0	2.0	6.0	5.0	5.0
Maximum Gap	2.0	6.0	4.0	4.0	2.0	6.0	5.0	5.0
Minimum Gap	2.0	3.0	4.0	4.0	2.0	3.0	5.0	5.0
Add Per Vehicle	0.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0
Reduce Gap By	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Reduce Every	1.0	0.8	1.0	1.0	1.0	0.8	1.0	1.0
Yellow	3.7	4.4	3.7	3.7	3.7	4.4	5.0	5.0
All-Red	1.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0
Ped/Bike (2-3)	**-1-**	**-2-**	**-3-**	**-4-**	**-5-**	**-6-**	**-7-**	**-8-**
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor			. . . . .											
Plan 2	Green Factor			. . . . .											
Plan 3	Green Factor			. . . . .											
Plan 4	Green Factor			. . . . .											
Plan 5	Green Factor			. . . . .											
Plan 6	Green Factor			. . . . .											
Plan 7	Green Factor			. . . . .											
Plan 8	Green Factor			. . . . .											
Plan 9	Green Factor			. . . . .											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

MANUAL COMMANDS

Manual Plan (4-1)		*Plan: 1-29*
Plan	OffSet	*254 = Flash*
	A	*255 = Free*
		Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

DETECTORS

Detector Attributes (5-1)				Slot
Det	Type	Phases	Lock	
1	COUNT+CALL+EXTEND	1	NO	I1U
2	COUNT+CALL+EXTEND	1	NO	I1L
3	COUNT+CALL+EXTEND	. 2	NO	I2U
4	COUNT+CALL+EXTEND	. 2	NO	I2L
5	CALL+EXTEND	. 2	NO	I3U
6	CALL+EXTEND	. 2	NO	I3L
7	CALL+EXTEND	. 2	NO	I4U
8	CALL+EXTEND	. 2	NO	I4L
9	COUNT+CALL+EXTEND	. . 3	NO	I5U
10	COUNT+CALL+EXTEND	. . 3	NO	I5L
11	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6U
12	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6L
13	CALL+EXTEND	. . . 4 . . .	NO	I7U
14	CALL+EXTEND	. . . 4 . . .	NO	I7L
15	LIMITED	. . . 4 . . .	NO	I8U
16	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I8L
17	COUNT+CALL+EXTEND	1	NO	I9U
18	CALL+EXTEND	1	NO	I9L
19	COUNT+CALL+EXTEND	. 2	NO	I10U
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L
21	CALL+EXTEND	. . . . . 6 . .	NO	J1U
22	CALL+EXTEND	. . . . . 6 . .	NO	J1L
23	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L
25	CALL+EXTEND	. . . . . 6 . .	NO	J3U
26	CALL+EXTEND	. . . . . 6 . .	NO	J3L
27	CALL+EXTEND	. . . . . 6 . .	NO	J4U
28	CALL+EXTEND	. . . . . 6 . .	NO	J4L
29	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5U
30	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5L
31	COUNT+CALL+EXTEND	. . 3	NO	J6U
32	COUNT+CALL+EXTEND	. . 3	NO	J6L
33	CALL+EXTEND	. . 3	NO	J7U
34	CALL+EXTEND	. . 3	NO	J7L
35	LIMITED	 8	NO	J8U
36	COUNT+CALL+EXTEND	 8	NO	J8L
37	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9U
38	CALL+EXTEND	. . . . 5 . . .	NO	J9L
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U
40	COUNT+CALL+EXTEND	 8	NO	J10L
41	PEDESTRIAN	. 2	NO	I12U
42	PEDESTRIAN	. . . 4 . . .	NO	I12L
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U
44	PEDESTRIAN	. . 3	NO	I13L

Detector Configuration (5-2)				
Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12	15		10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

© 2017 California Department of Transportation, All Rights Reserved

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

© 2017 California Department of Transportation, All Rights Reserved

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Daylight Saving (8-1)

Enabl	YES	Month	Sunday
	Start	MAR	2nd
	End	NOV	1st

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	. . . . .
Holiday	. . . . .

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			. . . . .		. . . . .
2			. . . . .		. . . . .
3			. . . . .		. . . . .
4			. . . . .		. . . . .
5			. . . . .		. . . . .
6			. . . . .		. . . . .
7			. . . . .		. . . . .
8			. . . . .		. . . . .
9			. . . . .		. . . . .
10			. . . . .		. . . . .
11			. . . . .		. . . . .
12			. . . . .		. . . . .
13			. . . . .		. . . . .
14			. . . . .		. . . . .
15			. . . . .		. . . . .
16			. . . . .		. . . . .

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

© 2017 California Department of Transportation, All Rights Reserved

COMMUNICATIONS

C2 (6-1-1)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Access Levels:

0-Full Access
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan
4-Reserved
5-Full Access with No Set Pattern
6-Full Access with No Set Time
7-Full Access with No Set Pattern, Manual Plan
8-Full Access with No Set Time, Pattern, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	1
Protocol	AB3418
Port	27000
Type	STATIC
Central Access	0
Field Access	0

IP Address	10	.	253	.	93	.	83
Netmask	255	.	255	.	255	.	0
Broadcast	10	.	253	.	93	.	255
Gateway	10	.	253	.	93	.	254

© 2017 California Department of Transportation, All Rights Reserved

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		. . . . .	. . . . .	1 2 3 4 5 6 7 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)

PR 1	PR 2	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		1 2 3 . . 6 . .	. . . . .	. . . . .	. 2 . . . 6 . .	. . . . .	. . . 4 . . . 8	. . . . .	. . . . .	. . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	. . . 4 . . 7 .	. . . . .

Configuration (3-2-6)

PR 1	PR 2	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. 2 . . 5 . . .	. . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . . 4	. . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	1 . . . . 6 . .	. . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . 3	. . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

© 2017 California Department of Transportation, All Rights Reserved

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	23	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6 Channel 9 and 10

© 2017 California Department of Transportation, All Rights Reserved

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	NONE	0	0
Plan 11-19	. . . . .	0.0	NONE	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	120

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

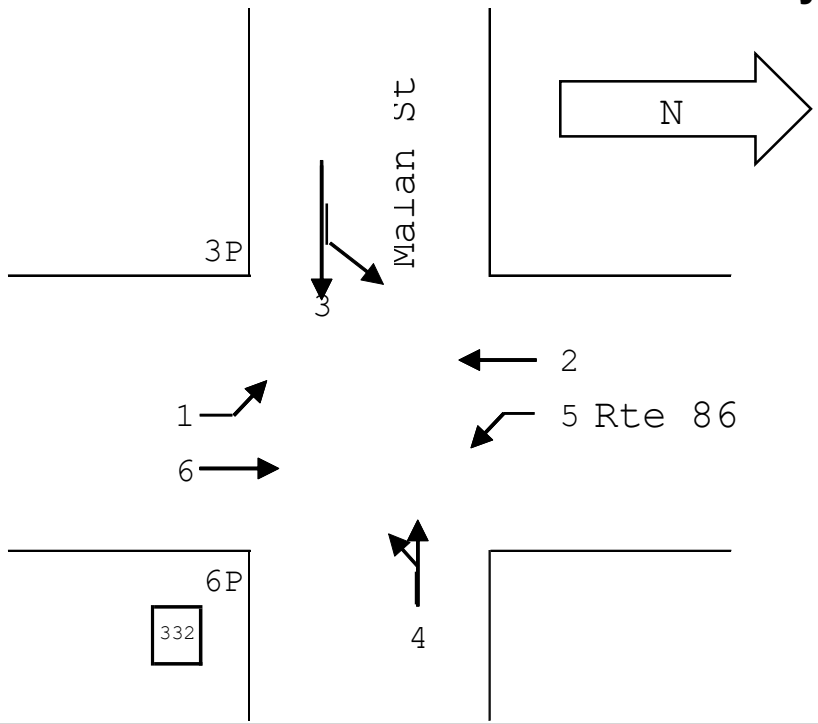
© 2017 California Department of Transportation, All Rights Reserved

Location: Rte 86 @ Malan St
System:
Master At: N/A STANDALONE CTSCP
District: 11
I/C: K st
Designed By:
Installed By:
Service Info:

Timing Change:	Date Start:	Date End:	Designed:	Installed:
3/22/2021				3/31/2021

		FLASH
PHASE	1) NB left from Rte 86 @ Malan St	[ ]
	2) SB Thru at Rte 86	[ ]
	3) EB Thru & left from Malan to Rte 86	[ ]
	4) WB Thru & left from Malan to Rte 86	[ ]
	5) SB left from Re 86 @ Malan St	[ ]
	6) NB Thru at Rte 86	[ ]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout



Comments and Notes:
FZ 3 PED 84', FZ 6 PED 67'
FZ 1 BIKE 80', FZ 2 BIKE 90', FZ 3 BIKE 80', FZ 4 BIKE 80', FZ 5 BIKE 100', FZ 6 BIKE 70'

RAM Checksum

Page 2: 274D	Page 8: 85AF
Page 3: 9266	Page 9: D2FD
Page 4: F29E	Page 10: 4787
Page 5: 191A	Page 11: 7D1C
Page 6: 191A	Page 12: 7F42
Page 7: 2CFE	Page 13: 80C7

Post Mile: PM 20.068 Rte 86 @ Malan Street

Printed: 3/22/2021

© 2017 California Department of Transportation, All Rights Reserved

CONFIGURATION PHASE FLAGS

Cabinet (9-3)
332
Configuration
CALTRANS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	1 . . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 . .
Pedestrian Calls	. . 3 . . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	6.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlaps	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. . . . .
P3	. . 3 . . . .
P4	. . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

© 2017 California Department of Transportation, All Rights Reserved

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	0	7	0	0	7	0	10
Flash Don't Walk	0	0	24	0	0	19	0	10
Minimum Green	7	10	7	7	9	10	10	10
Det Limit	0	0	0	0	0	0	10	10
Max Initial	0	30	0	0	0	30	10	10
Max Green 1	20	50	30	30	20	50	50	50
Max Green 2	0	0	0	0	0	0	50	50
Max Green 3	0	0	0	0	0	0	50	50
Extension	2.0	6.0	3.0	3.0	2.0	6.0	5.0	5.0
Maximum Gap	2.0	6.0	3.0	3.0	2.0	6.0	5.0	5.0
Minimum Gap	2.0	3.0	3.0	3.0	2.0	3.0	5.0	5.0
Add Per Vehicle	0.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0
Reduce Gap By	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Reduce Every	1.0	0.8	1.0	1.0	1.0	0.8	1.0	1.0
Yellow	3.7	4.4	3.7	3.7	3.7	4.4	5.0	5.0
All-Red	1.0	2.0	1.0	1.0	1.0	2.0	1.0	1.0

Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor			. . . . .											
Plan 2	Green Factor			. . . . .											
Plan 3	Green Factor			. . . . .											
Plan 4	Green Factor			. . . . .											
Plan 5	Green Factor			. . . . .											
Plan 6	Green Factor			. . . . .											
Plan 7	Green Factor			. . . . .											
Plan 8	Green Factor			. . . . .											
Plan 9	Green Factor			. . . . .											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

MANUAL COMMANDS

Manual Plan (4-1)		*Plan: 1-29*
Plan	OffSet	*254 = Flash*
	A	*255 = Free*
		Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

DETECTORS

Detector Attributes (5-1)				Slot
Det	Type	Phases	Lock	
1	CALL+EXTEND	. 2	NO	I1U
2	CALL+EXTEND	. 2	NO	I1L
3	COUNT+CALL+EXTEND	. 2	NO	I2U
4	COUNT+CALL+EXTEND	. 2	NO	I2L
5	CALL+EXTEND	. 2	NO	I3U
6	CALL+EXTEND	. 2	NO	I3L
7	CALL+EXTEND	. 2	NO	I4U
8	CALL+EXTEND	. 2	NO	I4L
9	COUNT+CALL+EXTEND	. . 3	NO	I5U
10	COUNT+CALL+EXTEND	. . 3	NO	I5L
11	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6U
12	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6L
13	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I7U
14	CALL+EXTEND	. . . 4 . . .	NO	I7L
15	LIMITED	. . . 4 . . .	NO	I8U
16	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I8L
17	COUNT+CALL+EXTEND	1	NO	I9U
18	COUNT+CALL+EXTEND	1	NO	I9L
19	COUNT+CALL+EXTEND	. 2	NO	I10U
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L
21	CALL+EXTEND	. . . . . 6 . .	NO	J1U
22	CALL+EXTEND	. . . . . 6 . .	NO	J1L
23	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L
25	CALL+EXTEND	. . . . . 6 . .	NO	J3U
26	CALL+EXTEND	. . . . . 6 . .	NO	J3L
27	CALL+EXTEND	. . . . . 6 . .	NO	J4U
28	CALL+EXTEND	. . . . . 6 . .	NO	J4L
29	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5U
30	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5L
31	COUNT+CALL+EXTEND	. . 3	NO	J6U
32	COUNT+CALL+EXTEND	. . 3	NO	J6L
33	COUNT+CALL+EXTEND	. . 3	NO	J7U
34	CALL+EXTEND	. . 3	NO	J7L
35	LIMITED	 8	NO	J8U
36	COUNT+CALL+EXTEND	 8	NO	J8L
37	COUNT+CALL+EXTEND	. . . . 5 . .	NO	J9U
38	COUNT+CALL+EXTEND	. . . . 5 . .	NO	J9L
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U
40	COUNT+CALL+EXTEND	 8	NO	J10L
41	PEDESTRIAN	. 2	NO	I12U
42	PEDESTRIAN	. . . 4 . . .	NO	I12L
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U
44	PEDESTRIAN	. . 3	NO	I13L

Detector Configuration (5-2)				
Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17	2		10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

© 2017 California Department of Transportation, All Rights Reserved

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

© 2017 California Department of Transportation, All Rights Reserved

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Daylight Saving (8-1)

Enabl	YES	Month	Sunday
	Start	MAR	2nd
	End	NOV	1st

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	. . . . .
Holiday	. . . . .

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			. . . . .		. . . . .
2			. . . . .		. . . . .
3			. . . . .		. . . . .
4			. . . . .		. . . . .
5			. . . . .		. . . . .
6			. . . . .		. . . . .
7			. . . . .		. . . . .
8			. . . . .		. . . . .
9			. . . . .		. . . . .
10			. . . . .		. . . . .
11			. . . . .		. . . . .
12			. . . . .		. . . . .
13			. . . . .		. . . . .
14			. . . . .		. . . . .
15			. . . . .		. . . . .
16			. . . . .		. . . . .

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

© 2017 California Department of Transportation, All Rights Reserved

COMMUNICATIONS

C2 (6-1-1)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Access Levels:

0-Full Access
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan
4-Reserved
5-Full Access with No Set Pattern
6-Full Access with No Set Time
7-Full Access with No Set Pattern, Manual Plan
8-Full Access with No Set Time, Pattern, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	1
Protocol	AB3418
Port	27000
Type	STATIC
Central Access	0
Field Access	0

IP Address	10	.	253	.	93	.	94
Netmask	255	.	255	.	255	.	0
Broadcast	10	.	253	.	93	.	255
Gateway	10	.	253	.	93	.	254

© 2017 California Department of Transportation, All Rights Reserved

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		. . . . .	. . . . .	1 2 3 4 5 6 7 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)

PR 1	PR 2	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		1 2 3 . . 6 . .	. . . . .	. . . . .	. 2 . . . 6 . .	. . . . .	. . . 4 . . . 8	. . . . .	. . . . .	. . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	. . . 4 . . 7 .	. . . . .

Configuration (3-2-6)

PR 1	PR 2	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. 2 . . 5 . . .	. . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . . 4	. . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	1 . . . . 6 . .	. . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . 3	. . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

© 2017 California Department of Transportation, All Rights Reserved

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	23	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6 Channel 9 and 10

© 2017 California Department of Transportation, All Rights Reserved

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	NONE	0	0
Plan 11-19	. . . . .	0.0	NONE	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	120

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

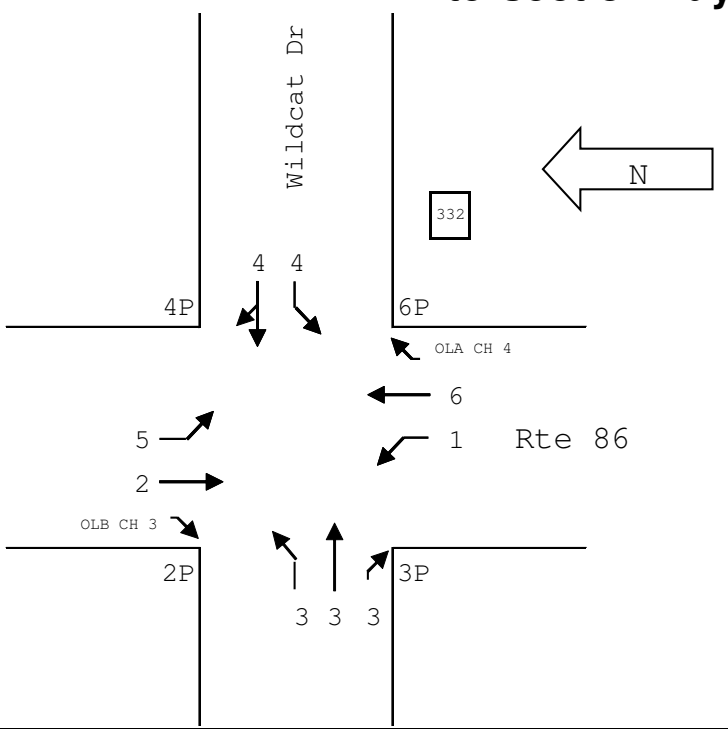
© 2017 California Department of Transportation, All Rights Reserved

Location: Rte 86 @ Wildcat Dr
System:
Master At: CTSCP STANDALONE
District: 11
I/C: 86@Legion
Designed By:
Installed By:
Service Info:

Timing Change:	Date Start:	Date End:	Designed:	Installed:
11/16/2020				11/18/2020

		FLASH
PHASE	1) NB left from Rte 86 to Wildcat Dr	[ ]
	2) SB Thru at Rte 86	[ ]
	3) EB Thru and left from Wildcat to Rte 8	[ ]
	4) WB Thru and left from Wildcat to Rte 8	[ ]
	5) SB left from Rte 86 to Wildcat Dr	[ ]
	6) NB Thru at Rte 86	[ ]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout



Comments and Notes:
FZ 2 PED 93', FZ 3 PED 109', FZ 4 PED 109', FZ 6 PED 93'
FZ 1 PED 95', FZ 2 PED 130', FZ 3 PED 150', FZ 4 PED 145', FZ 5 PED 100', FZ 6 PED 107'

RAM Checksum

Page 2: DB2C	Page 8: 85AF
Page 3: 5037	Page 9: D2FD
Page 4: F29E	Page 10: AA5F
Page 5: 191A	Page 11: 7D1C
Page 6: 191A	Page 12: 7F42
Page 7: EE70	Page 13: 80C7

Post Mile: PM 19.474 Rte 86 @ Wildcat Dr

Printed: 10/26/2021

© 2017 California Department of Transportation, All Rights Reserved

CONFIGURATION PHASE FLAGS

Cabinet (9-3)
332
Configuration
CALTRANS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	1 . . . 5 . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 . .
Pedestrian Calls	. 2 3 4 . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	6.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlaps	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. 2 . . . . .
P3	. . 3 . . . .
P4	. . . 4 . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

© 2017 California Department of Transportation, All Rights Reserved

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	7	7	7	0	7	0	10
Flash Don't Walk	0	27	31	31	0	27	0	10
Minimum Green	7	10	11	11	8	10	10	10
Det Limit	0	0	0	0	0	0	10	10
Max Initial	0	30	0	0	0	30	10	10
Max Green 1	20	65	25	25	20	65	50	50
Max Green 2	0	0	0	0	0	0	50	50
Max Green 3	0	0	0	0	0	0	50	50
Extension	2.0	7.0	3.0	3.0	2.0	7.0	5.0	5.0
Maximum Gap	2.0	7.0	3.0	3.0	2.0	7.0	5.0	5.0
Minimum Gap	2.0	3.0	3.0	3.0	2.0	3.0	5.0	5.0
Add Per Vehicle	0.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0
Reduce Gap By	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Reduce Every	1.0	0.8	1.0	1.0	1.0	0.8	1.0	1.0
Yellow	3.7	5.5	3.7	3.7	3.7	5.5	5.0	5.0
All-Red	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Ped/Bike (2-3)	**-1-**	**-2-**	**-3-**	**-4-**	**-5-**	**-6-**	**-7-**	**-8-**
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor			.....											
Plan 2	Green Factor			.....											
Plan 3	Green Factor			.....											
Plan 4	Green Factor			.....											
Plan 5	Green Factor			.....											
Plan 6	Green Factor			.....											
Plan 7	Green Factor			.....											
Plan 8	Green Factor			.....											
Plan 9	Green Factor			.....											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	.....
11-19	.....
21-29	.....

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	.....
Veh Min	Veh Max
. 2 . . . 6 . .	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.....	.....	.....	.....	.....	.....	.....	.....
Plan 2	.....	.....	.....	.....	.....	.....	.....	.....
Plan 3	.....	.....	.....	.....	.....	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-29
254 = Flash
255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

DETECTORS

Detector Attributes (5-1)				Slot
Det	Type	Phases	Lock	
1	CALL+EXTEND	. 2	NO	I1U
2	CALL+EXTEND	. 2	NO	I1L
3	COUNT+CALL+EXTEND	. 2	NO	I2U
4	COUNT+CALL+EXTEND	. 2	NO	I2L
5	CALL+EXTEND	. 2	NO	I3U
6	CALL+EXTEND	. 2	NO	I3L
7	CALL+EXTEND	. 2	NO	I4U
8	CALL+EXTEND	. 2	NO	I4L
9	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I5U
10	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I5L
11	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6U
12	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6L
13	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I7U
14	CALL+EXTEND	. . . 4 . . .	NO	I7L
15	CALL+EXTEND	. . . 4 . . .	NO	I8U
16	CALL+EXTEND	. . . 4 . . .	NO	I8L
17	COUNT+CALL+EXTEND	1	NO	I9U
18	COUNT+CALL+EXTEND	1	NO	I9L
19	COUNT+CALL+EXTEND	. 2	NO	I10U
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L
21	CALL+EXTEND	. . . . . 6 . .	NO	J1U
22	CALL+EXTEND	. . . . . 6 . .	NO	J1L
23	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L
25	CALL+EXTEND	. . . . . 6 . .	NO	J3U
26	CALL+EXTEND	. . . . . 6 . .	NO	J3L
27	CALL+EXTEND	. . . . . 6 . .	NO	J4U
28	CALL+EXTEND	. . . . . 6 . .	NO	J4L
29	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J5U
30	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J5L
31	COUNT+CALL+EXTEND	. . 3	NO	J6U
32	COUNT+CALL+EXTEND	. . 3	NO	J6L
33	COUNT+CALL+EXTEND	. . 3	NO	J7U
34	CALL+EXTEND	. . 3	NO	J7L
35	CALL+EXTEND	. . 3	NO	J8U
36	CALL+EXTEND	. . 3	NO	J8L
37	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9U
38	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9L
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U
40	COUNT+CALL+EXTEND	 8	NO	J10L
41	PEDESTRIAN	. 2	NO	I12U
42	PEDESTRIAN	. . . 4 . . .	NO	I12L
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U
44	PEDESTRIAN	. . 3	NO	I13L

Detector Configuration (5-2)				
Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

© 2017 California Department of Transportation, All Rights Reserved

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

© 2017 California Department of Transportation, All Rights Reserved

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Daylight Saving (8-1)

Enabl	YES	Month	Sunday
	Start	MAR	2nd
	End	NOV	1st

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	. . . . .
Holiday	. . . . .

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			. . . . .		. . . . .
2			. . . . .		. . . . .
3			. . . . .		. . . . .
4			. . . . .		. . . . .
5			. . . . .		. . . . .
6			. . . . .		. . . . .
7			. . . . .		. . . . .
8			. . . . .		. . . . .
9			. . . . .		. . . . .
10			. . . . .		. . . . .
11			. . . . .		. . . . .
12			. . . . .		. . . . .
13			. . . . .		. . . . .
14			. . . . .		. . . . .
15			. . . . .		. . . . .
16			. . . . .		. . . . .

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

© 2017 California Department of Transportation, All Rights Reserved

COMMUNICATIONS

C2 (6-1-1)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Access Levels:

0-Full Access
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan
4-Reserved
5-Full Access with No Set Pattern
6-Full Access with No Set Time
7-Full Access with No Set Pattern, Manual Plan
8-Full Access with No Set Time, Pattern, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	1
Protocol	AB3418
Port	27000
Type	STATIC
Central Access	0
Field Access	0

IP Address	10	.	253	.	93	.	167
Netmask	255	.	255	.	255	.	0
Broadcast	10	.	253	.	93	.	255
Gateway	10	.	253	.	93	.	254

© 2017 California Department of Transportation, All Rights Reserved

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		. . . .	. . . .	1 2 3 4 5 6 7 8	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)			
PR 1	PR 2	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		1 2 3 . . 6 . .	. . . .	. . . .	. 2 . . . 6 . .	. . . .	. . . 4 . . . 8	. . . . . .	. . . . . .	. . . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	. . . 4 . . 7 .	. . . .

Configuration (3-2-6)			
PR 1	PR 2	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. 2 . . 5 . . .	. . . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . . 4	. . . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	1 . . . . 6 . .	. . . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . 3	. . . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

© 2017 California Department of Transportation, All Rights Reserved

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	23	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6
Channel 9 and 10

© 2017 California Department of Transportation, All Rights Reserved

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	NONE	0	0
Plan 11-19	. . . . .	0.0	NONE	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	120

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

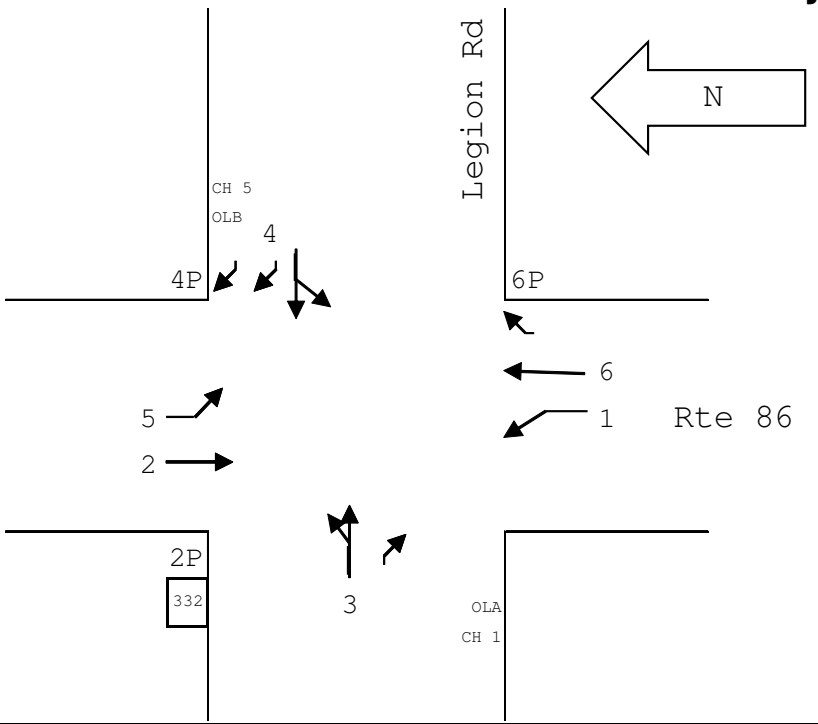
© 2017 California Department of Transportation, All Rights Reserved

Location: Rte 86 @ Legion Rd
System:
Master At: CTSCP STANDALONE
District: 11
I/C: 86@WILDCAT
Designed By:
Installed By:
Service Info:

Timing Change:	Date Start:	Date End:	Designed:	Installed:
11/16/2020				11/18/2020

		FLASH
PHASE	1) NB left from Rte 86 to Legion Rd	[ ]
	2) SB Thru at Rte 86	[ ]
	3) EB Thru and left from Legion to Rte 86	[ ]
	4) WB Thru and left from Legion to Rte 8	[ ]
	5) SB left from Rte 86 to Legion Rd	[ ]
	6) NB Thru at Rte 86	[ ]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout



Comments and Notes:
FZ 2 PED 79', FZ 4 PED 148', FZ 6 PED 109;
FZ 1 BIKE 80', FZ 2 BIKE 100', FZ 3 BIKE 153', FZ 4 BIKE 150', FZ 5 BIKE 90', FZ 6 BIKE 130'
OLA=FZ1, OLB=FZ5

RAM Checksum

Page 2: 63F1	Page 8: 85AF
Page 3: 4745	Page 9: D2FD
Page 4: F29E	Page 10: CD49
Page 5: 191A	Page 11: 7D1C
Page 6: 191A	Page 12: D68F
Page 7: D0C6	Page 13: 80C7

Post Mile: PM 19.190 Rte 86 @ Legion Rd

Printed: 10/26/2021

© 2017 California Department of Transportation, All Rights Reserved

CONFIGURATION PHASE FLAGS

Cabinet (9-3)
332
Configuration
CALTRANS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 . .
Pedestrian Calls	. 2 . 4 . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	6.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlaps	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . 4 . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

© 2017 California Department of Transportation, All Rights Reserved

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	7	0	7	0	7	0	10
Flash Don't Walk	0	23	0	42	0	31	0	10
Minimum Green	7	6	11	11	8	8	10	10
Det Limit	0	0	0	0	0	0	10	10
Max Initial	0	0	0	0	0	0	10	10
Max Green 1	20	65	25	25	20	65	50	50
Max Green 2	0	0	0	0	0	0	50	50
Max Green 3	0	0	0	0	0	0	50	50
Extension	2.0	3.0	3.0	3.0	2.0	3.0	5.0	5.0
Maximum Gap	2.0	3.0	3.0	3.0	2.0	3.0	5.0	5.0
Minimum Gap	2.0	3.0	3.0	3.0	2.0	3.0	5.0	5.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Yellow	3.7	5.5	3.7	3.7	3.7	5.5	5.0	5.0
All-Red	1.0	2.0	2.0	2.0	1.0	2.0	1.0	1.0

Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor			. . . . .											
Plan 2	Green Factor			. . . . .											
Plan 3	Green Factor			. . . . .											
Plan 4	Green Factor			. . . . .											
Plan 5	Green Factor			. . . . .											
Plan 6	Green Factor			. . . . .											
Plan 7	Green Factor			. . . . .											
Plan 8	Green Factor			. . . . .											
Plan 9	Green Factor			. . . . .											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

MANUAL COMMANDS

Manual Plan (4-1)		*Plan: 1-29*
Plan	OffSet	*254 = Flash*
	A	*255 = Free*
		Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

DETECTORS

Detector Attributes (5-1)

Det	Type	Phases	Lock	Slot
1	COUNT+CALL+EXTEND	. 2	NO	I1U
2	COUNT+CALL+EXTEND	. 2	NO	I1L
3	COUNT+CALL+EXTEND	. 2	NO	I2U
4	COUNT+CALL+EXTEND	. 2	NO	I2L
5	COUNT+CALL+EXTEND	. 2	NO	I3U
6	CALL+EXTEND	. 2	NO	I3L
7	CALL+EXTEND	. 2	NO	I4U
8	CALL+EXTEND	. 2	NO	I4L
9	COUNT+CALL+EXTEND	. . 3	NO	I5U
10	COUNT+CALL+EXTEND	. . 3	NO	I5L
11	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6U
12	COUNT+CALL+EXTEND	. . . . 5 . .	NO	I6L
13	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I7U
14	CALL+EXTEND	. . . . 5 . .	NO	I7L
15	CALL+EXTEND	. . . 4 . . .	NO	I8U
16	CALL+EXTEND	. . . 4 . . .	NO	I8L
17	COUNT+CALL+EXTEND	1	NO	I9U
18	COUNT+CALL+EXTEND	1	NO	I9L
19	COUNT+CALL+EXTEND	. 2	NO	I10U
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L
21	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J1U
22	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J1L
23	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L
25	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J3U
26	CALL+EXTEND	. . . . . 6 . .	NO	J3L
27	CALL+EXTEND	. . . . . 6 . .	NO	J4U
28	CALL+EXTEND	. . . . . 6 . .	NO	J4L
29	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5U
30	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5L
31	COUNT+CALL+EXTEND	. . 3	NO	J6U
32	COUNT+CALL+EXTEND	1	NO	J6L
33	COUNT+CALL+EXTEND	. . 3	NO	J7U
34	CALL+EXTEND	1	NO	J7L
35	CALL+EXTEND	. . 3	NO	J8U
36	CALL+EXTEND	. . 3	NO	J8L
37	COUNT+CALL+EXTEND	. . . . 5 . .	NO	J9U
38	COUNT+CALL+EXTEND	. . . . 5 . .	NO	J9L
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U
40	COUNT+CALL+EXTEND	 8	NO	J10L
41	PEDESTRIAN	. 2	NO	I12U
42	PEDESTRIAN	. . . 4 . . .	NO	I12L
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U
44	PEDESTRIAN	 8	NO	I13L

Detector Configuration (5-2)

Det	Delay	Extend	Recall	Port
1		1.0	10	3.2
2		1.0	10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21		1.0	10	3.1
22		1.0	10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)

Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

© 2017 California Department of Transportation, All Rights Reserved

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

© 2017 California Department of Transportation, All Rights Reserved

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Daylight Saving (8-1)

Enabl	YES	Month	Sunday
	Start	MAR	2nd
	End	NOV	1st

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	. . . . .
Holiday	. . . . .

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			. . . . .		. . . . .
2			. . . . .		. . . . .
3			. . . . .		. . . . .
4			. . . . .		. . . . .
5			. . . . .		. . . . .
6			. . . . .		. . . . .
7			. . . . .		. . . . .
8			. . . . .		. . . . .
9			. . . . .		. . . . .
10			. . . . .		. . . . .
11			. . . . .		. . . . .
12			. . . . .		. . . . .
13			. . . . .		. . . . .
14			. . . . .		. . . . .
15			. . . . .		. . . . .
16			. . . . .		. . . . .

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

© 2017 California Department of Transportation, All Rights Reserved

COMMUNICATIONS

C2 (6-1-1)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Access Levels:

0-Full Access
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan
4-Reserved
5-Full Access with No Set Pattern
6-Full Access with No Set Time
7-Full Access with No Set Pattern, Manual Plan
8-Full Access with No Set Time, Pattern, Manual Plan

SOFT LOGIC

Soft Logic (6-2)							
#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	1
Protocol	AB3418
Port	27000
Type	STATIC
Central Access	0
Field Access	0

IP Address	10	.	253	.	93	.	37
Netmask	255	.	255	.	255	.	0
Broadcast	10	.	253	.	93	.	255
Gateway	10	.	253	.	93	.	254

© 2017 California Department of Transportation, All Rights Reserved

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		. . . .	. . . .	1 2 3 4 5 6 7 8	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)			
PR 1	PR 2	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		1 2 3 . . 6 . .	. . . .	. . . .	. 2 . . . 6 . .	. . . .	. . . 4 . . . 8	. . . . . .	. . . . . .	. . . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	. . . 4 . . 7 .	. . . .

Configuration (3-2-6)			
PR 1	PR 2	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. 2 . . 5 . . .	. . . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . . 4	. . . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	1 . . . . 6 . .	. . . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . 3	. . . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

© 2017 California Department of Transportation, All Rights Reserved

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

\+ middle output of loadswitches 3 and 6 Channel 9 and 10

© 2017 California Department of Transportation, All Rights Reserved

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	NONE	0	0
Plan 11-19	. . . . .	0.0	NONE	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	120

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

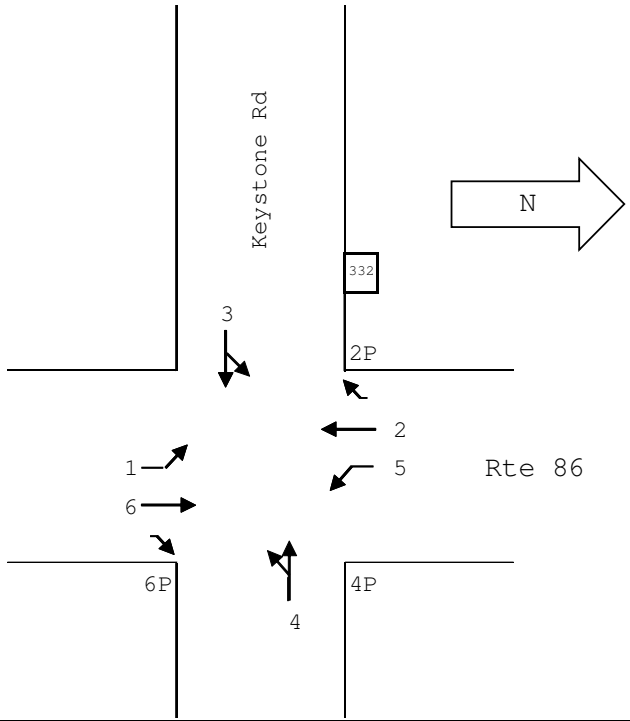
© 2017 California Department of Transportation, All Rights Reserved

Location: Rte 86 @ Keystone Rd
System:
District: 11
Master At: CTSCP STANDALONE
I/C:
Designed By:
Installed By:
Service Info:

Timing Change: 5/28/2020
Date Start:
Date End:
Designed:
Installed: 9/16/2020

		FLASH
PHASE	1) NB left from Rte 86 to Keystone	[ ]
	2) SB Thu at Rte 86	[ ]
	3) EB Thru and Left from keystone to Rte	[ ]
	4) WB Thru and left from Keystone to Rte	[ ]
	5) SB left from Rte 86 to Keystone	[ ]
	6) NB Thru at Rte 86	[ ]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout



Comments and Notes:
FZ 2 PED 54', FZ 4 PED 119', FZ 6 PED 77'
FZ 1 BIKE 110', FZ 2 BIKE 60', FZ 3 BIKE 130', FZ 4 BIKE 125', FZ 5 BIKE 110', FZ 6 BIKE 65'

RAM Checksum

Page 2: 49F9	Page 8: 85AF
Page 3: 16E8	Page 9: D2FD
Page 4: F29E	Page 10: 0CC0
Page 5: 191A	Page 11: 7D1C
Page 6: 191A	Page 12: D68F
Page 7: FD39	Page 13: 80C7

Post Mile: PM 15.321 Rte 86 @ Keystone Ave

Printed: 8/4/2021

© 2017 California Department of Transportation, All Rights Reserved

CONFIGURATION PHASE FLAGS

Cabinet (9-3)
332
Configuration
CALTRANS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	1 . . . 5 . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 . .
Pedestrian Calls	. 2 . 4 . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	6.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlaps	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . 4 . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

© 2017 California Department of Transportation, All Rights Reserved

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	7	0	7	0	7	0	10
Flash Don't Walk	0	15	0	34	0	22	0	10
Minimum Green	8	10	10	10	8	10	10	10
Det Limit	0	0	0	0	0	0	10	10
Max Initial	0	0	30	30	0	0	10	10
Max Green 1	25	60	30	30	25	60	50	50
Max Green 2	0	0	0	0	0	0	50	50
Max Green 3	0	0	0	0	0	0	50	50
Extension	2.0	6.0	3.0	3.0	2.0	6.0	5.0	5.0
Maximum Gap	2.0	6.0	3.0	3.0	2.0	6.0	5.0	5.0
Minimum Gap	2.0	3.0	3.0	3.0	2.0	3.0	5.0	5.0
Add Per Vehicle	0.0	0.0	5.0	5.0	0.0	0.0	1.0	1.0
Reduce Gap By	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Reduce Every	1.0	0.8	1.0	1.0	1.0	0.8	1.0	1.0
Yellow	3.7	5.9	5.5	5.5	3.7	5.9	5.0	5.0
All-Red	2.0	2.5	3.0	3.0	2.0	2.5	1.0	1.0

Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor			.....											
Plan 2	Green Factor			.....											
Plan 3	Green Factor			.....											
Plan 4	Green Factor			.....											
Plan 5	Green Factor			.....											
Plan 6	Green Factor			.....											
Plan 7	Green Factor			.....											
Plan 8	Green Factor			.....											
Plan 9	Green Factor			.....											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	.....
11-19	.....
21-29	.....

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	.....
Veh Min	Veh Max
. 2 . . . 6 . .	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.....	.....	.....	.....	.....	.....	.....	.....
Plan 2	.....	.....	.....	.....	.....	.....	.....	.....
Plan 3	.....	.....	.....	.....	.....	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

MANUAL COMMANDS

Manual Plan (4-1)		*Plan: 1-29*
Plan	OffSet	*254 = Flash*
	A	*255 = Free*
		Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

© 2017 California Department of Transportation, All Rights Reserved

DETECTORS

Detector Attributes (5-1)				Slot
Det	Type	Phases	Lock	
1	COUNT+CALL+EXTEND	1	NO	I1U
2	COUNT+CALL+EXTEND	1	NO	I1L
3	COUNT+CALL+EXTEND	. 2	NO	I2U
4	COUNT+CALL+EXTEND	. 2	NO	I2L
5	COUNT+CALL+EXTEND	. 2	NO	I3U
6	CALL+EXTEND	. 2	NO	I3L
7	CALL+EXTEND	. 2	NO	I4U
8	CALL+EXTEND	. 2	NO	I4L
9	CALL+EXTEND	. 2	NO	I5U
10	CALL+EXTEND	. 2	NO	I5L
11	CALL+EXTEND	. . . 4 . . .	NO	I6U
12	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6L
13	CALL+EXTEND	. . . 4 . . .	NO	I7U
14	CALL+EXTEND	. . . 4 . . .	NO	I7L
15	CALL+EXTEND	. . . 4 . . .	NO	I8U
16	CALL+EXTEND	. . . 4 . . .	NO	I8L
17	COUNT+CALL+EXTEND	1	NO	I9U
18	CALL+EXTEND	1	NO	I9L
19	COUNT+CALL+EXTEND	. 2	NO	I10U
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L
21	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1U
22	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1L
23	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L
25	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J3U
26	CALL+EXTEND	. . . . . 6 . .	NO	J3L
27	CALL+EXTEND	. . . . . 6 . .	NO	J4U
28	CALL+EXTEND	. . . . . 6 . .	NO	J4L
29	CALL+EXTEND	. . . . . 6 . .	NO	J5U
30	CALL+EXTEND	. . . . . 6 . .	NO	J5L
31	CALL+EXTEND	. . 3	NO	J6U
32	COUNT+CALL+EXTEND	. . 3	NO	J6L
33	CALL+EXTEND	. . 3	NO	J7U
34	CALL+EXTEND	. . 3	NO	J7L
35	CALL+EXTEND	. . 3	NO	J8U
36	CALL+EXTEND	. . 3	NO	J8L
37	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9U
38	CALL+EXTEND	. . . . 5 . . .	NO	J9L
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U
40	COUNT+CALL+EXTEND	 8	NO	J10L
41	PEDESTRIAN	. 2	NO	I12U
42	PEDESTRIAN	. . . 4 . . .	NO	I12L
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U
44	PEDESTRIAN	 8	NO	I13L

Detector Configuration (5-2)				
Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

© 2017 California Department of Transportation, All Rights Reserved

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

© 2017 California Department of Transportation, All Rights Reserved

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			. . . . .	
2			. . . . .	
3			. . . . .	
4			. . . . .	
5			. . . . .	
6			. . . . .	
7			. . . . .	
8			. . . . .	
9			. . . . .	
10			. . . . .	
11			. . . . .	
12			. . . . .	
13			. . . . .	
14			. . . . .	
15			. . . . .	
16			. . . . .	

Daylight Saving (8-1)

Enabl	YES	Month	Sunday
	Start	MAR	2nd
	End	NOV	1st

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	. . . . .
Holiday	. . . . .

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			. . . . .		. . . . .
2			. . . . .		. . . . .
3			. . . . .		. . . . .
4			. . . . .		. . . . .
5			. . . . .		. . . . .
6			. . . . .		. . . . .
7			. . . . .		. . . . .
8			. . . . .		. . . . .
9			. . . . .		. . . . .
10			. . . . .		. . . . .
11			. . . . .		. . . . .
12			. . . . .		. . . . .
13			. . . . .		. . . . .
14			. . . . .		. . . . .
15			. . . . .		. . . . .
16			. . . . .		. . . . .

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

© 2017 California Department of Transportation, All Rights Reserved

COMMUNICATIONS

C2 (6-1-1)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Access Levels:

0-Full Access
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan
4-Reserved
5-Full Access with No Set Pattern
6-Full Access with No Set Time
7-Full Access with No Set Pattern, Manual Plan
8-Full Access with No Set Time, Pattern, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	1
Protocol	AB3418
Port	27000
Type	STATIC
Central Access	0
Field Access	0

IP Address	10	.	253	.	93	.	8
Netmask	255	.	255	.	255	.	0
Broadcast	10	.	253	.	93	.	255
Gateway	10	.	253	.	93	.	254

© 2017 California Department of Transportation, All Rights Reserved

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		. . . .	. . . .	1 2 3 4 5 6 7 8	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)

PR 1	PR 2	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . .	. . . .	. . . .	. . . .	. 2 . 4 . 6 . 8	. . . . . .	. . . . . .	. . . . . .
Clear 2		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Clear 3		. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . . . .	. . . . . .	. . . . . .
Hold		1 2 3 . . 6 . .	. . . .	. . . .	. 2 . . . 6 . .	. . . .	. . . 4 . . . 8	. . . . . .	. . . . . .	. . . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)

Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . .	. . . . . .	. . . 4 . . 7 .	. . . .

Configuration (3-2-6)

PR 1	PR 2	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. 2 . . 5 . . .	. . . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . . 4	. . . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	1 . . . . 6 . .	. . . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	255	. . 3	. . . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

© 2017 California Department of Transportation, All Rights Reserved

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

\+ middle output of loadswitches 3 and 6
Channel 9 and 10

© 2017 California Department of Transportation, All Rights Reserved

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	NONE	0	0
Plan 11-19	. . . . .	0.0	NONE	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	120

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

This page intentionally left blank

Michael Baker
INTERNATIONAL

Appendix C:
Existing HCM Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	176	73	137	185	31	73	160	251	43	196	17
Future Volume (veh/h)	14	176	73	137	185	31	73	160	251	43	196	17
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	212	114	217	268	52	84	208	344	88	306	32
Peak Hour Factor	0.50	0.83	0.64	0.63	0.69	0.60	0.87	0.77	0.73	0.49	0.64	0.53
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	85	396	204	259	810	155	163	513	665	165	436	46
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
Prop Arrive On Green	0.05	0.17	0.17	0.15	0.27	0.27	0.09	0.27	0.27	0.09	0.26	0.26
Unsig. Movement Delay												
Ln Grp Delay, s/veh	33.5	30.5	31.3	46.2	22.1	22.2	33.3	22.9	17.5	33.3	0.0	25.6
Ln Grp LOS	C	C	C	D	C	C	C	C	B	C	A	C
Approach Vol, veh/h		354			537			636			426	
Approach Delay, s/veh		31.1			31.9			21.4			27.2	
Approach LOS		C			C			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Case No	2.0	4.0	2.0	4.0	2.0	4.0	2.0	3.0
Phs Duration (G+Y+Rc), s	15.0	18.8	12.2	25.0	8.1	25.7	11.3	25.9
Change Period (Y+Rc), s	* 4.7	6.4	* 5.7	* 6.4	* 4.7	* 6.4	* 4.7	6.4
Max Green (Gmax), s	* 11	35.5	* 8.3	* 33	* 8	* 40	* 8	33.0
Max Allow Headway (MAH), s	2.8	7.6	3.7	5.3	2.7	8.3	3.8	7.4
Max Q Clear (g_c+I1), s	10.4	8.3	5.2	13.8	3.1	7.2	5.3	13.4
Green Ext Time (g_e), s	0.0	4.1	0.0	2.0	0.0	5.0	0.0	6.0
Prob of Phs Call (p_c)	0.99	1.00	0.81	1.00	0.42	1.00	0.82	1.00
Prob of Max Out (p_x)	1.00	0.02	1.00	0.01	0.01	0.02	1.00	0.24

Left-Turn Movement Data								
Assigned Mvmt	1		3		5		7	
Mvmt Sat Flow, veh/h	1781		1781		1781		1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		2266		1665		2976		1870

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1171		174		569		1585

Left Lane Group Data								
Assigned Mvmt	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	217	0	84	0	28	0	88	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	8.4	0.0	3.2	0.0	1.1	0.0	3.3	0.0
Cycle Q Clear Time (g_c), s	8.4	0.0	3.2	0.0	1.1	0.0	3.3	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	259	0	163	0	85	0	165	0
V/C Ratio (X)	0.84	0.00	0.52	0.00	0.33	0.00	0.53	0.00
Avail Cap (c_a), veh/h	284	0	208	0	201	0	201	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	29.5	0.0	30.7	0.0	32.7	0.0	30.7	0.0
Incr Delay (d2), s/veh	16.7	0.0	2.5	0.0	0.8	0.0	2.6	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	46.2	0.0	33.3	0.0	33.5	0.0	33.3	0.0
1st-Term Q (Q1), veh/ln	3.4	0.0	1.3	0.0	0.4	0.0	1.4	0.0
2nd-Term Q (Q2), veh/ln	1.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	4.6	0.0	1.4	0.0	0.5	0.0	1.5	0.0
%ile Storage Ratio (RQ%)	0.64	0.00	0.16	0.00	0.07	0.00	0.59	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	164	0	0	0	158	0	208
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	1870
Q Serve Time (g_s), s	0.0	6.0	0.0	0.0	0.0	5.1	0.0	6.4
Cycle Q Clear Time (g_c), s	0.0	6.0	0.0	0.0	0.0	5.1	0.0	6.4
Lane Grp Cap (c), veh/h	0	310	0	0	0	483	0	513
V/C Ratio (X)	0.00	0.53	0.00	0.00	0.00	0.33	0.00	0.41
Avail Cap (c_a), veh/h	0	889	0	0	0	989	0	870
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	26.6	0.0	0.0	0.0	20.6	0.0	21.0
Incr Delay (d2), s/veh	0.0	3.8	0.0	0.0	0.0	1.4	0.0	1.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	30.5	0.0	0.0	0.0	22.1	0.0	22.9
1st-Term Q (Q1), veh/ln	0.0	2.3	0.0	0.0	0.0	2.0	0.0	2.6
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.3

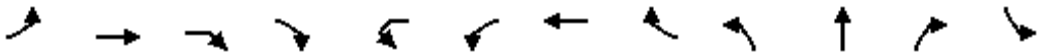
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.7	0.0	0.0	0.0	2.2	0.0	2.8
%ile Storage Ratio (RQ%)	0.00	0.13	0.00	0.00	0.00	0.12	0.00	0.04
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	162	0	338	0	162	0	344
Grp Sat Flow (s), veh/h/ln	0	1660	0	1839	0	1768	0	1585
Q Serve Time (g_s), s	0.0	6.3	0.0	11.8	0.0	5.2	0.0	11.4
Cycle Q Clear Time (g_c), s	0.0	6.3	0.0	11.8	0.0	5.2	0.0	11.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1585.1
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Prop RT Outside Lane (P_R)	0.00	0.71	0.00	0.09	0.00	0.32	0.00	1.00
Lane Grp Cap (c), veh/h	0	290	0	482	0	481	0	665
V/C Ratio (X)	0.00	0.56	0.00	0.70	0.00	0.34	0.00	0.52
Avail Cap (c_a), veh/h	0	831	0	866	0	984	0	968
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	26.8	0.0	23.7	0.0	20.7	0.0	15.3
Incr Delay (d2), s/veh	0.0	4.6	0.0	1.9	0.0	1.5	0.0	2.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	31.3	0.0	25.6	0.0	22.2	0.0	17.5
1st-Term Q (Q1), veh/ln	0.0	2.3	0.0	4.8	0.0	2.0	0.0	3.5
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.3	0.0	0.2	0.0	0.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.7	0.0	5.1	0.0	2.2	0.0	4.0
%ile Storage Ratio (RQ%)	0.00	0.13	0.00	0.41	0.00	0.12	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	20	74	2	24	11	90	25	58	18	450	65	49
Future Volume (vph)	20	74	2	24	11	90	25	58	18	450	65	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (prot)		1836		1583			1793	1583	1770	3477		
Flt Permitted		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (perm)		1836		1583			1793	1583	1770	3477		
Peak-hour factor, PHF	0.62	0.64	0.50	0.67	0.46	0.80	0.62	0.58	0.56	0.68	0.74	0.72
Adj. Flow (vph)	32	116	4	36	24	112	40	100	32	662	88	68
RTOR Reduction (vph)	0	0	0	31	0	0	0	80	0	0	0	0
Lane Group Flow (vph)	0	152	0	5	0	0	177	20	32	750	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		14.1		14.1			15.6	15.6	3.8	46.8		
Effective Green, g (s)		14.1		14.1			15.6	15.6	3.8	46.8		
Actuated g/C Ratio		0.15		0.15			0.17	0.17	0.04	0.50		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		277		239			299	264	72	1744		
v/s Ratio Prot		c0.08					c0.10		0.02	c0.22		
v/s Ratio Perm				0.00				0.01				
v/c Ratio		0.55		0.02			0.59	0.08	0.44	0.43		
Uniform Delay, d1		36.7		33.7			35.9	32.8	43.7	14.8		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		2.8		0.1			3.6	0.2	1.6	0.5		
Delay (s)		39.4		33.8			39.6	32.9	45.3	15.3		
Level of Service		D		C			D	C	D	B		
Approach Delay (s)		38.3					37.2			16.5		
Approach LOS		D					D			B		

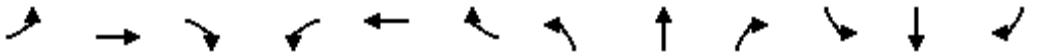
Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	93.3	Sum of lost time (s)	21.5
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	27	330	14	99
Future Volume (vph)	27	330	14	99
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3513		1611
Flt Permitted	0.37	1.00		1.00
Satd. Flow (perm)	684	3513		1611
Peak-hour factor, PHF	0.75	0.72	0.58	0.75
Adj. Flow (vph)	36	458	24	132
RTOR Reduction (vph)	0	2	0	132
Lane Group Flow (vph)	104	480	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	38.3	38.3		0.0
Effective Green, g (s)	38.3	38.3		0.0
Actuated g/C Ratio	0.41	0.41		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	280	1442		0
v/s Ratio Prot		0.14		
v/s Ratio Perm	0.15			
v/c Ratio	0.37	0.33		0.00
Uniform Delay, d1	19.1	18.8		46.6
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	2.3	0.4		0.0
Delay (s)	21.5	19.2		46.6
Level of Service	C	B		D
Approach Delay (s)		19.6		
Approach LOS		B		

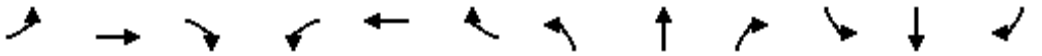
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	53	238	198	43	32	137	424	109	14	405	8
Future Volume (vph)	2	53	238	198	43	32	137	424	109	14	405	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.98		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1858	1583		1764		1770	3434		1770	3528	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1858	1583		1764		1770	3434		1770	3528	
Peak-hour factor, PHF	0.50	0.66	0.94	0.87	0.67	0.57	0.88	0.75	0.78	0.50	0.75	0.67
Adj. Flow (vph)	4	80	253	228	64	56	156	565	140	28	540	12
RTOR Reduction (vph)	0	0	226	0	6	0	0	15	0	0	1	0
Lane Group Flow (vph)	0	84	27	0	342	0	156	690	0	28	551	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		9.9	9.9		22.3		11.6	35.4		3.3	27.1	
Effective Green, g (s)		9.9	9.9		22.3		11.6	35.4		3.3	27.1	
Actuated g/C Ratio		0.11	0.11		0.24		0.13	0.39		0.04	0.30	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		201	171		430		224	1330		63	1046	
v/s Ratio Prot		c0.05			c0.19		c0.09	c0.20		0.02	0.16	
v/s Ratio Perm			0.02									
v/c Ratio		0.42	0.16		0.80		0.70	0.52		0.44	0.53	
Uniform Delay, d1		38.1	37.0		32.4		38.2	21.5		43.2	26.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.4	0.4		9.8		7.4	0.9		1.8	1.9	
Delay (s)		39.5	37.4		42.2		45.6	22.4		45.0	28.7	
Level of Service		D	D		D		D	C		D	C	
Approach Delay (s)		37.9			42.2			26.6			29.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	91.4	Sum of lost time (s)	20.5
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

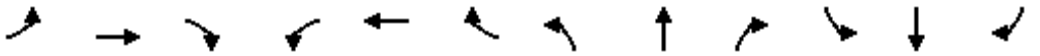
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	54	9	14	41	116	21	490	29	215	465	147
Future Volume (vph)	105	54	9	14	41	116	21	490	29	215	465	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1680		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1680		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.79	0.75	0.70	0.57	0.85	0.58	0.75	0.60	0.76	0.92	0.80
Adj. Flow (vph)	159	68	12	20	72	136	36	653	48	283	505	184
RTOR Reduction (vph)	0	0	10	0	54	0	0	0	25	0	0	93
Lane Group Flow (vph)	159	68	2	20	154	0	36	653	23	283	505	91
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	15.0	15.0	15.0	14.8	14.8		7.1	29.8	44.6	8.2	30.9	45.9
Effective Green, g (s)	15.0	15.0	15.0	14.8	14.8		7.1	29.8	44.6	8.2	30.9	45.9
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.08	0.32	0.48	0.09	0.33	0.50
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	287	574	256	549	269		263	1141	764	304	1183	786
v/s Ratio Prot	c0.09	0.02		0.01	c0.09		0.01	c0.18	0.00	c0.08	0.14	0.02
v/s Ratio Perm			0.00						0.01			0.04
v/c Ratio	0.55	0.12	0.01	0.04	0.57		0.14	0.57	0.03	0.93	0.43	0.12
Uniform Delay, d1	35.6	33.1	32.5	32.8	35.9		39.8	26.0	12.5	41.8	23.9	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.1	0.0	0.0	2.9		1.1	1.7	0.0	36.6	0.9	0.1
Delay (s)	37.9	33.1	32.5	32.8	38.8		40.9	27.7	12.6	78.4	24.8	12.5
Level of Service	D	C	C	C	D		D	C	B	E	C	B
Approach Delay (s)		36.3			38.3			27.3			38.1	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	92.4	Sum of lost time (s)	24.6
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	54	126	98	70	15	127	411	63	16	402	59
Future Volume (vph)	108	54	126	98	70	15	127	411	63	16	402	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	0.97	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1806	1583		1813	2787	1770	3539	1583	3433	3450	
Flt Permitted		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1806	1583		1813	2787	1770	3539	1583	3433	3450	
Peak-hour factor, PHF	0.71	0.61	0.90	0.79	0.70	0.62	0.79	0.88	0.98	0.67	0.84	0.61
Adj. Flow (vph)	152	89	140	124	100	24	161	467	64	24	479	97
RTOR Reduction (vph)	0	0	93	0	0	17	0	0	42	0	12	0
Lane Group Flow (vph)	0	241	47	0	224	7	161	467	22	24	564	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		19.1	32.6		17.9	28.0	13.5	33.0	33.0	4.4	23.9	
Effective Green, g (s)		19.1	32.6		17.9	28.0	13.5	33.0	33.0	4.4	23.9	
Actuated g/C Ratio		0.19	0.33		0.18	0.29	0.14	0.34	0.34	0.04	0.24	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		351	526		331	796	243	1191	533	154	841	
v/s Ratio Prot		c0.13	0.01		c0.12	0.00	c0.09	0.13		0.01	c0.16	
v/s Ratio Perm			0.02						0.01			
v/c Ratio		0.69	0.09		0.68	0.01	0.66	0.39	0.04	0.16	0.67	
Uniform Delay, d1		36.7	22.5		37.4	25.1	40.1	24.8	21.9	45.0	33.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		5.5	0.0		5.4	0.0	5.2	0.2	0.0	0.2	2.1	
Delay (s)		42.2	22.5		42.8	25.1	45.3	25.0	21.9	45.2	35.6	
Level of Service		D	C		D	C	D	C	C	D	D	
Approach Delay (s)		34.9			41.0			29.5			36.0	
Approach LOS		C			D			C			D	

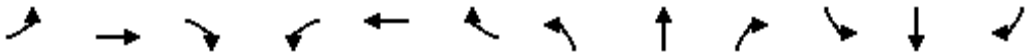
Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	33	4	31	18	34	19	443	43	29	477	34
Future Volume (vph)	39	33	4	31	18	34	19	443	43	29	477	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.99			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1797			1728		1770	3539	1583	1770	3539	1583
Flt Permitted		0.60			0.80		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1114			1422		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.65	0.75	0.50	0.52	0.75	0.65	0.59	0.88	0.67	0.56	0.95	0.57
Adj. Flow (vph)	60	44	8	60	24	52	32	503	64	52	502	60
RTOR Reduction (vph)	0	2	0	0	23	0	0	0	47	0	0	43
Lane Group Flow (vph)	0	110	0	0	113	0	32	503	17	52	502	17
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		13.6			13.2		4.4	23.9	23.9	6.0	25.5	25.5
Effective Green, g (s)		13.6			13.2		4.4	23.9	23.9	6.0	25.5	25.5
Actuated g/C Ratio		0.15			0.15		0.05	0.27	0.27	0.07	0.29	0.29
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		172			213		88	963	430	120	1027	459
v/s Ratio Prot							0.02	c0.14		c0.03	0.14	
v/s Ratio Perm		c0.10			c0.08				0.01			0.01
v/c Ratio		0.64			0.53		0.36	0.52	0.04	0.43	0.49	0.04
Uniform Delay, d1		34.8			34.4		40.3	27.1	23.5	39.3	25.8	22.3
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		7.9			2.5		0.9	1.3	0.1	0.9	1.0	0.1
Delay (s)		42.7			37.0		41.3	28.4	23.6	40.2	26.8	22.4
Level of Service		D			D		D	C	C	D	C	C
Approach Delay (s)		42.7			37.0			28.6			27.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	31.1
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	212	82	111	211	26	109	186	144	30	112	18
Future Volume (veh/h)	21	212	82	111	211	26	109	186	144	30	112	18
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	233	124	179	240	28	124	235	160	48	137	24
Peak Hour Factor	0.75	0.91	0.66	0.62	0.88	0.93	0.88	0.79	0.90	0.63	0.82	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	89	463	238	226	902	104	208	421	558	131	257	45
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
Prop Arrive On Green	0.05	0.20	0.20	0.13	0.28	0.28	0.12	0.23	0.23	0.07	0.17	0.17
Unsig. Movement Delay												
Ln Grp Delay, s/veh	28.2	24.0	24.6	29.5	17.7	17.8	27.9	24.7	15.0	28.1	0.0	24.4
Ln Grp LOS	C	C	C	C	B	B	C	C	B	C	A	C
Approach Vol, veh/h		385			447			519			209	
Approach Delay, s/veh		24.6			22.5			22.5			25.2	
Approach LOS		C			C			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Case No	2.0	4.0	2.0	4.0	2.0	4.0	2.0	3.0
Phs Duration (G+Y+Rc), s	12.3	18.6	12.7	16.3	7.7	23.2	9.1	19.9
Change Period (Y+Rc), s	* 4.7	6.4	* 5.7	* 6.4	* 4.7	* 6.4	* 4.7	6.4
Max Green (Gmax), s	* 11	35.5	* 8.3	* 33	* 8	* 40	* 8	33.0
Max Allow Headway (MAH), s	2.8	7.6	3.7	5.3	2.7	8.3	3.8	7.6
Max Q Clear (g_c+I1), s	7.8	7.7	6.0	6.8	2.9	5.5	3.5	8.7
Green Ext Time (g_e), s	0.1	4.6	0.1	0.9	0.0	4.1	0.0	4.8
Prob of Phs Call (p_c)	0.95	1.00	0.87	1.00	0.37	1.00	0.55	1.00
Prob of Max Out (p_x)	0.46	0.03	1.00	0.00	0.01	0.01	0.41	0.07

Left-Turn Movement Data								
Assigned Mvmt	1		3		5		7	
Mvmt Sat Flow, veh/h	1781		1781		1781		1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		2271		1550		3210		1870

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1166		272		371		1585

Left Lane Group Data								
Assigned Mvmt	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	179	0	124	0	28	0	48	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	5.8	0.0	4.0	0.0	0.9	0.0	1.5	0.0
Cycle Q Clear Time (g_c), s	5.8	0.0	4.0	0.0	0.9	0.0	1.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	226	0	208	0	89	0	131	0
V/C Ratio (X)	0.79	0.00	0.60	0.00	0.32	0.00	0.37	0.00
Avail Cap (c_a), veh/h	336	0	247	0	238	0	238	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	25.4	0.0	25.1	0.0	27.5	0.0	26.4	0.0
Incr Delay (d2), s/veh	4.1	0.0	2.8	0.0	0.8	0.0	1.7	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	29.5	0.0	27.9	0.0	28.2	0.0	28.1	0.0
1st-Term Q (Q1), veh/ln	2.3	0.0	1.5	0.0	0.4	0.0	0.6	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.2	0.0	0.0	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	2.6	0.0	1.7	0.0	0.4	0.0	0.7	0.0
%ile Storage Ratio (RQ%)	0.35	0.00	0.20	0.00	0.06	0.00	0.27	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	180	0	0	0	132	0	235
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	1870
Q Serve Time (g_s), s	0.0	5.4	0.0	0.0	0.0	3.4	0.0	6.7
Cycle Q Clear Time (g_c), s	0.0	5.4	0.0	0.0	0.0	3.4	0.0	6.7
Lane Grp Cap (c), veh/h	0	363	0	0	0	499	0	421
V/C Ratio (X)	0.00	0.50	0.00	0.00	0.00	0.26	0.00	0.56
Avail Cap (c_a), veh/h	0	1053	0	0	0	1171	0	1030
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	21.1	0.0	0.0	0.0	16.7	0.0	20.6
Incr Delay (d2), s/veh	0.0	2.9	0.0	0.0	0.0	1.0	0.0	4.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	24.0	0.0	0.0	0.0	17.7	0.0	24.7
1st-Term Q (Q1), veh/ln	0.0	2.0	0.0	0.0	0.0	1.3	0.0	2.6
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.5

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.3	0.0	0.0	0.0	1.4	0.0	3.1
%ile Storage Ratio (RQ%)	0.00	0.11	0.00	0.00	0.00	0.08	0.00	0.04
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	177	0	161	0	136	0	160
Grp Sat Flow (s), veh/h/ln	0	1660	0	1821	0	1804	0	1585
Q Serve Time (g_s), s	0.0	5.7	0.0	4.8	0.0	3.5	0.0	4.4
Cycle Q Clear Time (g_c), s	0.0	5.7	0.0	4.8	0.0	3.5	0.0	4.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1585.1
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6
Prop RT Outside Lane (P_R)	0.00	0.70	0.00	0.15	0.00	0.21	0.00	1.00
Lane Grp Cap (c), veh/h	0	339	0	301	0	507	0	558
V/C Ratio (X)	0.00	0.52	0.00	0.53	0.00	0.27	0.00	0.29
Avail Cap (c_a), veh/h	0	984	0	1015	0	1189	0	1074
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	21.2	0.0	22.9	0.0	16.8	0.0	14.0
Incr Delay (d2), s/veh	0.0	3.4	0.0	1.5	0.0	1.0	0.0	1.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	24.6	0.0	24.4	0.0	17.8	0.0	15.0
1st-Term Q (Q1), veh/ln	0.0	2.0	0.0	1.9	0.0	1.3	0.0	1.3
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.1	0.0	0.1	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.3	0.0	2.1	0.0	1.5	0.0	1.5
%ile Storage Ratio (RQ%)	0.00	0.11	0.00	0.17	0.00	0.08	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.

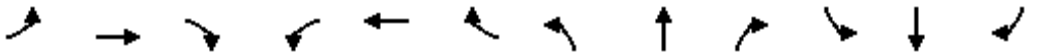
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	22	62	1	16	13	96	50	44	23	401	94	19
Future Volume (vph)	22	62	1	16	13	96	50	44	23	401	94	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		0.99		0.85			1.00	0.85	1.00	0.97		
Flt Protected		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (prot)		1831		1583			1802	1583	1770	3433		
Flt Permitted		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (perm)		1831		1583			1802	1583	1770	3433		
Peak-hour factor, PHF	0.79	0.74	0.25	0.67	0.54	0.73	0.66	0.73	0.72	0.83	0.78	0.43
Adj. Flow (vph)	28	84	4	24	24	132	76	60	32	483	121	44
RTOR Reduction (vph)	0	0	0	20	0	0	0	47	0	0	0	0
Lane Group Flow (vph)	0	116	0	4	0	0	232	13	32	604	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		12.6		12.6			18.2	18.2	3.5	36.4		
Effective Green, g (s)		12.6		12.6			18.2	18.2	3.5	36.4		
Actuated g/C Ratio		0.15		0.15			0.22	0.22	0.04	0.43		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		274		237			390	342	73	1487		
v/s Ratio Prot		c0.06					c0.13		0.02	c0.18		
v/s Ratio Perm				0.00				0.01				
v/c Ratio		0.42		0.02			0.59	0.04	0.44	0.41		
Uniform Delay, d1		32.4		30.4			29.6	26.0	39.3	16.4		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		1.4		0.0			2.8	0.1	1.5	0.5		
Delay (s)		33.8		30.4			32.4	26.0	40.8	16.9		
Level of Service		C		C			C	C	D	B		
Approach Delay (s)		33.3					31.1			18.1		
Approach LOS		C					C			B		

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	26	257	16	35
Future Volume (vph)	26	257	16	35
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3499		1611
Flt Permitted	0.42	1.00		1.00
Satd. Flow (perm)	789	3499		1611
Peak-hour factor, PHF	0.65	0.75	0.57	0.73
Adj. Flow (vph)	40	343	28	48
RTOR Reduction (vph)	0	4	0	48
Lane Group Flow (vph)	84	367	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	28.2	28.2		0.0
Effective Green, g (s)	28.2	28.2		0.0
Actuated g/C Ratio	0.34	0.34		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	264	1174		0
v/s Ratio Prot		0.10		
v/s Ratio Perm	0.11			
v/c Ratio	0.32	0.31		0.00
Uniform Delay, d1	20.8	20.7		42.0
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	2.0	0.4		0.0
Delay (s)	22.7	21.1		42.0
Level of Service	C	C		D
Approach Delay (s)		21.4		
Approach LOS		C		

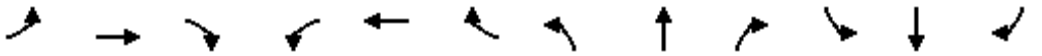
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	51	219	127	58	16	217	455	134	6	346	10
Future Volume (vph)	1	51	219	127	58	16	217	455	134	6	346	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.99		1.00	0.96		1.00	0.99	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1858	1583		1779		1770	3409		1770	3521	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1858	1583		1779		1770	3409		1770	3521	
Peak-hour factor, PHF	0.25	0.71	0.86	0.71	0.85	0.57	0.84	0.97	0.88	0.50	0.76	0.63
Adj. Flow (vph)	4	72	255	179	68	28	258	469	152	12	455	16
RTOR Reduction (vph)	0	0	228	0	3	0	0	21	0	0	2	0
Lane Group Flow (vph)	0	76	27	0	272	0	258	600	0	12	469	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		9.6	9.6		18.2		17.0	39.6		1.6	24.2	
Effective Green, g (s)		9.6	9.6		18.2		17.0	39.6		1.6	24.2	
Actuated g/C Ratio		0.11	0.11		0.20		0.19	0.44		0.02	0.27	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		199	169		361		336	1508		31	952	
v/s Ratio Prot		c0.04			c0.15		c0.15	0.18		0.01	c0.13	
v/s Ratio Perm			0.02									
v/c Ratio		0.38	0.16		0.75		0.77	0.40		0.39	0.49	
Uniform Delay, d1		37.2	36.3		33.5		34.4	16.9		43.5	27.5	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.2	0.5		8.6		9.1	0.5		2.9	1.8	
Delay (s)		38.4	36.7		42.1		43.5	17.4		46.4	29.3	
Level of Service		D	D		D		D	B		D	C	
Approach Delay (s)		37.1			42.1			25.0			29.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	20.5
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

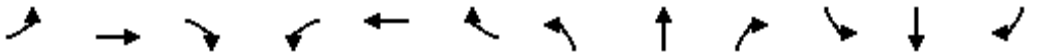
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	62	18	25	45	156	29	562	30	202	426	101
Future Volume (vph)	79	62	18	25	45	156	29	562	30	202	426	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1653		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1653		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.65	0.64	0.78	0.80	0.93	0.73	0.84	0.58	0.97	0.89	0.84
Adj. Flow (vph)	120	95	28	32	56	168	40	669	52	208	479	120
RTOR Reduction (vph)	0	0	24	0	85	0	0	0	27	0	0	61
Lane Group Flow (vph)	120	95	4	32	139	0	40	669	25	208	479	59
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	13.0	13.0	13.0	14.0	14.0		7.1	29.9	43.9	8.1	30.9	43.9
Effective Green, g (s)	13.0	13.0	13.0	14.0	14.0		7.1	29.9	43.9	8.1	30.9	43.9
Actuated g/C Ratio	0.15	0.15	0.15	0.16	0.16		0.08	0.33	0.49	0.09	0.34	0.49
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	256	513	229	536	258		272	1180	775	310	1220	775
v/s Ratio Prot	c0.07	0.03		0.01	c0.08		0.01	c0.19	0.01	c0.06	0.14	0.01
v/s Ratio Perm			0.00						0.01			0.03
v/c Ratio	0.47	0.19	0.02	0.06	0.54		0.15	0.57	0.03	0.67	0.39	0.08
Uniform Delay, d1	35.1	33.6	32.8	32.2	34.8		38.4	24.5	11.8	39.5	22.2	12.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.2	0.0	0.0	2.2		1.1	1.6	0.0	11.0	0.7	0.0
Delay (s)	36.5	33.8	32.9	32.2	37.0		39.6	26.1	11.9	50.5	23.0	12.1
Level of Service	D	C	C	C	D		D	C	B	D	C	B
Approach Delay (s)		35.0			36.4			25.8			28.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	89.6	Sum of lost time (s)	24.6
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

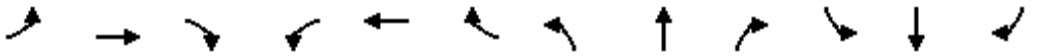
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	59	143	85	52	15	102	490	119	28	378	47
Future Volume (vph)	68	59	143	85	52	15	102	490	119	28	378	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	0.97	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1819	1583		1803	2787	1770	3539	1583	3433	3484	
Flt Permitted		0.98	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1819	1583		1803	2787	1770	3539	1583	3433	3484	
Peak-hour factor, PHF	0.77	0.62	0.81	0.76	0.93	0.94	0.94	0.82	0.85	0.78	0.79	0.84
Adj. Flow (vph)	88	95	177	112	56	16	109	598	140	36	478	56
RTOR Reduction (vph)	0	0	124	0	0	11	0	0	95	0	6	0
Lane Group Flow (vph)	0	183	53	0	168	5	109	598	45	36	528	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		14.9	25.1		14.6	24.6	10.2	27.1	27.1	4.3	21.2	
Effective Green, g (s)		14.9	25.1		14.6	24.6	10.2	27.1	27.1	4.3	21.2	
Actuated g/C Ratio		0.18	0.30		0.17	0.29	0.12	0.32	0.32	0.05	0.25	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		320	470		311	811	213	1134	507	174	874	
v/s Ratio Prot		c0.10	0.01		c0.09	0.00	c0.06	0.17		0.01	c0.15	
v/s Ratio Perm			0.02						0.03			
v/c Ratio		0.57	0.11		0.54	0.01	0.51	0.53	0.09	0.21	0.60	
Uniform Delay, d1		31.9	21.6		31.9	21.3	34.8	23.5	20.1	38.5	27.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.5	0.0		1.9	0.0	0.9	0.4	0.1	0.2	1.2	
Delay (s)		34.3	21.6		33.8	21.3	35.7	23.9	20.1	38.7	29.1	
Level of Service		C	C		C	C	D	C	C	D	C	
Approach Delay (s)		28.1			32.7			24.8			29.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	23.6
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	21	14	40	29	28	10	580	17	49	525	31
Future Volume (vph)	35	21	14	40	29	28	10	580	17	49	525	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.97			0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1770			1754		1770	3539	1583	1770	3539	1583
Flt Permitted		0.64			0.81		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1167			1446		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.73	0.66	0.70	0.67	0.81	0.78	0.50	0.80	0.71	0.94	0.92	0.65
Adj. Flow (vph)	48	32	20	60	36	36	20	725	24	52	571	48
RTOR Reduction (vph)	0	7	0	0	14	0	0	0	16	0	0	31
Lane Group Flow (vph)	0	93	0	0	118	0	20	725	8	52	571	17
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		12.7			13.5		2.9	30.4	30.4	6.0	33.5	33.5
Effective Green, g (s)		12.7			13.5		2.9	30.4	30.4	6.0	33.5	33.5
Actuated g/C Ratio		0.14			0.14		0.03	0.32	0.32	0.06	0.36	0.36
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		158			208		54	1148	513	113	1265	565
v/s Ratio Prot							0.01	c0.20		c0.03	c0.16	
v/s Ratio Perm		c0.08			c0.08				0.00			0.01
v/c Ratio		0.59			0.57		0.37	0.63	0.02	0.46	0.45	0.03
Uniform Delay, d1		38.0			37.4		44.5	26.9	21.5	42.3	23.1	19.6
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		5.5			3.5		1.6	1.9	0.0	1.1	0.7	0.1
Delay (s)		43.6			40.9		46.1	28.8	21.5	43.4	23.8	19.6
Level of Service		D			D		D	C	C	D	C	B
Approach Delay (s)		43.6			40.9			29.0			25.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	93.7	Sum of lost time (s)	31.1
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

This page intentionally left blank

Michael Baker
INTERNATIONAL

Appendix D: Opening Year 2028 Without Project HCM Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	196	76	161	205	33	77	169	283	45	207	18
Future Volume (veh/h)	15	196	76	161	205	33	77	169	283	45	207	18
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	236	119	256	297	55	89	219	388	92	323	34
Peak Hour Factor	0.50	0.83	0.64	0.63	0.69	0.60	0.87	0.77	0.73	0.49	0.64	0.53
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	88	419	204	264	839	153	159	542	694	160	462	49
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
Prop Arrive On Green	0.05	0.18	0.18	0.15	0.28	0.28	0.09	0.29	0.29	0.09	0.28	0.28
Unsig. Movement Delay												
Ln Grp Delay, s/veh	35.9	32.6	33.5	78.9	23.5	23.6	36.4	23.5	18.5	36.5	0.0	26.4
Ln Grp LOS	D	C	C	E	C	C	D	C	B	D	A	C
Approach Vol, veh/h		385			608			696			449	
Approach Delay, s/veh		33.2			46.9			22.4			28.5	
Approach LOS		C			D			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Case No	2.0	4.0	2.0	4.0	2.0	4.0	2.0	3.0
Phs Duration (G+Y+Rc), s	16.0	20.2	12.5	27.6	8.5	27.7	11.6	28.5
Change Period (Y+Rc), s	* 4.7	6.4	* 5.7	* 6.4	* 4.7	* 6.4	* 4.7	6.4
Max Green (Gmax), s	* 11	35.5	* 8.3	* 33	* 8	* 40	* 8	33.0
Max Allow Headway (MAH), s	2.8	7.6	3.7	5.3	2.7	8.3	3.8	7.3
Max Q Clear (g_c+I1), s	12.9	9.4	5.7	15.3	3.2	8.1	5.8	15.9
Green Ext Time (g_e), s	0.0	4.4	0.0	2.0	0.0	5.5	0.0	6.2
Prob of Phs Call (p_c)	1.00	1.00	0.85	1.00	0.47	1.00	0.86	1.00
Prob of Max Out (p_x)	1.00	0.04	1.00	0.01	0.01	0.03	1.00	0.36

Left-Turn Movement Data								
Assigned Mvmt	1		3		5		7	
Mvmt Sat Flow, veh/h	1781		1781		1781		1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		2316		1664		3000		1870

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1128		175		548		1585

Left Lane Group Data								
Assigned Mvmt	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	256	0	89	0	30	0	92	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	10.9	0.0	3.7	0.0	1.2	0.0	3.8	0.0
Cycle Q Clear Time (g_c), s	10.9	0.0	3.7	0.0	1.2	0.0	3.8	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	264	0	159	0	88	0	160	0
V/C Ratio (X)	0.97	0.00	0.56	0.00	0.34	0.00	0.57	0.00
Avail Cap (c_a), veh/h	264	0	194	0	187	0	187	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	32.3	0.0	33.3	0.0	35.0	0.0	33.3	0.0
Incr Delay (d2), s/veh	46.6	0.0	3.1	0.0	0.8	0.0	3.2	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	78.9	0.0	36.4	0.0	35.9	0.0	36.5	0.0
1st-Term Q (Q1), veh/ln	4.5	0.0	1.5	0.0	0.5	0.0	1.6	0.0
2nd-Term Q (Q2), veh/ln	3.4	0.0	0.1	0.0	0.0	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	7.9	0.0	1.6	0.0	0.5	0.0	1.7	0.0
%ile Storage Ratio (RQ%)	1.09	0.00	0.19	0.00	0.08	0.00	0.68	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	179	0	0	0	174	0	219
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	1870
Q Serve Time (g_s), s	0.0	7.0	0.0	0.0	0.0	6.0	0.0	7.2
Cycle Q Clear Time (g_c), s	0.0	7.0	0.0	0.0	0.0	6.0	0.0	7.2
Lane Grp Cap (c), veh/h	0	321	0	0	0	497	0	542
V/C Ratio (X)	0.00	0.56	0.00	0.00	0.00	0.35	0.00	0.40
Avail Cap (c_a), veh/h	0	827	0	0	0	920	0	809
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	28.5	0.0	0.0	0.0	21.9	0.0	21.8
Incr Delay (d2), s/veh	0.0	4.1	0.0	0.0	0.0	1.5	0.0	1.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.6	0.0	0.0	0.0	23.5	0.0	23.5
1st-Term Q (Q1), veh/ln	0.0	2.8	0.0	0.0	0.0	2.4	0.0	2.9
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	0.2	0.0	0.3

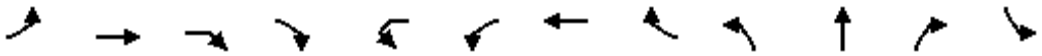
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	3.2	0.0	0.0	0.0	2.6	0.0	3.2
%ile Storage Ratio (RQ%)	0.00	0.16	0.00	0.00	0.00	0.14	0.00	0.04
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	176	0	357	0	178	0	388
Grp Sat Flow (s), veh/h/ln	0	1667	0	1839	0	1772	0	1585
Q Serve Time (g_s), s	0.0	7.4	0.0	13.3	0.0	6.1	0.0	13.9
Cycle Q Clear Time (g_c), s	0.0	7.4	0.0	13.3	0.0	6.1	0.0	13.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1585.1
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3
Prop RT Outside Lane (P_R)	0.00	0.68	0.00	0.10	0.00	0.31	0.00	1.00
Lane Grp Cap (c), veh/h	0	301	0	511	0	495	0	694
V/C Ratio (X)	0.00	0.58	0.00	0.70	0.00	0.36	0.00	0.56
Avail Cap (c_a), veh/h	0	776	0	805	0	918	0	921
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	28.6	0.0	24.7	0.0	22.0	0.0	15.9
Incr Delay (d2), s/veh	0.0	4.9	0.0	1.7	0.0	1.6	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
Control Delay (d), s/veh	0.0	33.5	0.0	26.4	0.0	23.6	0.0	18.5
1st-Term Q (Q1), veh/ln	0.0	2.7	0.0	5.5	0.0	2.4	0.0	4.4
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.2	0.0	0.2	0.0	0.5
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	3.2	0.0	5.7	0.0	2.7	0.0	4.9
%ile Storage Ratio (RQ%)	0.00	0.16	0.00	0.46	0.00	0.15	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	28	78	2	25	12	95	26	64	19	484	69	55
Future Volume (vph)	28	78	2	25	12	95	26	64	19	484	69	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (prot)		1832		1583			1793	1583	1770	3478		
Flt Permitted		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (perm)		1832		1583			1793	1583	1770	3478		
Peak-hour factor, PHF	0.62	0.64	0.50	0.67	0.46	0.80	0.62	0.58	0.56	0.68	0.74	0.72
Adj. Flow (vph)	45	122	4	37	26	119	42	110	34	712	93	76
RTOR Reduction (vph)	0	0	0	31	0	0	0	79	0	0	0	0
Lane Group Flow (vph)	0	171	0	6	0	0	187	31	34	805	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		15.4		15.4			16.5	16.5	3.8	46.8		
Effective Green, g (s)		15.4		15.4			16.5	16.5	3.8	46.8		
Actuated g/C Ratio		0.16		0.16			0.17	0.17	0.04	0.49		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		295		255			309	273	70	1704		
v/s Ratio Prot		c0.09					c0.10		0.02	c0.23		
v/s Ratio Perm				0.00				0.02				
v/c Ratio		0.58		0.02			0.61	0.11	0.49	0.47		
Uniform Delay, d1		37.1		33.7			36.5	33.3	44.9	16.2		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		3.3		0.1			3.8	0.2	1.9	0.6		
Delay (s)		40.3		33.8			40.3	33.6	46.8	16.7		
Level of Service		D		C			D	C	D	B		
Approach Delay (s)		39.2					37.8			18.0		
Approach LOS		D					D			B		

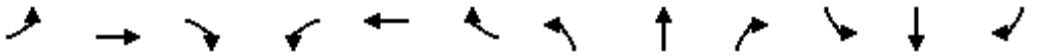
Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	21.5
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	29	357	21	105
Future Volume (vph)	29	357	21	105
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3503		1611
Flt Permitted	0.34	1.00		1.00
Satd. Flow (perm)	629	3503		1611
Peak-hour factor, PHF	0.75	0.72	0.58	0.75
Adj. Flow (vph)	39	496	36	140
RTOR Reduction (vph)	0	3	0	140
Lane Group Flow (vph)	115	529	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	38.3	38.3		0.0
Effective Green, g (s)	38.3	38.3		0.0
Actuated g/C Ratio	0.40	0.40		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	252	1404		0
v/s Ratio Prot		0.15		
v/s Ratio Perm	0.18			
v/c Ratio	0.46	0.38		0.00
Uniform Delay, d1	21.0	20.2		47.8
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	3.7	0.5		0.0
Delay (s)	24.6	20.7		47.8
Level of Service	C	C		D
Approach Delay (s)		21.4		
Approach LOS		C		

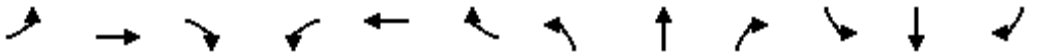
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	56	252	209	45	37	145	452	115	18	432	9
Future Volume (vph)	3	56	252	209	45	37	145	452	115	18	432	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.98		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1857	1583		1762		1770	3435		1770	3527	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1857	1583		1762		1770	3435		1770	3527	
Peak-hour factor, PHF	0.50	0.66	0.94	0.87	0.67	0.57	0.88	0.75	0.78	0.50	0.75	0.67
Adj. Flow (vph)	6	85	268	240	67	65	165	603	147	36	576	13
RTOR Reduction (vph)	0	0	239	0	6	0	0	16	0	0	1	0
Lane Group Flow (vph)	0	91	29	0	366	0	165	734	0	36	588	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.2	10.2		24.2		11.9	34.4		5.2	27.7	
Effective Green, g (s)		10.2	10.2		24.2		11.9	34.4		5.2	27.7	
Actuated g/C Ratio		0.11	0.11		0.26		0.13	0.36		0.06	0.29	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		200	170		451		222	1250		97	1033	
v/s Ratio Prot		c0.05			c0.21		c0.09	c0.21		0.02	0.17	
v/s Ratio Perm			0.02									
v/c Ratio		0.46	0.17		0.81		0.74	0.59		0.37	0.57	
Uniform Delay, d1		39.5	38.3		33.0		39.8	24.3		43.1	28.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.5		10.6		11.1	1.4		0.9	2.3	
Delay (s)		41.2	38.8		43.6		51.0	25.7		43.9	30.6	
Level of Service		D	D		D		D	C		D	C	
Approach Delay (s)		39.4			43.6			30.2			31.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	20.5
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

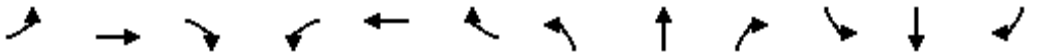
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	57	10	15	43	123	22	518	31	227	492	155
Future Volume (vph)	111	57	10	15	43	123	22	518	31	227	492	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.79	0.75	0.70	0.57	0.85	0.58	0.75	0.60	0.76	0.92	0.80
Adj. Flow (vph)	168	72	13	21	75	145	38	691	52	299	535	194
RTOR Reduction (vph)	0	0	11	0	54	0	0	0	27	0	0	96
Lane Group Flow (vph)	168	72	2	21	166	0	38	691	25	299	535	98
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	15.7	15.7	15.7	15.5	15.5		7.1	31.0	46.5	8.2	32.1	47.8
Effective Green, g (s)	15.7	15.7	15.7	15.5	15.5		7.1	31.0	46.5	8.2	32.1	47.8
Actuated g/C Ratio	0.17	0.17	0.17	0.16	0.16		0.07	0.33	0.49	0.09	0.34	0.50
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	292	584	261	560	273		256	1154	774	296	1195	796
v/s Ratio Prot	c0.09	0.02		0.01	c0.10		0.01	c0.20	0.01	c0.09	0.15	0.02
v/s Ratio Perm			0.00						0.01			0.04
v/c Ratio	0.58	0.12	0.01	0.04	0.61		0.15	0.60	0.03	1.01	0.45	0.12
Uniform Delay, d1	36.6	33.8	33.1	33.5	36.9		41.1	26.8	12.6	43.4	24.5	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	0.1	0.0	0.0	3.8		1.2	1.8	0.0	54.9	0.9	0.1
Delay (s)	39.3	33.9	33.2	33.5	40.7		42.3	28.6	12.6	98.3	25.5	12.6
Level of Service	D	C	C	C	D		D	C	B	F	C	B
Approach Delay (s)		37.4			40.1			28.2			44.2	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	24.6
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

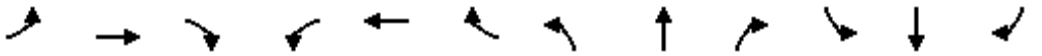
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	57	133	104	74	16	134	435	67	17	425	62
Future Volume (vph)	114	57	133	104	74	16	134	435	67	17	425	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	0.97	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1806	1583		1812	2787	1770	3539	1583	3433	3450	
Flt Permitted		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1806	1583		1812	2787	1770	3539	1583	3433	3450	
Peak-hour factor, PHF	0.71	0.61	0.90	0.79	0.70	0.62	0.79	0.88	0.98	0.67	0.84	0.61
Adj. Flow (vph)	161	93	148	132	106	26	170	494	68	25	506	102
RTOR Reduction (vph)	0	0	99	0	0	19	0	0	45	0	12	0
Lane Group Flow (vph)	0	254	49	0	238	7	170	494	23	25	596	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		20.2	34.2		19.0	29.2	14.0	35.0	35.0	4.5	25.5	
Effective Green, g (s)		20.2	34.2		19.0	29.2	14.0	35.0	35.0	4.5	25.5	
Actuated g/C Ratio		0.20	0.33		0.19	0.29	0.14	0.34	0.34	0.04	0.25	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		356	529		336	795	242	1210	541	151	859	
v/s Ratio Prot		c0.14	0.01		c0.13	0.00	c0.10	0.14		0.01	c0.17	
v/s Ratio Perm			0.02						0.01			
v/c Ratio		0.71	0.09		0.71	0.01	0.70	0.41	0.04	0.17	0.69	
Uniform Delay, d1		38.3	23.4		39.1	26.2	42.2	25.7	22.5	47.1	34.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.6	0.0		6.7	0.0	7.3	0.2	0.0	0.2	2.4	
Delay (s)		45.0	23.4		45.7	26.2	49.5	26.0	22.5	47.3	37.3	
Level of Service		D	C		D	C	D	C	C	D	D	
Approach Delay (s)		37.0			43.8			31.1			37.7	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	102.3	Sum of lost time (s)	23.6
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

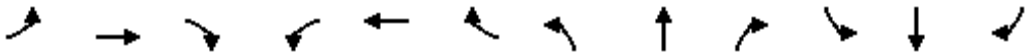
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	35	4	33	19	36	20	468	45	31	504	36
Future Volume (vph)	41	35	4	33	19	36	20	468	45	31	504	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.99			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1798			1728		1770	3539	1583	1770	3539	1583
Flt Permitted		0.60			0.80		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1114			1417		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.65	0.75	0.50	0.52	0.75	0.65	0.59	0.88	0.67	0.56	0.95	0.57
Adj. Flow (vph)	63	47	8	63	25	55	34	532	67	55	531	63
RTOR Reduction (vph)	0	2	0	0	23	0	0	0	49	0	0	45
Lane Group Flow (vph)	0	116	0	0	120	0	34	532	18	55	531	18
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		14.0			13.7		4.4	24.5	24.5	6.0	26.1	26.1
Effective Green, g (s)		14.0			13.7		4.4	24.5	24.5	6.0	26.1	26.1
Actuated g/C Ratio		0.16			0.15		0.05	0.27	0.27	0.07	0.29	0.29
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		174			217		87	970	434	118	1034	462
v/s Ratio Prot							0.02	c0.15		c0.03	0.15	
v/s Ratio Perm		c0.10			c0.08				0.01			0.01
v/c Ratio		0.67			0.55		0.39	0.55	0.04	0.47	0.51	0.04
Uniform Delay, d1		35.5			35.0		41.2	27.7	23.8	40.1	26.3	22.6
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		9.3			3.0		1.1	1.4	0.1	1.1	1.1	0.1
Delay (s)		44.8			38.0		42.2	29.1	23.9	41.2	27.5	22.7
Level of Service		D			D		D	C	C	D	C	C
Approach Delay (s)		44.8			38.0			29.3			28.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	89.3	Sum of lost time (s)	31.1
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	233	87	134	232	27	115	197	169	32	118	19
Future Volume (veh/h)	22	233	87	134	232	27	115	197	169	32	118	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	256	132	216	264	29	131	249	188	51	144	25
Peak Hour Factor	0.75	0.91	0.66	0.62	0.88	0.93	0.88	0.79	0.90	0.63	0.82	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	89	480	240	261	987	107	198	430	596	132	275	48
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
Prop Arrive On Green	0.05	0.21	0.21	0.15	0.31	0.31	0.11	0.23	0.23	0.07	0.18	0.18
Unsig. Movement Delay												
Ln Grp Delay, s/veh	30.7	26.1	26.7	39.8	18.1	18.1	33.6	26.7	15.5	30.6	0.0	25.6
Ln Grp LOS	C	C	C	D	B	B	C	C	B	C	A	C
Approach Vol, veh/h		417			509			568			220	
Approach Delay, s/veh		26.7			27.3			24.6			26.8	
Approach LOS		C			C			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Case No	2.0	4.0	2.0	4.0	2.0	4.0	2.0	3.0
Phs Duration (G+Y+Rc), s	14.2	20.0	13.0	18.0	8.0	26.3	9.5	21.4
Change Period (Y+Rc), s	* 4.7	6.4	* 5.7	* 6.4	* 4.7	* 6.4	* 4.7	6.4
Max Green (Gmax), s	* 11	35.5	* 8.3	* 33	* 8	* 40	* 8	33.0
Max Allow Headway (MAH), s	2.8	7.6	3.7	5.3	2.7	8.3	3.8	7.6
Max Q Clear (g_c+I1), s	9.7	8.7	6.6	7.5	3.0	6.1	3.8	9.7
Green Ext Time (g_e), s	0.1	4.9	0.0	0.9	0.0	4.5	0.0	5.3
Prob of Phs Call (p_c)	0.98	1.00	0.91	1.00	0.41	1.00	0.60	1.00
Prob of Max Out (p_x)	1.00	0.04	1.00	0.00	0.01	0.01	0.58	0.10

Left-Turn Movement Data								
Assigned Mvmt	1		3		5		7	
Mvmt Sat Flow, veh/h	1781		1781		1781		1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		2294		1552		3232		1870

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1146		270		352		1585

Left Lane Group Data								
Assigned Mvmt	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	216	0	131	0	29	0	51	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	7.7	0.0	4.6	0.0	1.0	0.0	1.8	0.0
Cycle Q Clear Time (g_c), s	7.7	0.0	4.6	0.0	1.0	0.0	1.8	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	261	0	198	0	89	0	132	0
V/C Ratio (X)	0.83	0.00	0.66	0.00	0.32	0.00	0.39	0.00
Avail Cap (c_a), veh/h	309	0	227	0	219	0	219	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	27.0	0.0	27.8	0.0	29.9	0.0	28.8	0.0
Incr Delay (d2), s/veh	12.8	0.0	5.8	0.0	0.8	0.0	1.9	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	39.8	0.0	33.6	0.0	30.7	0.0	30.6	0.0
1st-Term Q (Q1), veh/ln	3.1	0.0	1.8	0.0	0.4	0.0	0.7	0.0
2nd-Term Q (Q2), veh/ln	0.9	0.0	0.3	0.0	0.0	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	4.0	0.0	2.1	0.0	0.4	0.0	0.8	0.0
%ile Storage Ratio (RQ%)	0.55	0.00	0.25	0.00	0.06	0.00	0.31	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	196	0	0	0	144	0	249
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	1870
Q Serve Time (g_s), s	0.0	6.4	0.0	0.0	0.0	4.0	0.0	7.7
Cycle Q Clear Time (g_c), s	0.0	6.4	0.0	0.0	0.0	4.0	0.0	7.7
Lane Grp Cap (c), veh/h	0	372	0	0	0	543	0	430
V/C Ratio (X)	0.00	0.53	0.00	0.00	0.00	0.27	0.00	0.58
Avail Cap (c_a), veh/h	0	968	0	0	0	1077	0	947
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	22.9	0.0	0.0	0.0	17.1	0.0	22.3
Incr Delay (d2), s/veh	0.0	3.2	0.0	0.0	0.0	0.9	0.0	4.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	26.1	0.0	0.0	0.0	18.1	0.0	26.7
1st-Term Q (Q1), veh/ln	0.0	2.4	0.0	0.0	0.0	1.5	0.0	3.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.5

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.8	0.0	0.0	0.0	1.7	0.0	3.6
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.00	0.00	0.09	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	192	0	169	0	149	0	188
Grp Sat Flow (s), veh/h/ln	0	1664	0	1822	0	1807	0	1585
Q Serve Time (g_s), s	0.0	6.7	0.0	5.5	0.0	4.1	0.0	5.5
Cycle Q Clear Time (g_c), s	0.0	6.7	0.0	5.5	0.0	4.1	0.0	5.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1585.1
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Prop RT Outside Lane (P_R)	0.00	0.69	0.00	0.15	0.00	0.19	0.00	1.00
Lane Grp Cap (c), veh/h	0	348	0	323	0	552	0	596
V/C Ratio (X)	0.00	0.55	0.00	0.52	0.00	0.27	0.00	0.32
Avail Cap (c_a), veh/h	0	906	0	933	0	1095	0	1034
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	23.0	0.0	24.3	0.0	17.1	0.0	14.4
Incr Delay (d2), s/veh	0.0	3.7	0.0	1.3	0.0	0.9	0.0	1.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	26.7	0.0	25.6	0.0	18.1	0.0	15.5
1st-Term Q (Q1), veh/ln	0.0	2.4	0.0	2.2	0.0	1.6	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.1	0.0	0.1	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.7	0.0	2.4	0.0	1.7	0.0	1.9
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.19	0.00	0.10	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	26.2
HCM 6th LOS	C

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	30	66	1	17	14	101	53	50	24	432	99	23
Future Volume (vph)	30	66	1	17	14	101	53	50	24	432	99	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.97		
Flt Protected		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (prot)		1828		1583			1802	1583	1770	3435		
Flt Permitted		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (perm)		1828		1583			1802	1583	1770	3435		
Peak-hour factor, PHF	0.79	0.74	0.25	0.67	0.54	0.73	0.66	0.73	0.72	0.83	0.78	0.43
Adj. Flow (vph)	38	89	4	25	26	138	80	68	33	520	127	53
RTOR Reduction (vph)	0	0	0	21	0	0	0	54	0	0	0	0
Lane Group Flow (vph)	0	131	0	4	0	0	244	14	33	647	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		13.6		13.6			19.7	19.7	3.7	45.5		
Effective Green, g (s)		13.6		13.6			19.7	19.7	3.7	45.5		
Actuated g/C Ratio		0.14		0.14			0.21	0.21	0.04	0.48		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		260		225			371	326	68	1634		
v/s Ratio Prot		c0.07					c0.14		0.02	c0.19		
v/s Ratio Perm				0.00				0.01				
v/c Ratio		0.50		0.02			0.66	0.04	0.49	0.40		
Uniform Delay, d1		37.9		35.2			34.9	30.4	45.0	16.2		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		2.1		0.0			4.6	0.1	2.0	0.4		
Delay (s)		40.0		35.3			39.5	30.5	47.0	16.6		
Level of Service		D		D			D	C	D	B		
Approach Delay (s)		39.2					37.5			18.1		
Approach LOS		D					D			B		

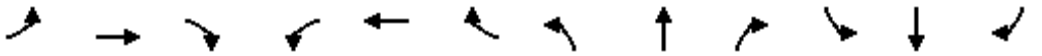
Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	95.6	Sum of lost time (s)	21.5
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	27	280	24	37
Future Volume (vph)	27	280	24	37
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.98		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3485		1611
Flt Permitted	0.41	1.00		1.00
Satd. Flow (perm)	756	3485		1611
Peak-hour factor, PHF	0.65	0.75	0.57	0.73
Adj. Flow (vph)	42	373	42	51
RTOR Reduction (vph)	0	5	0	51
Lane Group Flow (vph)	95	410	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	37.1	37.1		0.0
Effective Green, g (s)	37.1	37.1		0.0
Actuated g/C Ratio	0.39	0.39		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	293	1352		0
v/s Ratio Prot		0.12		
v/s Ratio Perm	0.13			
v/c Ratio	0.32	0.30		0.00
Uniform Delay, d1	20.5	20.3		47.8
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	1.8	0.4		0.0
Delay (s)	22.3	20.6		47.8
Level of Service	C	C		D
Approach Delay (s)		21.0		
Approach LOS		C		

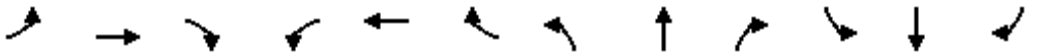
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	54	232	134	61	20	229	485	142	9	370	12
Future Volume (vph)	2	54	232	134	61	20	229	485	142	9	370	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.98		1.00	0.96		1.00	0.99	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1854	1583		1776		1770	3410		1770	3519	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1854	1583		1776		1770	3410		1770	3519	
Peak-hour factor, PHF	0.25	0.71	0.86	0.71	0.85	0.57	0.84	0.97	0.88	0.50	0.76	0.63
Adj. Flow (vph)	8	76	270	189	72	35	273	500	161	18	487	19
RTOR Reduction (vph)	0	0	241	0	4	0	0	22	0	0	2	0
Lane Group Flow (vph)	0	84	29	0	292	0	273	639	0	18	504	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.0	10.0		19.5		18.1	38.9		3.3	24.1	
Effective Green, g (s)		10.0	10.0		19.5		18.1	38.9		3.3	24.1	
Actuated g/C Ratio		0.11	0.11		0.21		0.20	0.42		0.04	0.26	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		201	171		375		347	1438		63	919	
v/s Ratio Prot		c0.05			c0.16		c0.15	0.19		0.01	c0.14	
v/s Ratio Perm			0.02									
v/c Ratio		0.42	0.17		0.78		0.79	0.44		0.29	0.55	
Uniform Delay, d1		38.4	37.3		34.3		35.2	19.0		43.3	29.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.4	0.5		9.8		10.4	0.6		0.9	2.3	
Delay (s)		39.8	37.8		44.1		45.6	19.6		44.2	31.7	
Level of Service		D	D		D		D	B		D	C	
Approach Delay (s)		38.3			44.1			27.2			32.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	20.5
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

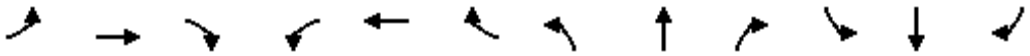
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	66	19	26	48	165	31	594	32	214	450	107
Future Volume (vph)	84	66	19	26	48	165	31	594	32	214	450	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.65	0.64	0.78	0.80	0.93	0.73	0.84	0.58	0.97	0.89	0.84
Adj. Flow (vph)	127	102	30	33	60	177	42	707	55	221	506	127
RTOR Reduction (vph)	0	0	26	0	83	0	0	0	27	0	0	64
Lane Group Flow (vph)	127	102	4	33	154	0	42	707	28	221	506	63
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	13.3	13.3	13.3	14.8	14.8		7.1	31.3	46.1	8.1	32.3	45.6
Effective Green, g (s)	13.3	13.3	13.3	14.8	14.8		7.1	31.3	46.1	8.1	32.3	45.6
Actuated g/C Ratio	0.14	0.14	0.14	0.16	0.16		0.08	0.34	0.50	0.09	0.35	0.50
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	255	511	228	551	265		264	1202	792	301	1241	783
v/s Ratio Prot	c0.07	0.03		0.01	c0.09		0.01	c0.20	0.01	c0.06	0.14	0.01
v/s Ratio Perm			0.00						0.01			0.03
v/c Ratio	0.50	0.20	0.02	0.06	0.58		0.16	0.59	0.03	0.73	0.41	0.08
Uniform Delay, d1	36.3	34.7	33.8	32.8	35.8		39.7	25.1	11.7	41.0	22.7	12.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.2	0.0	0.0	3.2		1.3	1.7	0.0	14.7	0.8	0.0
Delay (s)	37.9	34.9	33.8	32.8	39.0		41.0	26.8	11.7	55.7	23.4	12.3
Level of Service	D	C	C	C	D		D	C	B	E	C	B
Approach Delay (s)		36.2			38.2			26.5			30.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	24.6
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

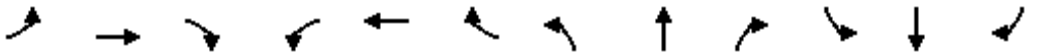
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	62	151	90	55	16	108	518	126	30	400	50
Future Volume (vph)	72	62	151	90	55	16	108	518	126	30	400	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	0.97	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1819	1583		1803	2787	1770	3539	1583	3433	3483	
Flt Permitted		0.98	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1819	1583		1803	2787	1770	3539	1583	3433	3483	
Peak-hour factor, PHF	0.77	0.62	0.81	0.76	0.93	0.94	0.94	0.82	0.85	0.78	0.79	0.84
Adj. Flow (vph)	94	100	186	118	59	17	115	632	148	38	506	60
RTOR Reduction (vph)	0	0	130	0	0	12	0	0	99	0	6	0
Lane Group Flow (vph)	0	194	56	0	177	5	115	632	49	38	560	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		15.6	26.2		15.3	25.3	10.6	28.9	28.9	4.3	22.6	
Effective Green, g (s)		15.6	26.2		15.3	25.3	10.6	28.9	28.9	4.3	22.6	
Actuated g/C Ratio		0.18	0.30		0.17	0.29	0.12	0.33	0.33	0.05	0.26	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		323	472		314	804	213	1166	521	168	897	
v/s Ratio Prot		c0.11	0.01		c0.10	0.00	c0.06	0.18		0.01	c0.16	
v/s Ratio Perm			0.02						0.03			
v/c Ratio		0.60	0.12		0.56	0.01	0.54	0.54	0.09	0.23	0.62	
Uniform Delay, d1		33.2	22.3		33.1	22.2	36.3	24.0	20.3	40.1	28.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.1	0.0		2.3	0.0	1.3	0.5	0.1	0.3	1.4	
Delay (s)		36.3	22.4		35.5	22.2	37.6	24.5	20.4	40.4	30.2	
Level of Service		D	C		D	C	D	C	C	D	C	
Approach Delay (s)		29.5			34.3			25.5			30.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	23.6
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	22	15	42	31	30	11	613	18	52	555	33
Future Volume (vph)	37	22	15	42	31	30	11	613	18	52	555	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.97			0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1769			1754		1770	3539	1583	1770	3539	1583
Flt Permitted		0.64			0.80		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1159			1442		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.73	0.66	0.70	0.67	0.81	0.78	0.50	0.80	0.71	0.94	0.92	0.65
Adj. Flow (vph)	51	33	21	63	38	38	22	766	25	55	603	51
RTOR Reduction (vph)	0	7	0	0	14	0	0	0	17	0	0	33
Lane Group Flow (vph)	0	98	0	0	125	0	22	766	8	55	603	18
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		12.9			14.0		2.9	31.3	31.3	6.0	34.4	34.4
Effective Green, g (s)		12.9			14.0		2.9	31.3	31.3	6.0	34.4	34.4
Actuated g/C Ratio		0.14			0.15		0.03	0.33	0.33	0.06	0.36	0.36
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		156			211		53	1162	519	111	1277	571
v/s Ratio Prot							0.01	c0.22		c0.03	c0.17	
v/s Ratio Perm		c0.08			c0.09				0.01			0.01
v/c Ratio		0.63			0.59		0.42	0.66	0.02	0.50	0.47	0.03
Uniform Delay, d1		38.9			38.0		45.4	27.4	21.6	43.2	23.5	19.7
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		7.7			4.4		1.9	2.2	0.0	1.3	0.8	0.1
Delay (s)		46.6			42.4		47.3	29.6	21.6	44.5	24.2	19.8
Level of Service		D			D		D	C	C	D	C	B
Approach Delay (s)		46.6			42.4			29.8			25.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	95.3	Sum of lost time (s)	31.1
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

This page intentionally left blank

Michael Baker
INTERNATIONAL

Appendix E:
Opening Year 2028
Plus Project
HCM Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	196	121	183	205	33	135	169	313	45	207	18
Future Volume (veh/h)	15	196	121	183	205	33	135	169	313	45	207	18
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	236	189	290	297	55	155	219	429	92	323	34
Peak Hour Factor	0.50	0.83	0.64	0.63	0.69	0.60	0.87	0.77	0.73	0.49	0.64	0.53
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	86	393	302	244	883	161	179	567	697	152	458	48
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
Prop Arrive On Green	0.05	0.21	0.21	0.14	0.29	0.29	0.10	0.30	0.30	0.09	0.28	0.28
Unsig. Movement Delay												
Ln Grp Delay, s/veh	38.9	33.9	35.2	153.5	24.1	24.2	69.3	24.2	20.9	41.1	0.0	28.7
Ln Grp LOS	D	C	D	F	C	C	E	C	C	D	A	C
Approach Vol, veh/h		455			642			803			449	
Approach Delay, s/veh		34.8			82.6			31.2			31.2	
Approach LOS		C			F			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Case No	2.0	4.0	2.0	4.0	2.0	4.0	2.0	3.0
Phs Duration (G+Y+Rc), s	16.0	23.3	14.0	29.1	8.7	30.7	11.7	31.4
Change Period (Y+Rc), s	* 4.7	6.4	* 5.7	* 6.4	* 4.7	* 6.4	* 4.7	6.4
Max Green (Gmax), s	* 11	35.5	* 8.3	* 33	* 8	* 40	* 8	33.0
Max Allow Headway (MAH), s	2.8	7.7	3.7	5.3	2.7	8.3	3.8	7.3
Max Q Clear (g_c+I1), s	13.3	11.7	9.1	16.4	3.3	8.5	6.1	19.1
Green Ext Time (g_e), s	0.0	5.3	0.0	2.0	0.0	5.5	0.0	5.8
Prob of Phs Call (p_c)	1.00	1.00	0.97	1.00	0.50	1.00	0.88	1.00
Prob of Max Out (p_x)	1.00	0.09	1.00	0.02	0.02	0.03	1.00	0.54

Left-Turn Movement Data								
Assigned Mvmt	1		3		5		7	
Mvmt Sat Flow, veh/h	1781		1781		1781		1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1914		1664		3000		1870

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1469		175		548		1585

Left Lane Group Data								
Assigned Mvmt	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	290	0	155	0	30	0	92	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	11.3	0.0	7.1	0.0	1.3	0.0	4.1	0.0
Cycle Q Clear Time (g_c), s	11.3	0.0	7.1	0.0	1.3	0.0	4.1	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	244	0	179	0	86	0	152	0
V/C Ratio (X)	1.19	0.00	0.86	0.00	0.35	0.00	0.61	0.00
Avail Cap (c_a), veh/h	244	0	179	0	173	0	173	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	35.6	0.0	36.5	0.0	38.0	0.0	36.4	0.0
Incr Delay (d2), s/veh	117.9	0.0	32.8	0.0	0.9	0.0	4.7	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	153.5	0.0	69.3	0.0	38.9	0.0	41.1	0.0
1st-Term Q (Q1), veh/ln	4.8	0.0	2.9	0.0	0.6	0.0	1.8	0.0
2nd-Term Q (Q2), veh/ln	8.0	0.0	1.6	0.0	0.0	0.0	0.2	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	12.8	0.0	4.6	0.0	0.6	0.0	2.0	0.0
%ile Storage Ratio (RQ%)	1.75	0.00	0.54	0.00	0.09	0.00	0.76	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	218	0	0	0	174	0	219
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	1870
Q Serve Time (g_s), s	0.0	9.2	0.0	0.0	0.0	6.3	0.0	7.6
Cycle Q Clear Time (g_c), s	0.0	9.2	0.0	0.0	0.0	6.3	0.0	7.6
Lane Grp Cap (c), veh/h	0	365	0	0	0	523	0	567
V/C Ratio (X)	0.00	0.60	0.00	0.00	0.00	0.33	0.00	0.39
Avail Cap (c_a), veh/h	0	765	0	0	0	851	0	749
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	29.7	0.0	0.0	0.0	22.8	0.0	22.7
Incr Delay (d2), s/veh	0.0	4.3	0.0	0.0	0.0	1.3	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
Control Delay (d), s/veh	0.0	33.9	0.0	0.0	0.0	24.1	0.0	24.2
1st-Term Q (Q1), veh/ln	0.0	3.7	0.0	0.0	0.0	2.6	0.0	3.1
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	0.2	0.0	0.2

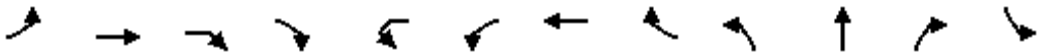
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	4.1	0.0	0.0	0.0	2.8	0.0	3.4
%ile Storage Ratio (RQ%)	0.00	0.21	0.00	0.00	0.00	0.15	0.00	0.04
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	207	0	357	0	178	0	429
Grp Sat Flow (s), veh/h/ln	0	1606	0	1839	0	1772	0	1585
Q Serve Time (g_s), s	0.0	9.7	0.0	14.4	0.0	6.5	0.0	17.1
Cycle Q Clear Time (g_c), s	0.0	9.7	0.0	14.4	0.0	6.5	0.0	17.1
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1585.1
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3
Prop RT Outside Lane (P_R)	0.00	0.91	0.00	0.10	0.00	0.31	0.00	1.00
Lane Grp Cap (c), veh/h	0	330	0	506	0	521	0	697
V/C Ratio (X)	0.00	0.63	0.00	0.70	0.00	0.34	0.00	0.62
Avail Cap (c_a), veh/h	0	692	0	745	0	849	0	852
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	29.9	0.0	26.9	0.0	22.8	0.0	17.7
Incr Delay (d2), s/veh	0.0	5.3	0.0	1.8	0.0	1.4	0.0	3.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	35.2	0.0	28.7	0.0	24.2	0.0	20.9
1st-Term Q (Q1), veh/ln	0.0	3.5	0.0	6.1	0.0	2.6	0.0	5.6
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.3	0.0	0.2	0.0	0.6
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	4.0	0.0	6.3	0.0	2.8	0.0	6.2
%ile Storage Ratio (RQ%)	0.00	0.20	0.00	0.51	0.00	0.16	0.00	0.08
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.9
HCM 6th LOS	D

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.



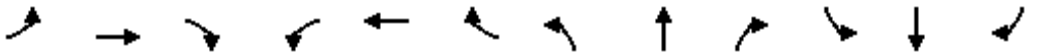
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	28	78	2	28	12	99	26	64	22	572	75	55
Future Volume (vph)	28	78	2	28	12	99	26	64	22	572	75	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (prot)		1832		1583			1793	1583	1770	3482		
Flt Permitted		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (perm)		1832		1583			1793	1583	1770	3482		
Peak-hour factor, PHF	0.62	0.64	0.50	0.67	0.46	0.80	0.62	0.58	0.56	0.68	0.74	0.72
Adj. Flow (vph)	45	122	4	42	26	124	42	110	39	841	101	76
RTOR Reduction (vph)	0	0	0	35	0	0	0	79	0	0	0	0
Lane Group Flow (vph)	0	171	0	7	0	0	192	31	39	942	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		15.5		15.5			16.9	16.9	3.8	47.3		
Effective Green, g (s)		15.5		15.5			16.9	16.9	3.8	47.3		
Actuated g/C Ratio		0.16		0.16			0.18	0.18	0.04	0.49		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		294		254			314	277	69	1706		
v/s Ratio Prot		c0.09					c0.11		0.02	c0.27		
v/s Ratio Perm				0.00				0.02				
v/c Ratio		0.58		0.03			0.61	0.11	0.57	0.55		
Uniform Delay, d1		37.5		34.1			36.8	33.5	45.5	17.2		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		3.4		0.1			4.0	0.2	6.2	0.8		
Delay (s)		40.9		34.2			40.8	33.7	51.7	18.0		
Level of Service		D		C			D	C	D	B		
Approach Delay (s)		39.6					38.2			19.4		
Approach LOS		D					D			B		

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	21.5
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	29	424	21	105
Future Volume (vph)	29	424	21	105
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3509		1611
Flt Permitted	0.27	1.00		1.00
Satd. Flow (perm)	496	3509		1611
Peak-hour factor, PHF	0.75	0.72	0.58	0.75
Adj. Flow (vph)	39	589	36	140
RTOR Reduction (vph)	0	2	0	140
Lane Group Flow (vph)	115	623	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	38.8	38.8		0.0
Effective Green, g (s)	38.8	38.8		0.0
Actuated g/C Ratio	0.40	0.40		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	199	1410		0
v/s Ratio Prot		0.18		
v/s Ratio Perm	0.23			
v/c Ratio	0.58	0.44		0.00
Uniform Delay, d1	22.5	21.0		48.2
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	7.9	0.6		0.0
Delay (s)	30.3	21.6		48.2
Level of Service	C	C		D
Approach Delay (s)		23.0		
Approach LOS		C		

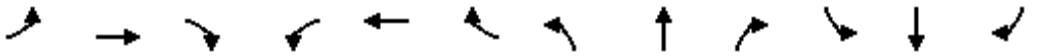
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	56	255	213	45	37	148	549	121	18	506	9
Future Volume (vph)	3	56	255	213	45	37	148	549	121	18	506	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.98		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1857	1583		1762		1770	3446		1770	3529	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1857	1583		1762		1770	3446		1770	3529	
Peak-hour factor, PHF	0.50	0.66	0.94	0.87	0.67	0.57	0.88	0.75	0.78	0.50	0.75	0.67
Adj. Flow (vph)	6	85	271	245	67	65	168	732	155	36	675	13
RTOR Reduction (vph)	0	0	238	0	6	0	0	13	0	0	1	0
Lane Group Flow (vph)	0	91	33	0	371	0	168	874	0	36	687	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.3	10.3		23.8		12.0	35.9		5.3	29.2	
Effective Green, g (s)		10.3	10.3		23.8		12.0	35.9		5.3	29.2	
Actuated g/C Ratio		0.11	0.11		0.25		0.13	0.37		0.06	0.30	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		199	170		437		221	1291		97	1075	
v/s Ratio Prot		c0.05			c0.21		c0.09	c0.25		0.02	0.19	
v/s Ratio Perm			0.02									
v/c Ratio		0.46	0.19		0.85		0.76	0.68		0.37	0.64	
Uniform Delay, d1		40.1	39.0		34.3		40.5	25.1		43.6	28.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	0.6		14.2		12.9	2.2		0.9	2.9	
Delay (s)		41.8	39.5		48.5		53.4	27.3		44.5	31.7	
Level of Service		D	D		D		D	C		D	C	
Approach Delay (s)		40.1			48.5			31.5			32.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	95.8	Sum of lost time (s)	20.5
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

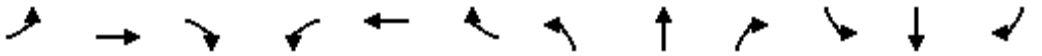
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	57	13	19	43	123	25	625	37	227	573	155
Future Volume (vph)	111	57	13	19	43	123	25	625	37	227	573	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.79	0.75	0.70	0.57	0.85	0.58	0.75	0.60	0.76	0.92	0.80
Adj. Flow (vph)	168	72	17	27	75	145	43	833	62	299	623	194
RTOR Reduction (vph)	0	0	14	0	55	0	0	0	30	0	0	92
Lane Group Flow (vph)	168	72	3	27	165	0	43	833	32	299	623	102
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	15.7	15.7	15.7	15.5	15.5		7.1	35.5	51.0	8.1	36.5	52.2
Effective Green, g (s)	15.7	15.7	15.7	15.5	15.5		7.1	35.5	51.0	8.1	36.5	52.2
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.07	0.36	0.51	0.08	0.37	0.53
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	279	558	250	535	261		245	1263	812	279	1299	831
v/s Ratio Prot	c0.09	0.02		0.01	c0.10		0.01	c0.24	0.01	c0.09	0.18	0.02
v/s Ratio Perm			0.00						0.01			0.04
v/c Ratio	0.60	0.13	0.01	0.05	0.63		0.18	0.66	0.04	1.07	0.48	0.12
Uniform Delay, d1	38.9	36.0	35.3	35.7	39.3		43.4	26.9	12.0	45.7	24.2	12.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.1	0.0	0.0	4.9		1.6	2.3	0.0	74.2	1.0	0.1
Delay (s)	42.6	36.1	35.3	35.7	44.2		45.0	29.2	12.0	119.8	25.1	12.0
Level of Service	D	D	D	D	D		D	C	B	F	C	B
Approach Delay (s)		40.3			43.3			28.8			48.2	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	99.4	Sum of lost time (s)	24.6
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

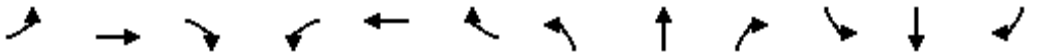
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	57	133	157	74	132	134	435	87	105	425	62
Future Volume (vph)	114	57	133	157	74	132	134	435	87	105	425	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	0.97	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1806	1583		1804	2787	1770	3539	1583	3433	3450	
Flt Permitted		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1806	1583		1804	2787	1770	3539	1583	3433	3450	
Peak-hour factor, PHF	0.71	0.61	0.90	0.79	0.70	0.62	0.79	0.88	0.98	0.67	0.84	0.61
Adj. Flow (vph)	161	93	148	199	106	213	170	494	89	157	506	102
RTOR Reduction (vph)	0	0	100	0	0	136	0	0	64	0	12	0
Lane Group Flow (vph)	0	254	48	0	305	77	170	494	25	157	596	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		20.3	34.4		24.8	38.6	14.1	30.3	30.3	8.1	24.3	
Effective Green, g (s)		20.3	34.4		24.8	38.6	14.1	30.3	30.3	8.1	24.3	
Actuated g/C Ratio		0.19	0.32		0.23	0.36	0.13	0.28	0.28	0.08	0.23	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		342	508		417	1004	233	1001	447	259	782	
v/s Ratio Prot		c0.14	0.01		c0.17	0.03	c0.10	0.14		0.05	c0.17	
v/s Ratio Perm			0.02						0.02			
v/c Ratio		0.74	0.09		0.73	0.08	0.73	0.49	0.06	0.61	0.76	
Uniform Delay, d1		40.9	25.4		38.1	22.5	44.7	32.0	28.0	48.0	38.7	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		8.4	0.0		6.5	0.0	9.3	0.4	0.1	2.7	4.4	
Delay (s)		49.4	25.5		44.6	22.6	54.0	32.4	28.0	50.7	43.1	
Level of Service		D	C		D	C	D	C	C	D	D	
Approach Delay (s)		40.6			35.5			36.7			44.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	107.1	Sum of lost time (s)	23.6
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	60	69	0	145	0	45	0	0	0	0	173
Future Volume (veh/h)	120	60	69	0	145	0	45	0	0	0	0	173
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	65	75	0	158	0	49	0	0	0	0	188
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
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	166	521	441	4	344	0	87	1019	863	0	0	645
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
Prop Arrive On Green	0.09	0.28	0.28	0.00	0.10	0.00	0.05	0.00	0.00	0.00	0.00	0.41
Unsig. Movement Delay												
Ln Grp Delay, s/veh	37.4	13.8	14.1	0.0	22.7	0.0	29.2	0.0	0.0	0.0	0.0	11.3
Ln Grp LOS	D	B	B	A	C	A	C	A	A	A	A	B
Approach Vol, veh/h		270			158			49			188	
Approach Delay, s/veh		25.2			22.7			29.2			11.3	
Approach LOS		C			C			C			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Case No		3.0	2.0	3.0	2.0	8.0	2.0	4.0
Phs Duration (G+Y+Rc), s		32.2	0.0	18.7	7.0	25.2	9.2	9.4
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green (Gmax), s		27.7	5.0	18.8	5.0	18.2	5.8	18.0
Max Allow Headway (MAH), s		0.0	0.0	4.7	3.9	5.7	3.9	5.4
Max Q Clear (g_c+I1), s		0.0	0.0	3.8	3.4	6.1	5.6	4.1
Green Ext Time (g_e), s		0.0	0.0	0.4	0.0	0.9	0.0	0.7
Prob of Phs Call (p_c)		1.00	0.00	1.00	0.50	1.00	0.84	0.99
Prob of Max Out (p_x)		0.00	0.00	0.00	1.00	0.00	1.00	0.01

Left-Turn Movement Data								
Assigned Mvmt			3		5	1	7	
Mvmt Sat Flow, veh/h			1781		1781	0	1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1870		1870		0		3647

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1585		1585		1585		0

Left Lane Group Data								
Assigned Mvmt	0	0	3	0	5	1	7	0
Lane Assignment			L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	0	0	1	0	1	0	1	0
Grp Vol (v), veh/h	0	0	0	0	49	0	130	0
Grp Sat Flow (s), veh/h/ln	0	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	1.4	0.0	3.6	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	1.4	0.0	3.6	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	20.7	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	0	0	4	0	87	0	166	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.56	0.00	0.78	0.00
Avail Cap (c_a), veh/h	0	0	175	0	175	0	203	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	23.6	0.0	22.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	5.5	0.0	14.8	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	29.2	0.0	37.4	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.5	0.0	1.4	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.7	0.0	2.1	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.04	0.00	0.54	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T				T
Lanes in Grp	0	1	0	1	0	0	0	2
Grp Vol (v), veh/h	0	0	0	65	0	0	0	158
Grp Sat Flow (s), veh/h/ln	0	1870	0	1870	0	0	0	1777
Q Serve Time (g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	2.1
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	2.1
Lane Grp Cap (c), veh/h	0	1019	0	521	0	0	0	344
V/C Ratio (X)	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.46
Avail Cap (c_a), veh/h	0	1019	0	691	0	0	0	1258
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	13.7	0.0	0.0	0.0	21.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	13.8	0.0	0.0	0.0	22.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.8
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.9
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		T+R		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	75	0	188	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	0	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	1.8	0.0	4.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	1.8	0.0	4.1	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	863	0	441	0	645	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.17	0.00	0.29	0.00	0.00
Avail Cap (c_a), veh/h	0	863	0	586	0	645	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	13.9	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	1.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	14.1	0.0	11.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.6	0.0	1.2	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.6	0.0	1.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.04	0.00	0.08	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	50	10	0	114	31	0
Future Vol, veh/h	50	10	0	114	31	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	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	54	11	0	124	34	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	65	0	178	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1537	-	812	1013
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1537	-	812	1013
Mov Cap-2 Maneuver	-	-	-	-	812	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	812	-	-	1537	-
HCM Lane V/C Ratio	0.041	-	-	-	-
HCM Control Delay (s)	9.6	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	29	0	21	93	0
Future Vol, veh/h	21	29	0	21	93	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	0	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	23	32	0	23	101	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	46	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1550	-	964	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1000	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1550	-	964	1054
Mov Cap-2 Maneuver	-	-	-	-	964	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1000	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	964	-	-	-	1550	-
HCM Lane V/C Ratio	0.105	-	-	-	-	-
HCM Control Delay (s)	9.2	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	-	0	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	0	655	39	0	715
Future Volume (veh/h)	25	0	655	39	0	715
Number	3	18	2	12	1	6
Initial Q, veh	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Lanes Open During Work Zone						
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	0	712	42	0	777
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Opposing Right Turn Influence	Yes				Yes	
Cap, veh/h	58	52	2602	1160	5	2602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.03	0.00	0.73	0.73	0.00	0.73
Unsig. Movement Delay						
Ln Grp Delay, s/veh	23.9	0.0	2.0	1.5	0.0	2.1
Ln Grp LOS	C	A	A	A	A	A
Approach Vol, veh/h	27		754			777
Approach Delay, s/veh	23.9		1.9			2.1
Approach LOS	C		A			A

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	8			6		
Case No	2.0	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s	0.0	32.5	5.7			32.5		
Change Period (Y+Rc), s	4.5	4.5	4.5			4.5		
Max Green (Gmax), s	5.0	18.5	18.0			28.0		
Max Allow Headway (MAH), s	0.0	4.7	3.8			4.7		
Max Q Clear (g_c+I1), s	0.0	4.6	2.6			4.9		
Green Ext Time (g_e), s	0.0	3.7	0.0			4.7		
Prob of Phs Call (p_c)	0.00	1.00	0.25			1.00		
Prob of Max Out (p_x)	0.00	0.00	0.00			0.00		

Left-Turn Movement Data								
Assigned Mvmt	1	5	3					
Mvmt Sat Flow, veh/h	1781	0	1781					

Through Movement Data								
Assigned Mvmt		2	8			6		
Mvmt Sat Flow, veh/h		3647	0			3647		

Right-Turn Movement Data								
Assigned Mvmt		12	18			16		
Mvmt Sat Flow, veh/h		1585	1585			0		

Left Lane Group Data								
Assigned Mvmt	1	5	3	0	0	0	0	0
Lane Assignment	L (Prot)		L					

Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	0	0	27	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	5	0	58	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	233	0	838	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	23.9	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	712	0	0	0	777	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	2.6	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	2.6	0.0	0.0	0.0	2.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	2602	0	0	0	2602	0	0
V/C Ratio (X)	0.00	0.27	0.00	0.00	0.00	0.30	0.00	0.00
Avail Cap (c_a), veh/h	0	2602	0	0	0	2602	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	1.7	0.0	0.0	0.0	1.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	2.0	0.0	0.0	0.0	2.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	42	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1160	52	0	0	0	0	0
V/C Ratio (X)	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1160	746	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	2.4
HCM 6th LOS	A

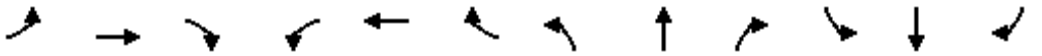
Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	0	0	0	0	25
Future Vol, veh/h	39	0	0	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	42	0	0	0	0	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	85	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1622	-	-	-	916	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	939	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1622	-	-	-	892	1084
Mov Cap-2 Maneuver	-	-	-	-	892	-
Stage 1	-	-	-	-	995	-
Stage 2	-	-	-	-	939	-

Approach	EB	WB	SB
HCM Control Delay, s	7.3	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1622	-	-	-	1084
HCM Lane V/C Ratio	0.026	-	-	-	0.025
HCM Control Delay (s)	7.3	-	-	-	8.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	35	4	33	19	43	20	513	45	41	562	46
Future Volume (vph)	48	35	4	33	19	43	20	513	45	41	562	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.99			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1796			1720		1770	3539	1583	1770	3539	1583
Flt Permitted		0.56			0.81		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1028			1420		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.65	0.75	0.50	0.52	0.75	0.65	0.59	0.88	0.67	0.56	0.95	0.57
Adj. Flow (vph)	74	47	8	63	25	66	34	583	67	73	592	81
RTOR Reduction (vph)	0	2	0	0	27	0	0	0	48	0	0	56
Lane Group Flow (vph)	0	127	0	0	127	0	34	583	19	73	592	25
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		14.4			14.1		4.4	26.7	26.7	6.0	28.3	28.3
Effective Green, g (s)		14.4			14.1		4.4	26.7	26.7	6.0	28.3	28.3
Actuated g/C Ratio		0.16			0.15		0.05	0.29	0.29	0.07	0.31	0.31
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		160			216		84	1023	457	115	1085	485
v/s Ratio Prot							0.02	0.16		c0.04	c0.17	
v/s Ratio Perm		c0.12			c0.09				0.01			0.02
v/c Ratio		0.80			0.59		0.40	0.57	0.04	0.63	0.55	0.05
Uniform Delay, d1		37.5			36.4		42.7	27.9	23.6	42.1	26.6	22.5
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		23.3			4.0		1.2	1.5	0.1	8.1	1.3	0.1
Delay (s)		60.8			40.4		43.8	29.4	23.7	50.2	27.9	22.7
Level of Service		E			D		D	C	C	D	C	C
Approach Delay (s)		60.8			40.4			29.6			29.5	
Approach LOS		E			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	92.3	Sum of lost time (s)	31.1
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	233	213	197	232	27	231	197	227	32	118	19
Future Volume (veh/h)	22	233	213	197	232	27	231	197	227	32	118	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	256	323	318	264	29	262	249	252	51	144	25
Peak Hour Factor	0.75	0.91	0.66	0.62	0.88	0.93	0.88	0.79	0.90	0.63	0.82	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	80	481	429	352	1367	149	297	440	686	111	187	32
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
Prop Arrive On Green	0.05	0.27	0.27	0.20	0.42	0.42	0.17	0.24	0.24	0.06	0.12	0.12
Unsig. Movement Delay												
Ln Grp Delay, s/veh	44.9	32.0	39.3	56.3	17.6	17.6	58.8	36.0	19.3	45.8	0.0	46.0
Ln Grp LOS	D	C	D	E	B	B	E	D	B	D	A	D
Approach Vol, veh/h		608			611			763			220	
Approach Delay, s/veh		36.5			37.8			38.3			46.0	
Approach LOS		D			D			D			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Case No	2.0	4.0	2.0	4.0	2.0	4.0	2.0	3.0
Phs Duration (G+Y+Rc), s	23.4	32.0	21.5	17.8	9.0	46.5	10.6	28.7
Change Period (Y+Rc), s	* 4.7	6.4	* 5.7	* 6.4	* 4.7	* 6.4	* 4.7	6.4
Max Green (Gmax), s	* 22	35.1	* 18	* 33	* 8	* 50	* 9.3	41.4
Max Allow Headway (MAH), s	2.8	7.7	3.7	5.3	2.7	8.3	3.8	7.5
Max Q Clear (g_c+I1), s	18.5	19.7	15.6	10.5	3.5	6.9	4.6	13.1
Green Ext Time (g_e), s	0.2	5.9	0.2	0.9	0.0	4.8	0.0	6.5
Prob of Phs Call (p_c)	1.00	1.00	1.00	1.00	0.53	1.00	0.74	1.00
Prob of Max Out (p_x)	0.55	0.46	1.00	0.00	0.02	0.00	0.31	0.07

Left-Turn Movement Data								
Assigned Mvmt	1		3		5		7	
Mvmt Sat Flow, veh/h	1781		1781		1781		1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1777		1552		3232		1870

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1585		270		352		1585

Left Lane Group Data								
Assigned Mvmt	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	318	0	262	0	29	0	51	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	16.5	0.0	13.6	0.0	1.5	0.0	2.6	0.0
Cycle Q Clear Time (g_c), s	16.5	0.0	13.6	0.0	1.5	0.0	2.6	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	352	0	297	0	80	0	111	0
V/C Ratio (X)	0.90	0.00	0.88	0.00	0.36	0.00	0.46	0.00
Avail Cap (c_a), veh/h	414	0	346	0	150	0	175	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	37.1	0.0	38.6	0.0	43.9	0.0	42.9	0.0
Incr Delay (d2), s/veh	19.2	0.0	20.3	0.0	1.0	0.0	2.9	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	56.3	0.0	58.8	0.0	44.9	0.0	45.8	0.0
1st-Term Q (Q1), veh/ln	7.1	0.0	5.7	0.0	0.6	0.0	1.1	0.0
2nd-Term Q (Q2), veh/ln	1.9	0.0	1.7	0.0	0.0	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	8.9	0.0	7.4	0.0	0.7	0.0	1.2	0.0
%ile Storage Ratio (RQ%)	1.23	0.00	0.87	0.00	0.10	0.00	0.48	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	256	0	0	0	144	0	249
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	1870
Q Serve Time (g_s), s	0.0	11.6	0.0	0.0	0.0	4.8	0.0	11.1
Cycle Q Clear Time (g_c), s	0.0	11.6	0.0	0.0	0.0	4.8	0.0	11.1
Lane Grp Cap (c), veh/h	0	481	0	0	0	751	0	440
V/C Ratio (X)	0.00	0.53	0.00	0.00	0.00	0.19	0.00	0.57
Avail Cap (c_a), veh/h	0	658	0	0	0	934	0	817
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	29.5	0.0	0.0	0.0	17.2	0.0	31.9
Incr Delay (d2), s/veh	0.0	2.5	0.0	0.0	0.0	0.4	0.0	4.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.0	0.0	0.0	0.0	17.6	0.0	36.0
1st-Term Q (Q1), veh/ln	0.0	4.7	0.0	0.0	0.0	1.9	0.0	4.8
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.5

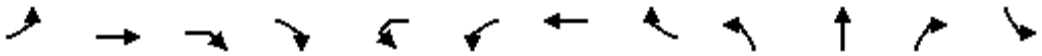
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.1	0.0	0.0	0.0	2.0	0.0	5.3
%ile Storage Ratio (RQ%)	0.00	0.25	0.00	0.00	0.00	0.11	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	323	0	169	0	149	0	252
Grp Sat Flow (s), veh/h/ln	0	1585	0	1822	0	1807	0	1585
Q Serve Time (g_s), s	0.0	17.7	0.0	8.5	0.0	4.9	0.0	10.2
Cycle Q Clear Time (g_c), s	0.0	17.7	0.0	8.5	0.0	4.9	0.0	10.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1585.1
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.7
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.15	0.00	0.19	0.00	1.00
Lane Grp Cap (c), veh/h	0	429	0	219	0	764	0	686
V/C Ratio (X)	0.00	0.75	0.00	0.77	0.00	0.19	0.00	0.37
Avail Cap (c_a), veh/h	0	587	0	635	0	950	0	1006
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	31.7	0.0	40.4	0.0	17.2	0.0	18.1
Incr Delay (d2), s/veh	0.0	7.7	0.0	5.6	0.0	0.4	0.0	1.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	39.3	0.0	46.0	0.0	17.6	0.0	19.3
1st-Term Q (Q1), veh/ln	0.0	6.4	0.0	3.8	0.0	2.0	0.0	3.5
2nd-Term Q (Q2), veh/ln	0.0	0.9	0.0	0.3	0.0	0.1	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	7.3	0.0	4.1	0.0	2.1	0.0	3.7
%ile Storage Ratio (RQ%)	0.00	0.37	0.00	0.33	0.00	0.12	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.



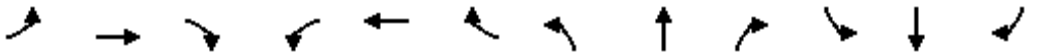
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	30	66	1	26	14	114	53	50	32	606	110	23
Future Volume (vph)	30	66	1	26	14	114	53	50	32	606	110	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (prot)		1828		1583			1800	1583	1770	3453		
Flt Permitted		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (perm)		1828		1583			1800	1583	1770	3453		
Peak-hour factor, PHF	0.79	0.74	0.25	0.67	0.54	0.73	0.66	0.73	0.72	0.83	0.78	0.43
Adj. Flow (vph)	38	89	4	39	26	156	80	68	44	730	141	53
RTOR Reduction (vph)	0	0	0	34	0	0	0	54	0	0	0	0
Lane Group Flow (vph)	0	131	0	5	0	0	262	14	44	871	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		13.7		13.7			20.8	20.8	5.3	48.2		
Effective Green, g (s)		13.7		13.7			20.8	20.8	5.3	48.2		
Actuated g/C Ratio		0.14		0.14			0.21	0.21	0.05	0.48		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		251		217			376	330	94	1672		
v/s Ratio Prot		c0.07					c0.15		0.02	c0.25		
v/s Ratio Perm				0.00				0.01				
v/c Ratio		0.52		0.02			0.70	0.04	0.47	0.52		
Uniform Delay, d1		39.9		37.1			36.4	31.4	45.7	17.7		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		2.5		0.1			6.0	0.1	1.3	0.7		
Delay (s)		42.4		37.2			42.4	31.5	47.1	18.4		
Level of Service		D		D			D	C	D	B		
Approach Delay (s)		41.2					40.1			19.8		
Approach LOS		D					D			B		

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	99.5	Sum of lost time (s)	21.5
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	27	469	24	37
Future Volume (vph)	27	469	24	37
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3506		1611
Flt Permitted	0.31	1.00		1.00
Satd. Flow (perm)	573	3506		1611
Peak-hour factor, PHF	0.65	0.75	0.57	0.73
Adj. Flow (vph)	42	625	42	51
RTOR Reduction (vph)	0	3	0	51
Lane Group Flow (vph)	95	664	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	38.2	38.2		0.0
Effective Green, g (s)	38.2	38.2		0.0
Actuated g/C Ratio	0.38	0.38		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	219	1346		0
v/s Ratio Prot		0.19		
v/s Ratio Perm	0.17			
v/c Ratio	0.43	0.49		0.00
Uniform Delay, d1	22.7	23.3		49.8
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	3.8	0.8		0.0
Delay (s)	26.5	24.1		49.8
Level of Service	C	C		D
Approach Delay (s)		24.4		
Approach LOS		C		

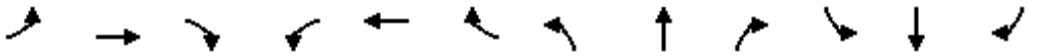
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	54	241	147	61	20	237	678	153	9	580	12
Future Volume (vph)	2	54	241	147	61	20	237	678	153	9	580	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.98		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1854	1583		1776		1770	3433		1770	3526	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1854	1583		1776		1770	3433		1770	3526	
Peak-hour factor, PHF	0.25	0.71	0.86	0.71	0.85	0.57	0.84	0.97	0.88	0.50	0.76	0.63
Adj. Flow (vph)	8	76	280	207	72	35	282	699	174	18	763	19
RTOR Reduction (vph)	0	0	251	0	4	0	0	15	0	0	1	0
Lane Group Flow (vph)	0	84	29	0	310	0	282	858	0	18	781	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.1	10.1		19.3		18.3	43.6		3.5	28.8	
Effective Green, g (s)		10.1	10.1		19.3		18.3	43.6		3.5	28.8	
Actuated g/C Ratio		0.10	0.10		0.20		0.19	0.45		0.04	0.30	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		193	164		353		333	1543		63	1046	
v/s Ratio Prot		c0.05			c0.17		c0.16	0.25		0.01	c0.22	
v/s Ratio Perm			0.02									
v/c Ratio		0.44	0.18		0.88		0.85	0.56		0.29	0.75	
Uniform Delay, d1		40.8	39.7		37.7		38.0	19.6		45.5	30.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.5		21.0		17.1	0.9		0.9	4.9	
Delay (s)		42.3	40.2		58.7		55.1	20.5		46.4	35.7	
Level of Service		D	D		E		E	C		D	D	
Approach Delay (s)		40.7			58.7			29.0			35.9	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	97.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

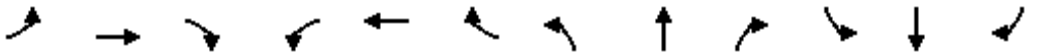
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	66	28	39	48	165	39	806	43	214	681	107
Future Volume (vph)	84	66	28	39	48	165	39	806	43	214	681	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.65	0.64	0.78	0.80	0.93	0.73	0.84	0.58	0.97	0.89	0.84
Adj. Flow (vph)	127	102	44	50	60	177	53	960	74	221	765	127
RTOR Reduction (vph)	0	0	38	0	84	0	0	0	35	0	0	61
Lane Group Flow (vph)	127	102	6	50	153	0	53	960	39	221	765	66
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	13.3	13.3	13.3	14.9	14.9		7.0	36.6	51.5	8.0	37.6	50.9
Effective Green, g (s)	13.3	13.3	13.3	14.9	14.9		7.0	36.6	51.5	8.0	37.6	50.9
Actuated g/C Ratio	0.14	0.14	0.14	0.15	0.15		0.07	0.38	0.53	0.08	0.39	0.52
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	241	483	216	525	253		246	1329	837	281	1366	827
v/s Ratio Prot	c0.07	0.03		0.01	c0.09		0.02	c0.27	0.01	c0.06	0.22	0.01
v/s Ratio Perm			0.00						0.02			0.03
v/c Ratio	0.53	0.21	0.03	0.10	0.61		0.22	0.72	0.05	0.79	0.56	0.08
Uniform Delay, d1	39.1	37.4	36.4	35.5	38.5		42.6	26.0	11.1	43.9	23.4	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	0.1	0.1	4.1		2.0	3.1	0.0	19.6	1.3	0.0
Delay (s)	41.2	37.6	36.5	35.5	42.6		44.6	29.2	11.1	63.5	24.7	11.6
Level of Service	D	D	D	D	D		D	C	B	E	C	B
Approach Delay (s)		39.1			41.3			28.7			30.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	24.6
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	62	151	133	55	247	108	518	190	282	400	50
Future Volume (vph)	72	62	151	133	55	247	108	518	190	282	400	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	0.97	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1819	1583		1796	2787	1770	3539	1583	3433	3483	
Flt Permitted		0.98	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1819	1583		1796	2787	1770	3539	1583	3433	3483	
Peak-hour factor, PHF	0.77	0.62	0.81	0.76	0.93	0.94	0.94	0.82	0.85	0.78	0.79	0.84
Adj. Flow (vph)	94	100	186	175	59	263	115	632	224	362	506	60
RTOR Reduction (vph)	0	0	132	0	0	169	0	0	163	0	6	0
Lane Group Flow (vph)	0	194	54	0	234	94	115	632	61	362	560	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		16.0	26.8		18.9	32.9	10.8	24.9	24.9	8.3	22.4	
Effective Green, g (s)		16.0	26.8		18.9	32.9	10.8	24.9	24.9	8.3	22.4	
Actuated g/C Ratio		0.17	0.29		0.21	0.36	0.12	0.27	0.27	0.09	0.24	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		317	462		370	999	208	960	429	310	850	
v/s Ratio Prot		c0.11	0.01		c0.13	0.03	0.06	c0.18		c0.11	0.16	
v/s Ratio Perm			0.02						0.04			
v/c Ratio		0.61	0.12		0.63	0.09	0.55	0.66	0.14	1.17	0.66	
Uniform Delay, d1		35.0	23.8		33.2	19.5	38.2	29.6	25.3	41.7	31.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.5	0.0		3.5	0.0	1.8	1.6	0.2	104.6	1.9	
Delay (s)		38.5	23.8		36.7	19.6	40.0	31.3	25.5	146.3	33.1	
Level of Service		D	C		D	B	D	C	C	F	C	
Approach Delay (s)		31.3			27.6			31.0			77.3	
Approach LOS		C			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	91.7	Sum of lost time (s)	23.6
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	152	185	0	98	0	198	0	0	0	0	140
Future Volume (veh/h)	197	152	185	0	98	0	198	0	0	0	0	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	165	201	0	107	0	215	0	0	0	0	152
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
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	262	553	469	3	278	0	263	1054	893	0	0	547
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
Prop Arrive On Green	0.15	0.30	0.30	0.00	0.08	0.00	0.15	0.00	0.00	0.00	0.00	0.35
Unsig. Movement Delay												
Ln Grp Delay, s/veh	37.1	17.7	18.8	0.0	28.9	0.0	37.2	0.0	0.0	0.0	0.0	16.4
Ln Grp LOS	D	B	B	A	C	A	D	A	A	A	A	B
Approach Vol, veh/h		580			107			215			152	
Approach Delay, s/veh		25.2			28.9			37.2			16.4	
Approach LOS		C			C			D			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Case No		3.0	2.0	3.0	2.0	8.0	2.0	4.0
Phs Duration (G+Y+Rc), s		40.5	0.0	23.4	13.9	26.6	13.9	9.5
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green (Gmax), s		36.0	5.0	25.5	12.5	19.0	12.5	18.0
Max Allow Headway (MAH), s		0.0	0.0	4.7	3.9	5.7	3.9	5.4
Max Q Clear (g_c+I1), s		0.0	0.0	8.5	9.5	6.4	9.4	3.8
Green Ext Time (g_e), s		0.0	0.0	1.5	0.2	0.7	0.2	0.4
Prob of Phs Call (p_c)		1.00	0.00	1.00	0.98	1.00	0.98	1.00
Prob of Max Out (p_x)		0.00	0.00	0.01	1.00	0.00	1.00	0.00

Left-Turn Movement Data								
Assigned Mvmt			3		5	1	7	
Mvmt Sat Flow, veh/h			1781		1781	0	1781	

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1870		1870		0		3647

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1585		1585		1585		0

Left Lane Group Data								
Assigned Mvmt	0	0	3	0	5	1	7	0
Lane Assignment			L (Prot)		L (Prot)		L (Prot)	

Lanes in Grp	0	0	1	0	1	0	1	0
Grp Vol (v), veh/h	0	0	0	0	215	0	214	0
Grp Sat Flow (s), veh/h/ln	0	0	1781	0	1781	0	1781	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	7.5	0.0	7.4	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	7.5	0.0	7.4	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	22.1	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	0	0	3	0	263	0	262	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.82	0.00	0.82	0.00
Avail Cap (c_a), veh/h	0	0	139	0	348	0	348	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	26.4	0.0	26.4	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	10.8	0.0	10.7	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	37.2	0.0	37.1	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	3.0	0.0	3.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.8	0.0	0.8	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	3.8	0.0	3.8	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.21	0.00	0.97	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T				T
Lanes in Grp	0	1	0	1	0	0	0	2
Grp Vol (v), veh/h	0	0	0	165	0	0	0	107
Grp Sat Flow (s), veh/h/ln	0	1870	0	1870	0	0	0	1777
Q Serve Time (g_s), s	0.0	0.0	0.0	4.4	0.0	0.0	0.0	1.8
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	4.4	0.0	0.0	0.0	1.8
Lane Grp Cap (c), veh/h	0	1054	0	553	0	0	0	278
V/C Ratio (X)	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.38
Avail Cap (c_a), veh/h	0	1054	0	746	0	0	0	1001
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	17.4	0.0	0.0	0.0	28.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	17.7	0.0	0.0	0.0	28.9
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.8
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.8
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		T+R		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	201	0	152	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	0	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	6.5	0.0	4.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	6.5	0.0	4.4	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	893	0	469	0	547	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.43	0.00	0.28	0.00	0.00
Avail Cap (c_a), veh/h	0	893	0	632	0	547	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	18.1	0.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	1.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	18.8	0.0	16.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.3	0.0	1.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	2.3	0.0	1.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.16	0.00	0.10	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	119	33	0	79	19	0
Future Vol, veh/h	119	33	0	79	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	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	129	36	0	86	21	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	165	0	215	129
Stage 1	-	-	-	-	129	-
Stage 2	-	-	-	-	86	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1413	-	773	921
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1413	-	773	921
Mov Cap-2 Maneuver	-	-	-	-	773	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	937	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	773	-	-	1413	-
HCM Lane V/C Ratio	0.027	-	-	-	-
HCM Control Delay (s)	9.8	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	98	0	21	58	0
Future Vol, veh/h	21	98	0	21	58	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	0	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	23	107	0	23	63	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	46	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	964	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1000	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	964	1054
Mov Cap-2 Maneuver	-	-	-	-	964	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1000	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	964	-	-	-	1455	-
HCM Lane V/C Ratio	0.065	-	-	-	-	-
HCM Control Delay (s)	9	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	0	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	111	0	816	104	0	684
Future Volume (veh/h)	111	0	816	104	0	684
Number	3	18	2	12	1	6
Initial Q, veh	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Lanes Open During Work Zone						
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	0	887	113	0	743
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Opposing Right Turn Influence	Yes				Yes	
Cap, veh/h	163	145	2443	1090	4	2443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.00	0.69	0.69	0.00	0.69
Unsig. Movement Delay						
Ln Grp Delay, s/veh	24.5	0.0	3.1	2.3	0.0	2.8
Ln Grp LOS	C	A	A	A	A	A
Approach Vol, veh/h	121		1000			743
Approach Delay, s/veh	24.5		3.0			2.8
Approach LOS	C		A			A

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	8			6		
Case No	2.0	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s	0.0	32.5	8.2			32.5		
Change Period (Y+Rc), s	4.5	4.5	4.5			4.5		
Max Green (Gmax), s	5.0	18.5	18.0			28.0		
Max Allow Headway (MAH), s	0.0	4.6	3.8			4.7		
Max Q Clear (g_c+I1), s	0.0	6.2	4.7			5.4		
Green Ext Time (g_e), s	0.0	4.5	0.2			4.4		
Prob of Phs Call (p_c)	0.00	1.00	0.75			1.00		
Prob of Max Out (p_x)	0.00	0.00	0.00			0.00		

Left-Turn Movement Data								
Assigned Mvmt	1	5	3					
Mvmt Sat Flow, veh/h	1781	0	1781					

Through Movement Data								
Assigned Mvmt		2	8			6		
Mvmt Sat Flow, veh/h		3647	0			3647		

Right-Turn Movement Data								
Assigned Mvmt		12	18			16		
Mvmt Sat Flow, veh/h		1585	1585			0		

Left Lane Group Data								
Assigned Mvmt	1	5	3	0	0	0	0	0
Lane Assignment	L (Prot)		L					

Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	0	0	121	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	4	0	163	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	219	0	787	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	24.5	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	887	0	0	0	743	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	4.2	0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	4.2	0.0	0.0	0.0	3.4	0.0	0.0
Lane Grp Cap (c), veh/h	0	2443	0	0	0	2443	0	0
V/C Ratio (X)	0.00	0.36	0.00	0.00	0.00	0.30	0.00	0.00
Avail Cap (c_a), veh/h	0	2443	0	0	0	2443	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	2.7	0.0	0.0	0.0	2.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	3.1	0.0	0.0	0.0	2.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	113	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1090	145	0	0	0	0	0
V/C Ratio (X)	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1090	701	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	4.3
HCM 6th LOS	A

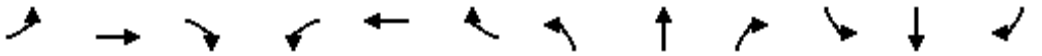
Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	104	0	0	0	0	111
Future Vol, veh/h	104	0	0	0	0	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	113	0	0	0	0	121

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	227	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	226	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1622	-	-	-	761	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1622	-	-	-	708	1084
Mov Cap-2 Maneuver	-	-	-	-	708	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	812	-

Approach	EB	WB	SB
HCM Control Delay, s	7.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1622	-	-	-	1084
HCM Lane V/C Ratio	0.07	-	-	-	0.111
HCM Control Delay (s)	7.4	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	22	15	42	31	51	11	739	18	71	671	52
Future Volume (vph)	58	22	15	42	31	51	11	739	18	71	671	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.98			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1770			1731		1770	3539	1583	1770	3539	1583
Flt Permitted		0.52			0.82		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		951			1444		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.73	0.66	0.70	0.67	0.81	0.78	0.50	0.80	0.71	0.94	0.92	0.65
Adj. Flow (vph)	79	33	21	63	38	65	22	924	25	76	729	80
RTOR Reduction (vph)	0	5	0	0	24	0	0	0	17	0	0	51
Lane Group Flow (vph)	0	128	0	0	142	0	22	924	8	76	729	29
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		14.1			15.0		3.0	33.4	33.4	6.2	36.6	36.6
Effective Green, g (s)		14.1			15.0		3.0	33.4	33.4	6.2	36.6	36.6
Actuated g/C Ratio		0.14			0.15		0.03	0.33	0.33	0.06	0.37	0.37
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		134			217		53	1184	529	109	1297	580
v/s Ratio Prot							0.01	c0.26		c0.04	c0.21	
v/s Ratio Perm		c0.13			c0.10				0.01			0.02
v/c Ratio		0.95			0.66		0.42	0.78	0.02	0.70	0.56	0.05
Uniform Delay, d1		42.5			40.0		47.5	29.9	22.2	45.9	25.2	20.4
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		63.2			6.9		1.9	4.2	0.0	14.5	1.2	0.1
Delay (s)		105.8			46.9		49.5	34.1	22.2	60.4	26.4	20.5
Level of Service		F			D		D	C	C	E	C	C
Approach Delay (s)		105.8			46.9			34.2			28.8	
Approach LOS		F			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	31.1
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

This page intentionally left blank

Michael Baker
INTERNATIONAL

April 22, 2025

Cynthia Mancha
City of Brawley
383 Main Street
Brawley, CA 92227

Re: Brawley Mixed Use Master Plan Development – Traffic Analysis Update Memorandum

Michael Baker International (Michael Baker) conducted a Transportation Impact Analysis (TIA) on January 7, 2025 for the proposed Brawley Mixed-Use Master Plan Development (proposed Project). In April 2025, the Project applicant modified the Project site plan, reducing the overall commercial space proposed while increasing the number of hotel rooms, as outlined in **Table 1**. The updated Project site plan is provided in **Exhibit 1**. This technical memorandum has been prepared to assess whether the revised Project's traffic impact alters the original findings of the previously prepared TIA.

TABLE 1: BRAWLEY MIXED USE DEVELOPMENT LAND USE COMPARISON

Land Use	Previous Site Plan	Updated Site Plan	Change (+/-)
Multi-Family Residential	408 Units	408 Units	No Change
Shopping Plaza	85,000 SF	65,500 SF	-19,500 SF
Shopping Center	240,000 SF	243,000 SF	+3,000 SF
Hotel	100 Rooms	150 Rooms	+50 Rooms

SF = square feet

Project Trip Generation

In order to calculate the vehicular trips forecast to be generated by the Project, trip rates from the *Institute of Transportation Engineers (ITE) 11th Edition Trip Generation Manual* were utilized, refer to **Table 2**.

TABLE 2: ITE TRIP GENERATION RATES

Land Use	ITE Code [1]	Daily Trip Rate	AM Peak Hour Rate		PM Peak Hour Rate	
			Total	In : Out	Total	In : Out
Multi-Family Residential	220	6.74 /DU	0.40 /DU	24% : 76%	0.51 /DU	63% : 37%
Shopping Plaza	821	67.52 /KSF	1.73 /KSF	62% : 38%	5.91 /KSF	49% : 51%
Shopping Center	820	37.01 /KSF	0.84 /KSF	62% : 38%	3.40 /KSF	48% : 52%
Hotel	310	7.99 /Room	0.46 /KSF	56% : 44%	0.59 /KSF	51% : 49%

[1] Source: ITE Trip Generation Manual, 11th Edition.

Table 3 presents the Previous Project Trip Generation identified in the January 2025 TIA for the prior Project design, which shows a total of 15,150 daily vehicle trips with 489 AM and 1,247 PM peak hour trips.

TABLE 3: PREVIOUS PROJECT TRIP GENERATION

Land Use	Pad	Intensity	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
				Total	In : Out	Total	In : Out
Multi-Family Residential	-	408 DU	2750	163	39 : 124	208	131 : 77
Shopping Plaza	1 thru 8	85 KSF	5739	147	91 : 56	441	216 : 225
Shopping Center	10 thru 12	240 KSF	8882	202	125 : 77	816	392 : 424
Pass-By Trips Reduction (34%) [1]			-3020	-69	-43 : -26	-277	-133 : -144
Sub-Total Shopping Center Trips			***5862***	***133***	***83 : 51***	***539***	***259 : 280***
Hotel	9	100 Rooms	799	46	26 : 20	59	30 : 29
TOTAL TRIP GENERATION			**15150**	**489**	**239 : 251**	**1247**	**636 : 611**

Notes:

DU = Dwelling Unit

KSF = 1,000 Square Feet

[1] *ITE Trip Generation Handbook*

Table 4 presents the Updated Project Trip Generation per the updated site plan which shows the revised Project is expected to generate a total of 14,307 daily vehicle trips with 480 AM and 1,182 PM peak hour trips.

TABLE 4: UPDATED PROJECT TRIP GENERATION

Land Use	Pad	Intensity	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
				Total	In : Out	Total	In : Out
Multi-Family Residential	-	408 DU	2,750	163	39 : 124	208	131 : 77
Shopping Plaza	1 thru 8	65.5 KSF	4,423	113	70 : 43	340	167 : 173
Shopping Center	10 thru 11	243 KSF	8,993	204	127 : 77	826	397 : 429
Pass-By Trips Reduction (34%) [1]			-3058	-69	-43 : -26	-281	-135 : -146
Sub-Total Shopping Center Trips			***5935***	***135***	***84 : 51***	***545***	***262 : 283***
Hotel	9	150 Rooms	1,199	69	39 : 30	89	45 : 44
TOTAL TRIP GENERATION			**14307**	**480**	**232 : 248**	**1182**	**605 : 577**

Notes:

DU = Dwelling Unit

KSF = 1,000 Square Feet

[1] *ITE Trip Generation Handbook*

As shown in **Table 5**, the revised Project is expected to generate 843 fewer daily vehicle trips, 9 fewer AM peak hour trips, and 65 fewer PM peak hour trips than the previously proposed Project.

TABLE 5: PROJECT TRIP GENERATION COMPARISON

Site Plan	Daily Trips	AM Peak Hour	PM Peak Hour
Previous Project	15,150	489	1,247
Updated Project	14,307	480	1,182
Change (+/-)	-843	-9	-65

Project Trip Assignment

With the revised site plan, the proposed commercial component has been reduced from 325,000 SF to 308,500 SF, reflecting a decrease of 16,500 SF. **Exhibit 3** illustrates the Project Only Trip Assignment for the revised commercial trips at the study intersections (it should be noted that the same study intersections were considered in evaluating the revised site plan as were previously analyzed in the January 2025 TIA). The revised Project site plan maintains a total of 408 residential dwelling units, consistent with the analysis in the previously prepared TIA. As a result, the Project Only trip assignment for the residential uses, as shown in **Exhibit 4**, remains unchanged. **Exhibit 5** provides the Total Project Trip Assignment, incorporating both residential and commercial daily and AM/PM peak hour trips.

Opening Year 2028 Plus Project Analysis

Based on the updated commercial trips, the Opening Year 2028 Plus Project daily and AM/PM peak hour trips were updated and shown in **Exhibit 6**. The Opening Year 2028 Without Project and Opening Year 2028 Plus Project Level of Service (LOS) for the study intersections considered are shown in **Table 6** below. All intersections are forecast to operate at an acceptable LOS (LOS D or better) with the revised Project during both the AM and PM peak hours, similar to that concluded in the January 2025 TIA for the prior Project design.

Roadway segments within the study area were also evaluated based on the updated site plan. **Table 7** shows the LOS results for the study segments under Opening Year 2028 Without and Plus Project conditions. S Brawley Avenue from Malan Street to Wildcat Drive is projected to operate at LOS F under Opening Year 2028 Plus Project conditions. As mentioned in the January 2025 TIA Report, if project-generated traffic causes a roadway to deteriorate to LOS E or below, the roadway segment must be upgraded to its ultimate General Plan Mobility Element classification unless it has already been constructed accordingly. This segment of S Brawley Avenue has already been developed to its ultimate classification as a four-lane arterial. Additionally, the intersections at S Brawley Avenue & Malan Street and S Brawley Avenue & Wildcat Drive are expected to function at acceptable levels (LOS D) during both the AM and PM peak hours with addition of the proposed Project; refer to **Table 6**. Therefore, no improvements are recommended for S Brawley Avenue from Malan Street to Wildcat Drive.

TABLE 6: OPENING YEAR 2028 WITHOUT & PLUS PROJECT AM & PM PEAK HOUR STUDY INTERSECTION LOS

Study Intersection	Traffic Control	Opening Year 2028 Without Project		Opening Year 2028 Plus Project Conditions	
		AM	PM	AM	PM
		Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS
1 - 1st Street & Main Street	Signal	32.6 - C	26.2 - C	41.4 - D	40.1 - D
2 - 1st Street & K Street	Signal	25.8 - C	25.3 - C	26.3 - C	28.6 - C
3 - S Brawley Avenue & Malan Street	Signal	34.2 - C	32.7 - C	35.7 - D	39.3 - D
4 - S Brawley Avenue & Wildcat Drive	Signal	37.6 - D	30.5 - C	40.5 - D	33.3 - C
5 - S Brawley Avenue & Legion Road	Signal	36 - D	28.6 - C	41.3 - D	52.7 - D
6 - Project Driveway #1 & Future Legion Road	Signal	Does Not Exist Without Project		19.1 - B	36.7 - D
7 - Project Driveway #2 & Future Legion Road	OWSC	Does Not Exist Without Project		9.6 - A	9.8 - A
8 - Project Driveway #3 & Future Legion Road	OWSC	Does Not Exist Without Project		9.2 - A	9.0 - A
9 - S Brawley Avenue & Future Mead Road	Signal	Does Not Exist Without Project		2.7 - A	6.9 - A
10 - Project Driveway #4 & Future Mead Road	OWSC	Does Not Exist Without Project		8.5 - A	9.0 - A
11 - SR-86 & Keystone Road	Signal	30.8 - C	30.1 - C	34.9 - C	46.1 - D

Note: Deficient intersection operation indicated in **bold**.

[1] Average seconds of delay per vehicle.

LOS = Level of Service. OWSC = One-Way Stop Control.

TABLE 7: OPENING YEAR 2028 WITHOUT & PLUS PROJECT AM & PM PEAK HOUR STUDY INTERSECTION LOS

Roadway	Segment	Classification (No. Lanes)	LOS E Capacity	Opening Year 2028 Without Project			Opening Year 2028 Plus Project			Δ V/C	Improv. Warranted ?
				ADT	V/C	LOS	ADT	V/C	LOS		
1st Street	Main St. to K St.	4-Lane Divided Arterial	36,000	11,866	0.33	A	18,304	0.51	A	0.179	No
	K St. to Malan St.	4-Lane Undivided Arterial	27,000	12,791	0.47	A	19,945	0.74	C	0.265	No
S Brawley Avenue	Malan St. to Wildcat Dr.	4-Lane Undivided Arterial	27,000	21,281	0.79	C	29,150	1.08	F	0.291	No
	Wildcat Dr. to Legion Rd.	4-Lane Undivided Arterial	27,000	14,900	0.55	A	23,484	0.87	D	0.318	No

Note: Deficient roadway segment operations shown in **bold**.

LOS= Level of Service

V/C= Volume to Capacity Ratio

Δ= Difference

Vehicle Miles Traveled (VMT) Analysis

A VMT analysis was completed as part of the original January 2025 TIA. The previous VMT analysis showed the Project's VMT/employee value (9.46) is less than Imperial County's VMT/employee value of 10.04; therefore, no mitigation is required. For the residential component, the total home-based VMT/capita for the Project's Traffic Analysis Zone (TAZ) is 12.55, which is slightly higher than Imperial County's total home-based VMT/capita (12.04). For the Project to have a less-than-significant impact, the total VMT/capita would need to be 10.67 which is 15% below Imperial County's VMT/capita. As such, an 11% reduction in VMT/capita is needed to reduce impacts to less than significant.

The revised Project does not change the findings of the original VMT analysis. The VMT/employee and VMT/capita remain the same, and the revised Project would therefore similarly be required to reduce VMT/capita to avoid a potentially significant VMT-related impact.

Mitigation measure T-1 (Increase Residential Density) as identified in the January 2025 VMT analysis would remain applicable to reduce potential impacts. With implementation of mitigation measure T-1, the Project's VMT/capita would be reduced by 12% which exceeds the 11% needed for the residential component of the Project. Therefore, in accordance with the California Governor's Office of Planning and Research Guidelines, the revised Project is presumed to have a less than significant transportation-related impact, similar to that concluded for the prior Project design in the January 2025 VMT analysis.

Conclusion

Analysis of the revised Project site plan confirms that the proposed modifications, including the reduction in commercial space and increase in number of hotel rooms, do not significantly alter the findings of the previously prepared TIA (January 2025). The revised Project is expected to generate fewer daily and peak-hour vehicle trips compared to the original Project design, thereby reducing the overall traffic impact.

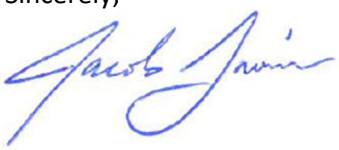
All study intersections are forecast to operate at acceptable levels of service (LOS D or better) under Opening Year 2028 Plus Project conditions for the revised Project site plan, similar to that concluded for the original Project design. While S Brawley Avenue from Malan Street to Wildcat Drive is projected to operate at LOS F, this segment has already been developed to its ultimate classification as a four-lane arterial, and no additional roadway improvements are necessary.

Additionally, the VMT analysis for the revised Project remains consistent with the original TIA findings. Mitigation measure T-1 (Increased Residential Density), as identified in the January 2025 VMT analysis, for the residential component would remain applicable and would achieve the required reduction in VMT/capita, reducing potential impacts to less than significant, similar to the original Project.

Given these findings, transportation-related impacts resulting with the revised Project site plan align with the conclusions of the previously prepared TIA (January 2025). No new significant or substantially increased impacts would result with the revised Project, and no additional mitigation measures or improvements are required or recommended.

Please let us know if you have any questions regarding this analysis.

Sincerely,

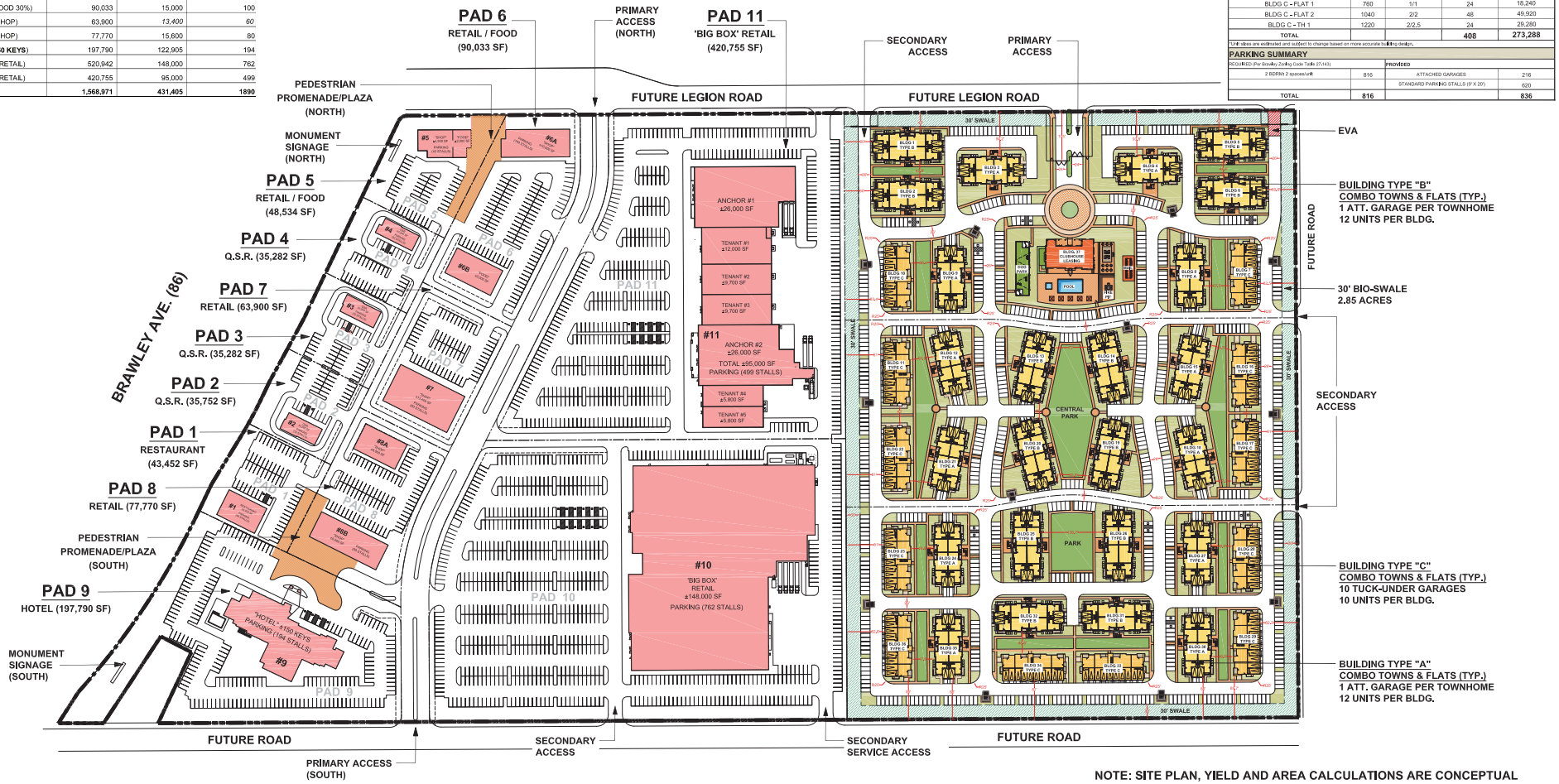


Jacob Swim, TE
Michael Baker International

Enclosed: Opening Year 2028 Plus Project AM and PM Synchro Worksheets

COMMERCIAL PAD SUMMARY TABLE			
SITE AREA	36 ACRES		
PAD SUMMARY			
PAD NUMBER	**LOT SIZE (SF)**	**TOTAL BUILDING AREA (SF)**	**NO. OF PARKING PROVIDED**
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL / FOOD 30%)	48,534	6,500	42
#6 (RETAIL/ FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	*13,400*	*60*
#8 (RETAIL / SHOP)	77,770	15,600	80
#9 (HOTEL, **150 KEYS**)	197,790	122,905	194
#4 ('BIG BOX' RETAIL)	520,942	148,000	762
#4 ('BIG BOX' RETAIL)	420,755	95,000	499
TOTAL	**1,568,971**	**431,405**	**1890**

APARTMENT SUMMARY TABLE				
SITE AREA	28.77 ACRES			
TOTAL UNITS	408 UNITS			
DENSITY	14.2 DU/AC			
APARTMENT UNIT SUMMARY				
UNIT PLAN	SQ. FT.*	BD/BA	# UNITS	TOTAL SQ.
BLDG A - UNIT 1	760	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG C - CARRIAGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	760	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	49,920
BLDG C - TH 1	1220	2/2.5	24	29,280
TOTAL			408	273,288
*Unit sizes are estimated and subject to change based on more accurate building design.				
PARKING SUMMARY				
REQUIRED (Per Brawley Zoning Code Table 27.143)		PROVIDED		
2 BDRM/ 2 spaces/unit	816	ATTACHED GARAGES		216
		STANDARD PARKING STALLS (9' X 20')		620
TOTAL	816			836



NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

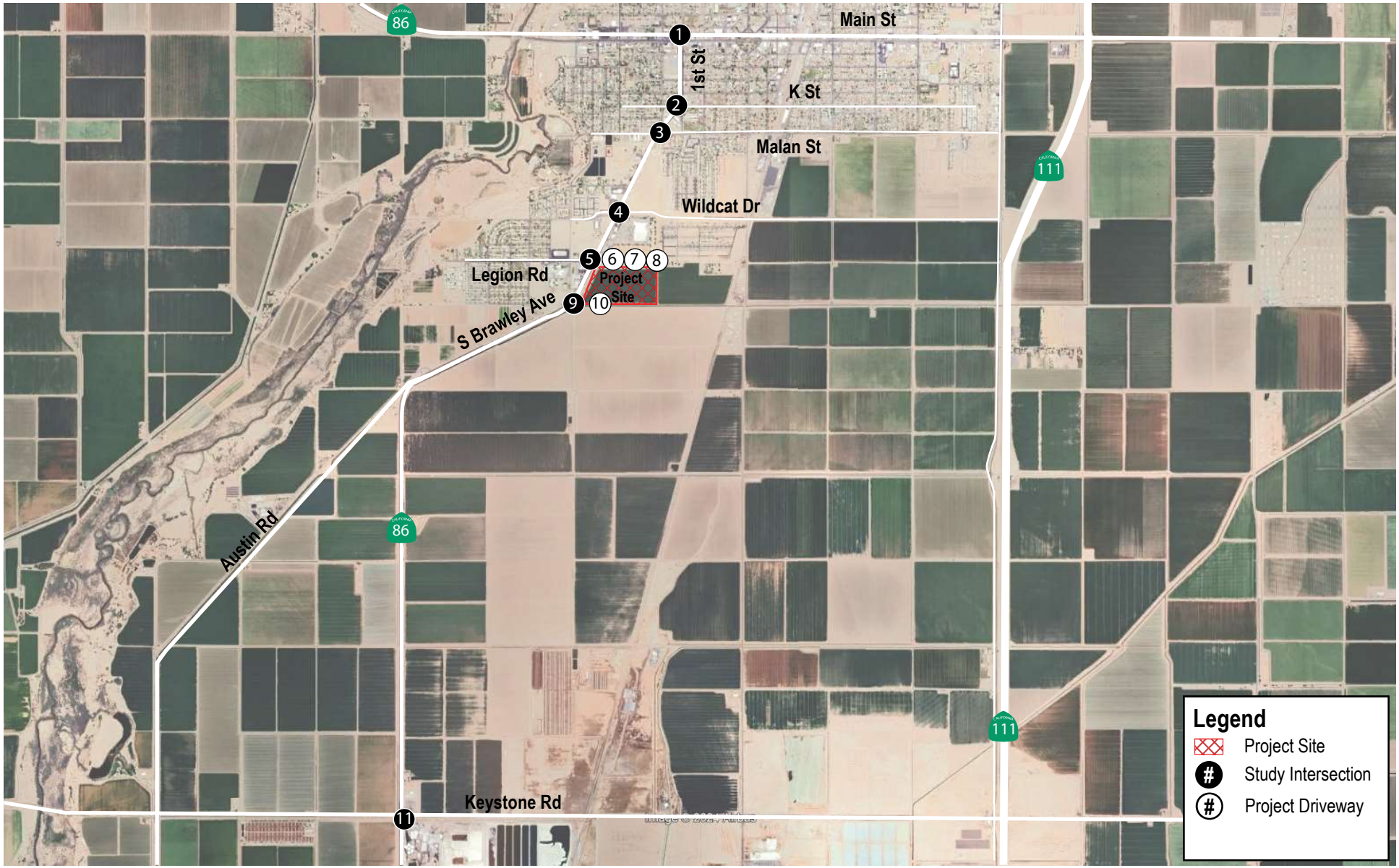
Source: W Design & Architects, 03/09/2025

Not to Scale

Michael Baker INTERNATIONAL

Project Site Plan

Exhibit 1



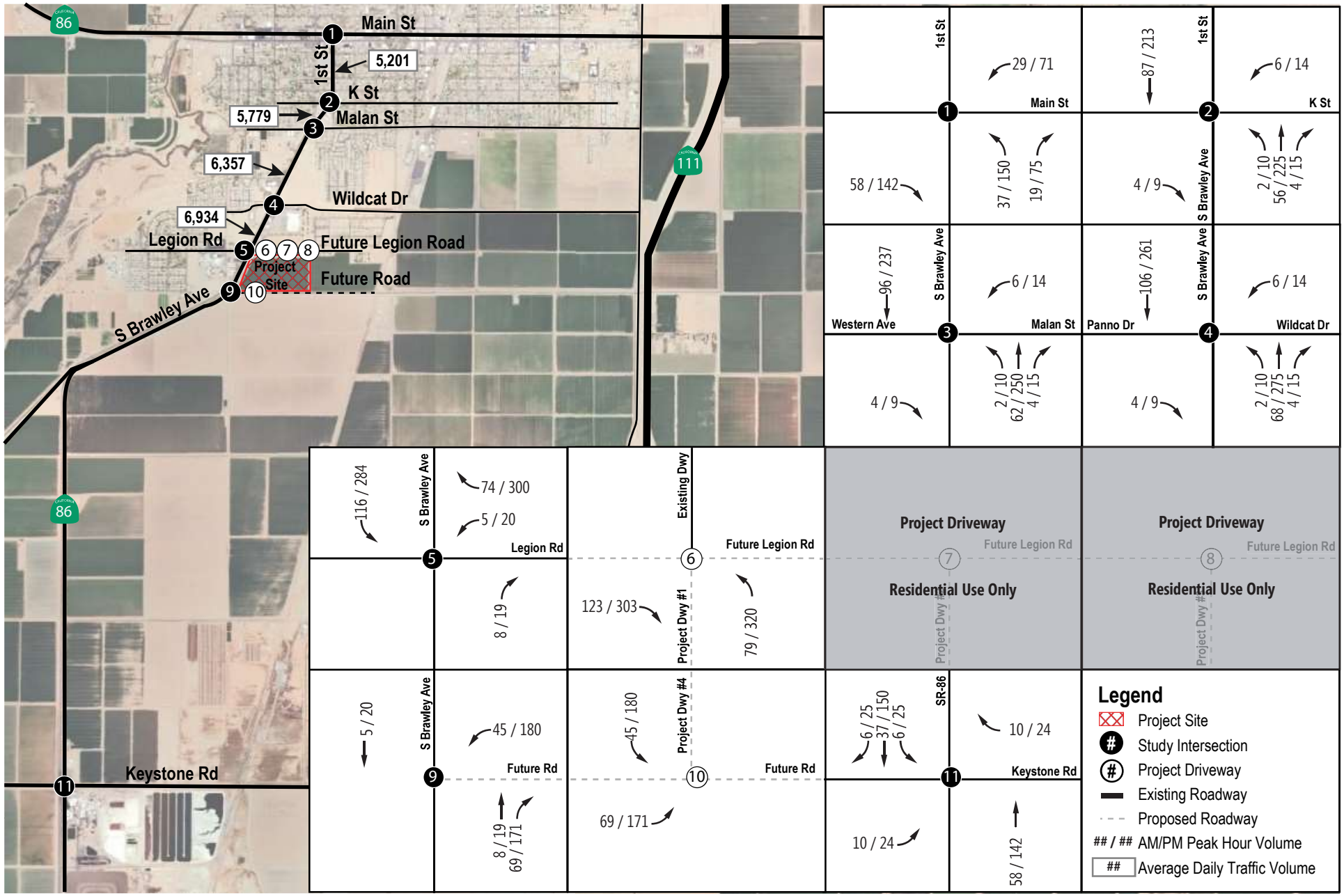
Not to Scale

Michael Baker INTERNATIONAL

Project Study Area

Exhibit 2

Nov 2024
\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

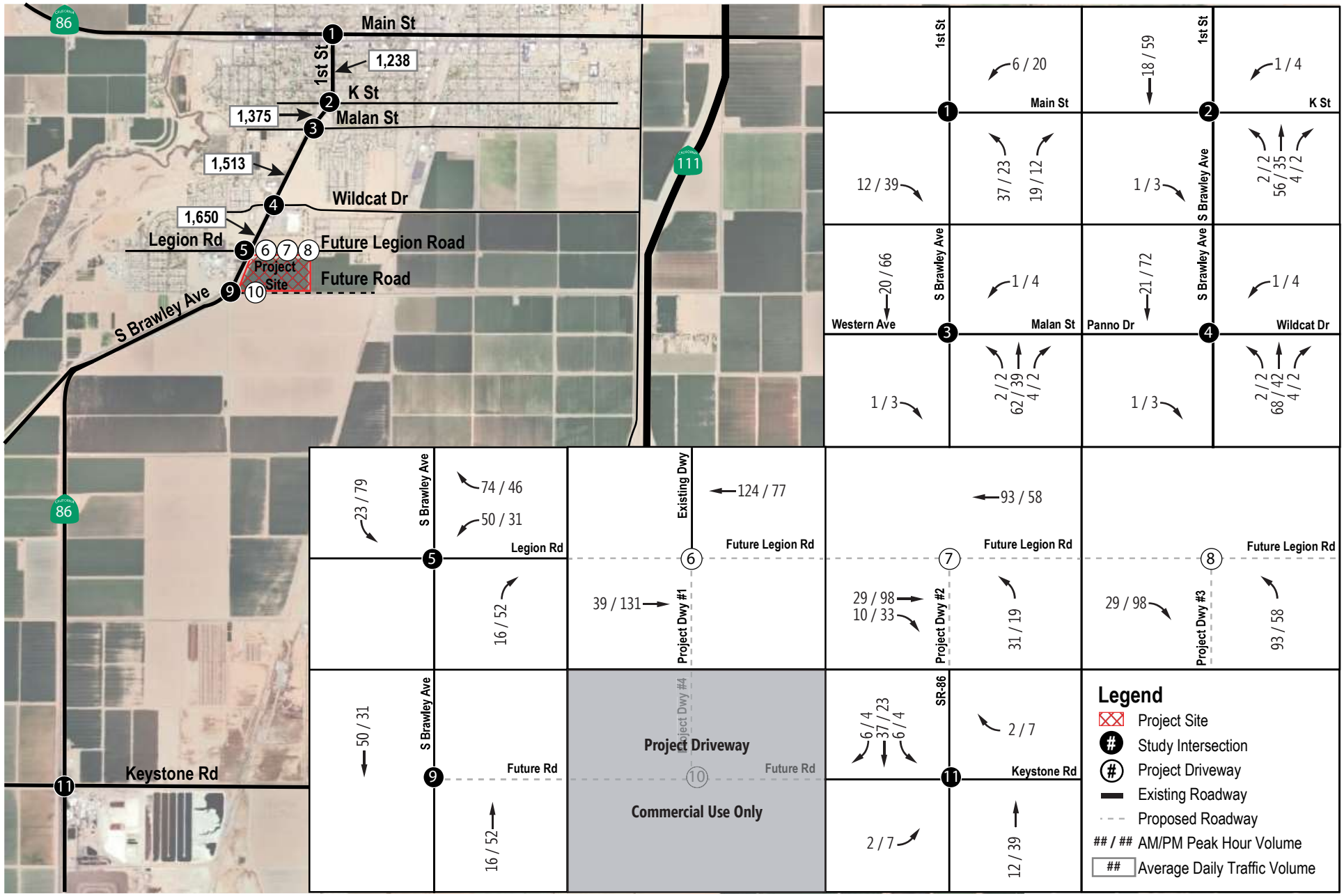
Project Trip Assignment (Commercial)

Exhibit 3

Michael Baker INTERNATIONAL

Nov 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

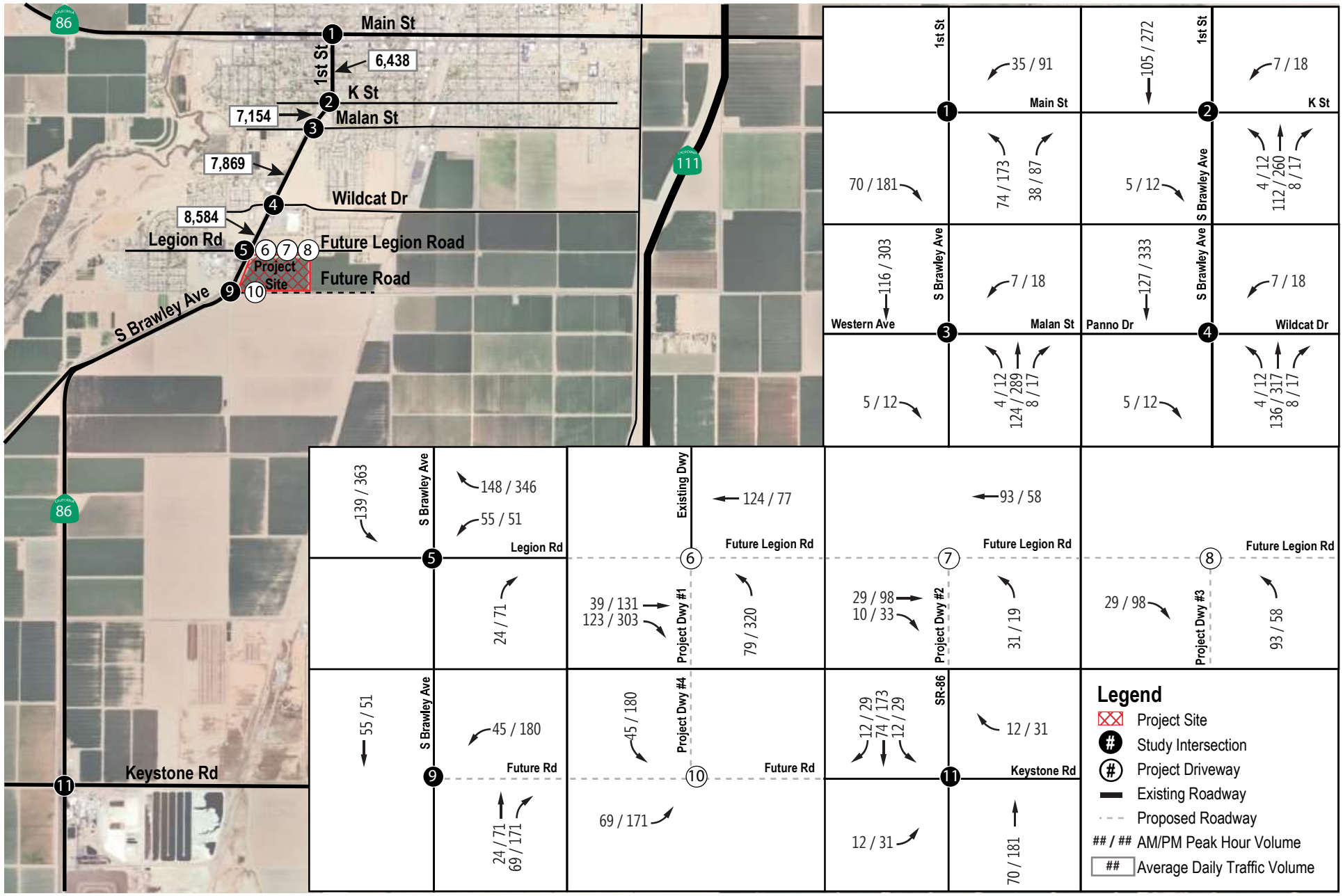
Project Trip Assignment (Residential)

Exhibit 4

Michael Baker INTERNATIONAL

Nov 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

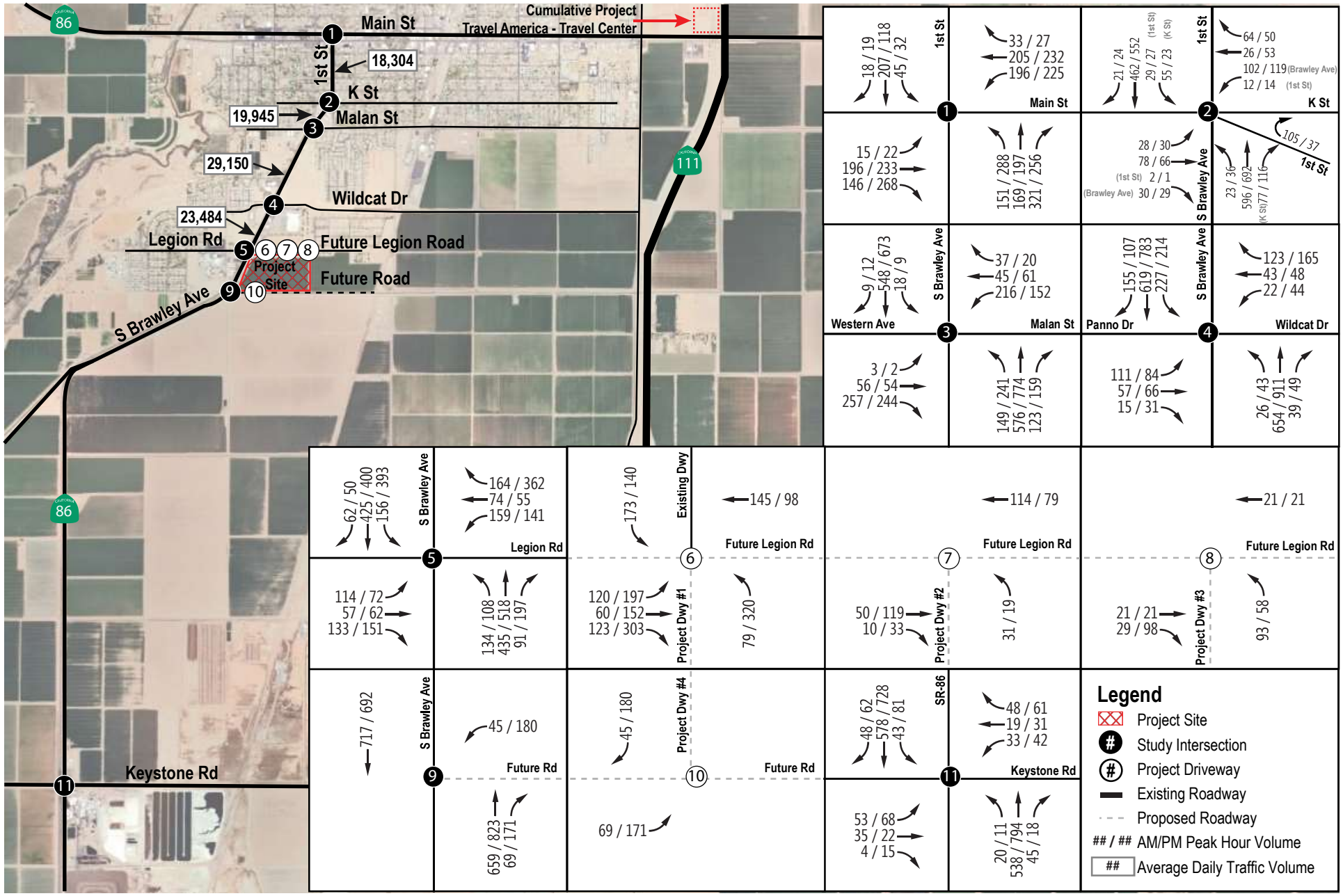
Project Trip Assignment (Total)

Exhibit 5

Michael Baker INTERNATIONAL

Nov 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits



Not to Scale

Opening Year 2028 Plus Project
Daily and AM/PM Peak Hour Traffic Volumes

Exhibit 6

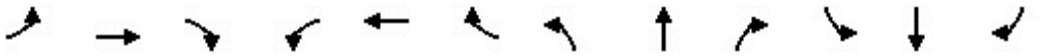
Michael Baker INTERNATIONAL

Nov 2024

\\Santca1hub\carlca1fs1\HROOT\PDATA\202590_Brawley Mixed Use Development\Exhibits

Michael Baker
INTERNATIONAL

Appendix A
Opening Year 2028 Plus Project Synchro Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	196	146	196	205	33	151	169	321	45	207	18
Future Volume (vph)	15	196	146	196	205	33	151	169	321	45	207	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3278		1770	3456		1770	1863	1583	1770	1836	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3278		1770	3456		1770	1863	1583	1770	1836	
Peak-hour factor, PHF	0.50	0.83	0.64	0.63	0.69	0.60	0.87	0.77	0.73	0.49	0.64	0.53
Adj. Flow (vph)	30	236	228	311	297	55	174	219	440	92	323	34
RTOR Reduction (vph)	0	176	0	0	14	0	0	0	222	0	4	0
Lane Group Flow (vph)	30	288	0	311	338	0	174	219	218	92	353	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	2.8	18.5		11.5	27.9		8.5	22.7	34.2	6.2	21.1	
Effective Green, g (s)	2.8	18.5		11.5	27.9		8.5	22.7	34.2	6.2	21.1	
Actuated g/C Ratio	0.03	0.23		0.14	0.34		0.10	0.28	0.42	0.08	0.26	
Clearance Time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	5.5		2.0	6.0		3.0	6.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	61	747		250	1188		185	521	667	135	477	
v/s Ratio Prot	0.02	c0.09		c0.18	0.10		c0.10	c0.12	0.05	0.05	c0.19	
v/s Ratio Perm									0.09			
v/c Ratio	0.49	0.39		1.24	0.28		0.94	0.42	0.33	0.68	0.74	
Uniform Delay, d1	38.5	26.5		34.8	19.3		36.0	23.8	15.7	36.5	27.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	0.8		138.8	0.4		49.1	1.5	0.1	13.3	6.1	
Delay (s)	40.7	27.3		173.6	19.7		85.1	25.4	15.8	49.8	33.6	
Level of Service	D	C		F	B		F	C	B	D	C	
Approach Delay (s)		28.1			91.9			32.8			36.9	
Approach LOS		C			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	22.2
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	28	78	2	30	12	102	26	64	23	596	77	55
Future Volume (vph)	28	78	2	30	12	102	26	64	23	596	77	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (prot)		1832		1583			1792	1583	1770	3483		
Flt Permitted		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (perm)		1832		1583			1792	1583	1770	3483		
Peak-hour factor, PHF	0.62	0.64	0.50	0.67	0.46	0.80	0.62	0.58	0.56	0.68	0.74	0.72
Adj. Flow (vph)	45	122	4	45	26	128	42	110	41	876	104	76
RTOR Reduction (vph)	0	0	0	38	0	0	0	80	0	0	0	0
Lane Group Flow (vph)	0	171	0	7	0	0	196	30	41	980	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		16.7		16.7			18.7	18.7	5.3	60.4		
Effective Green, g (s)		16.7		16.7			18.7	18.7	5.3	60.4		
Actuated g/C Ratio		0.15		0.15			0.17	0.17	0.05	0.54		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		271		234			297	262	83	1868		
v/s Ratio Prot		c0.09					c0.11		0.02	c0.28		
v/s Ratio Perm				0.00				0.02				
v/c Ratio		0.63		0.03			0.66	0.11	0.49	0.52		
Uniform Delay, d1		45.1		41.0			44.0	39.9	52.3	16.8		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		5.3		0.1			5.8	0.3	1.7	0.7		
Delay (s)		50.4		41.1			49.8	40.2	54.0	17.5		
Level of Service		D		D			D	D	D	B		
Approach Delay (s)		48.4					46.3			19.0		
Approach LOS		D					D			B		

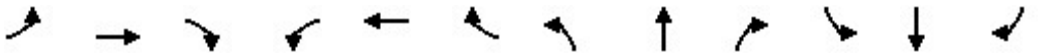
Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	112.6	Sum of lost time (s)	21.5
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	29	462	21	105
Future Volume (vph)	29	462	21	105
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3511		1611
Flt Permitted	0.26	1.00		1.00
Satd. Flow (perm)	484	3511		1611
Peak-hour factor, PHF	0.75	0.72	0.58	0.75
Adj. Flow (vph)	39	642	36	140
RTOR Reduction (vph)	0	2	0	140
Lane Group Flow (vph)	115	676	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	50.4	50.4		0.0
Effective Green, g (s)	50.4	50.4		0.0
Actuated g/C Ratio	0.45	0.45		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	216	1571		0
v/s Ratio Prot		0.19		
v/s Ratio Perm	0.24			
v/c Ratio	0.53	0.43		0.00
Uniform Delay, d1	22.6	21.3		56.3
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	5.9	0.5		0.0
Delay (s)	28.4	21.8		56.3
Level of Service	C	C		E
Approach Delay (s)		22.8		
Approach LOS		C		

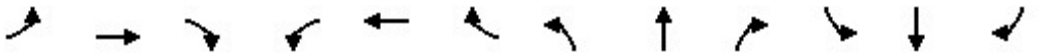
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	56	257	216	45	37	149	576	123	18	548	9
Future Volume (vph)	3	56	257	216	45	37	149	576	123	18	548	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.98		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1857	1583		1762		1770	3449		1770	3530	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1857	1583		1762		1770	3449		1770	3530	
Peak-hour factor, PHF	0.50	0.66	0.94	0.87	0.67	0.57	0.88	0.75	0.78	0.50	0.75	0.67
Adj. Flow (vph)	6	85	273	248	67	65	169	768	158	36	731	13
RTOR Reduction (vph)	0	0	234	0	6	0	0	13	0	0	1	0
Lane Group Flow (vph)	0	91	39	0	374	0	169	913	0	36	743	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.4	10.4		23.8		12.0	35.9		5.3	29.2	
Effective Green, g (s)		10.4	10.4		23.8		12.0	35.9		5.3	29.2	
Actuated g/C Ratio		0.11	0.11		0.25		0.13	0.37		0.06	0.30	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		201	171		437		221	1291		97	1074	
v/s Ratio Prot		c0.05			c0.21		c0.10	c0.26		0.02	0.21	
v/s Ratio Perm			0.02									
v/c Ratio		0.45	0.23		0.86		0.76	0.71		0.37	0.69	
Uniform Delay, d1		40.1	39.1		34.4		40.6	25.5		43.7	29.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.7		15.1		13.2	2.6		0.9	3.7	
Delay (s)		41.7	39.7		49.5		53.8	28.2		44.6	33.1	
Level of Service		D	D		D		D	C		D	C	
Approach Delay (s)		40.2			49.5			32.1			33.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	95.9	Sum of lost time (s)	20.5
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

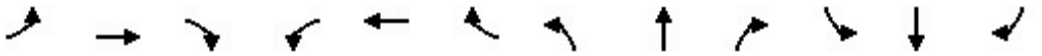
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	57	15	22	43	123	26	654	39	227	619	155
Future Volume (vph)	111	57	15	22	43	123	26	654	39	227	619	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.79	0.75	0.70	0.57	0.85	0.58	0.75	0.60	0.76	0.92	0.80
Adj. Flow (vph)	168	72	20	31	75	145	45	872	65	299	673	194
RTOR Reduction (vph)	0	0	17	0	55	0	0	0	31	0	0	91
Lane Group Flow (vph)	168	72	3	31	165	0	45	872	34	299	673	103
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	15.7	15.7	15.7	15.6	15.6		7.1	36.5	52.1	8.1	37.5	53.2
Effective Green, g (s)	15.7	15.7	15.7	15.6	15.6		7.1	36.5	52.1	8.1	37.5	53.2
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.07	0.36	0.52	0.08	0.37	0.53
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	276	552	247	532	260		242	1285	820	276	1320	837
v/s Ratio Prot	c0.09	0.02		0.01	c0.10		0.01	c0.25	0.01	c0.09	0.19	0.02
v/s Ratio Perm			0.00						0.01			0.05
v/c Ratio	0.61	0.13	0.01	0.06	0.63		0.19	0.68	0.04	1.08	0.51	0.12
Uniform Delay, d1	39.5	36.5	35.8	36.2	39.8		44.0	27.0	11.9	46.2	24.4	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.1	0.0	0.0	5.0		1.7	2.6	0.0	78.2	1.1	0.1
Delay (s)	43.3	36.6	35.9	36.2	44.8		45.7	29.6	11.9	124.4	25.5	12.0
Level of Service	D	D	D	D	D		D	C	B	F	C	B
Approach Delay (s)		40.9			43.7			29.2			48.6	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.5	Sum of lost time (s)	24.6
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

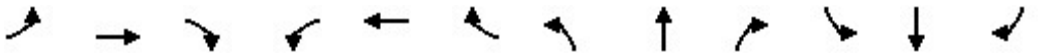
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	57	133	159	74	164	134	435	91	156	425	62
Future Volume (vph)	114	57	133	159	74	164	134	435	91	156	425	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	*1.00	*1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1806	1583		1804	2787	1770	3539	1583	3539	3632	
Flt Permitted		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1806	1583		1804	2787	1770	3539	1583	3539	3632	
Peak-hour factor, PHF	0.71	0.61	0.90	0.79	0.70	0.62	0.79	0.88	0.98	0.67	0.84	0.61
Adj. Flow (vph)	161	93	148	201	106	265	170	494	93	233	506	102
RTOR Reduction (vph)	0	0	100	0	0	169	0	0	67	0	13	0
Lane Group Flow (vph)	0	254	48	0	307	96	170	494	26	233	595	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		20.3	34.4		24.9	38.7	14.1	29.5	29.5	8.1	23.5	
Effective Green, g (s)		20.3	34.4		24.9	38.7	14.1	29.5	29.5	8.1	23.5	
Actuated g/C Ratio		0.19	0.32		0.23	0.36	0.13	0.28	0.28	0.08	0.22	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		344	511		422	1013	234	981	438	269	802	
v/s Ratio Prot		c0.14	0.01		c0.17	0.03	c0.10	0.14		0.07	c0.16	
v/s Ratio Perm			0.02						0.02			
v/c Ratio		0.74	0.09		0.73	0.10	0.73	0.50	0.06	0.87	0.74	
Uniform Delay, d1		40.5	25.1		37.6	22.3	44.3	32.3	28.3	48.6	38.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		8.0	0.0		6.2	0.0	9.1	0.4	0.1	23.3	3.7	
Delay (s)		48.6	25.2		43.8	22.4	53.4	32.7	28.3	72.0	42.3	
Level of Service		D	C		D	C	D	C	C	E	D	
Approach Delay (s)		40.0			33.9			36.8			50.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	106.4	Sum of lost time (s)	23.6
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	60	123	0	145	0	79	0	0	0	0	173
Future Volume (vph)	120	60	123	0	145	0	79	0	0	0	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Lane Util. Factor	1.00	1.00	1.00		0.95		1.00				1.00	
Frt	1.00	1.00	0.85		1.00		1.00				0.86	
Flt Protected	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (prot)	1770	1863	1583		3539		1770				1611	
Flt Permitted	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (perm)	1770	1863	1583		3539		1770				1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	65	134	0	158	0	86	0	0	0	0	188
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	0	0	113	0
Lane Group Flow (vph)	130	65	39	0	158	0	86	0	0	0	75	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Perm		NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	5.8	16.9	16.9		6.6		4.0				23.0	
Effective Green, g (s)	5.8	16.9	16.9		6.6		4.0				23.0	
Actuated g/C Ratio	0.10	0.29	0.29		0.11		0.07				0.40	
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0				3.0	
Lane Grp Cap (vph)	178	548	466		406		123				645	
v/s Ratio Prot	c0.07	0.03			c0.04		c0.05				c0.05	
v/s Ratio Perm			0.02									
v/c Ratio	0.73	0.12	0.08		0.39		0.70				0.12	
Uniform Delay, d1	25.0	14.8	14.7		23.5		26.1				10.8	
Progression Factor	1.00	1.00	1.00		1.00		1.00				1.00	
Incremental Delay, d2	14.3	0.1	0.1		0.6		15.9				0.4	
Delay (s)	39.3	14.9	14.7		24.2		42.1				11.2	
Level of Service	D	B	B		C		D				B	
Approach Delay (s)		24.5			24.2			42.1			11.2	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	50	10	0	114	31	0
Future Volume (Veh/h)	50	10	0	114	31	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	11	0	124	34	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	726					
pX, platoon unblocked						
vC, conflicting volume			65		178	54
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			65		178	54
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1537		812	1013

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	54	11	0	124	34
Volume Left	0	0	0	0	34
Volume Right	0	11	0	0	0
cSH	1700	1700	1700	1700	812
Volume to Capacity	0.03	0.01	0.00	0.07	0.04
Queue Length 95th (ft)	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	9.6
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.6
Approach LOS					A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	21	29	0	21	93	0
Future Volume (Veh/h)	21	29	0	21	93	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	32	0	23	101	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			55		46	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			55		46	23
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	100
cM capacity (veh/h)			1550		964	1054

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	23	32	0	23	101	0
Volume Left	0	0	0	0	101	0
Volume Right	0	32	0	0	0	0
cSH	1700	1700	1700	1700	964	1700
Volume to Capacity	0.01	0.02	0.00	0.01	0.10	0.00
Queue Length 95th (ft)	0	0	0	0	9	0
Control Delay (s)	0.0	0.0	0.0	0.0	9.2	0.0
Lane LOS					A	A
Approach Delay (s)	0.0		0.0		9.2	
Approach LOS					A	

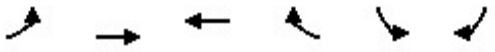
Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	0	659	69	0	717
Future Volume (vph)	45	0	659	69	0	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00		0.95	1.00		0.95
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	1770		3539	1583		3539
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	1770		3539	1583		3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	0	716	75	0	779
RTOR Reduction (vph)	0	0	0	17	0	0
Lane Group Flow (vph)	49	0	716	58	0	779
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	3.1		42.1	42.1		42.1
Effective Green, g (s)	3.1		42.1	42.1		42.1
Actuated g/C Ratio	0.06		0.78	0.78		0.78
Clearance Time (s)	4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	101		2748	1229		2748
v/s Ratio Prot	c0.03		0.20			c0.22
v/s Ratio Perm				0.04		
v/c Ratio	0.49		0.26	0.05		0.28
Uniform Delay, d1	24.8		1.7	1.4		1.7
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.6		0.2	0.1		0.3
Delay (s)	28.4		1.9	1.5		2.0
Level of Service	C		A	A		A
Approach Delay (s)	28.4		1.9			2.0
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	2.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

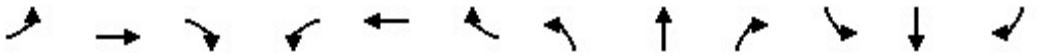
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	0	0	0	0	45
Future Volume (Veh/h)	69	0	0	0	0	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	0	0	0	0	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1140				
pX, platoon unblocked						
vC, conflicting volume	0				150	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				150	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	95
cM capacity (veh/h)	1623				803	1085

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	75	0	0	49
Volume Left	75	0	0	0
Volume Right	0	0	0	49
cSH	1623	1700	1700	1085
Volume to Capacity	0.05	0.00	0.00	0.05
Queue Length 95th (ft)	4	0	0	4
Control Delay (s)	7.3	0.0	0.0	8.5
Lane LOS	A			A
Approach Delay (s)	7.3		0.0	8.5
Approach LOS				A

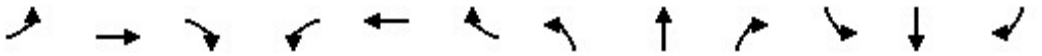
Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	35	4	33	19	48	20	538	45	43	578	48
Future Volume (vph)	53	35	4	33	19	48	20	538	45	43	578	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.99			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1794			1715		1770	3539	1583	1770	3539	1583
Flt Permitted		0.53			0.81		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		975			1421		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.65	0.75	0.50	0.52	0.75	0.65	0.59	0.88	0.67	0.56	0.95	0.57
Adj. Flow (vph)	82	47	8	63	25	74	34	611	67	77	608	84
RTOR Reduction (vph)	0	2	0	0	30	0	0	0	47	0	0	58
Lane Group Flow (vph)	0	135	0	0	132	0	34	611	20	77	608	26
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		14.3			14.4		4.4	27.7	27.7	6.1	29.4	29.4
Effective Green, g (s)		14.3			14.4		4.4	27.7	27.7	6.1	29.4	29.4
Actuated g/C Ratio		0.15			0.15		0.05	0.30	0.30	0.07	0.31	0.31
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		148			218		83	1047	468	115	1111	497
v/s Ratio Prot							0.02	c0.17		c0.04	0.17	
v/s Ratio Perm		c0.14			c0.09				0.01			0.02
v/c Ratio		0.91			0.60		0.41	0.58	0.04	0.67	0.55	0.05
Uniform Delay, d1		39.0			36.9		43.3	28.0	23.5	42.8	26.6	22.4
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		48.9			4.7		1.2	1.6	0.1	10.9	1.3	0.1
Delay (s)		88.0			41.6		44.5	29.6	23.6	53.6	27.8	22.5
Level of Service		F			D		D	C	C	D	C	C
Approach Delay (s)		88.0			41.6			29.8			29.8	
Approach LOS		F			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	31.1
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	233	268	225	232	27	281	197	256	32	118	19
Future Volume (vph)	22	233	268	225	232	27	281	197	256	32	118	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.91		1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3214		1770	3487		1770	1863	1583	1770	1821	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3214		1770	3487		1770	1863	1583	1770	1821	
Peak-hour factor, PHF	0.75	0.91	0.66	0.62	0.88	0.93	0.88	0.79	0.90	0.63	0.82	0.75
Adj. Flow (vph)	29	256	406	363	264	29	319	249	284	51	144	25
RTOR Reduction (vph)	0	228	0	0	6	0	0	0	149	0	5	0
Lane Group Flow (vph)	29	434	0	363	287	0	319	249	135	51	164	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	4.5	25.4		22.3	43.9		18.6	26.9	49.2	6.7	15.7	
Effective Green, g (s)	4.5	25.4		22.3	43.9		18.6	26.9	49.2	6.7	15.7	
Actuated g/C Ratio	0.04	0.25		0.22	0.42		0.18	0.26	0.48	0.06	0.15	
Clearance Time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	5.5		2.0	6.0		3.0	6.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	76	788		381	1479		318	484	752	114	276	
v/s Ratio Prot	0.02	c0.14		c0.21	0.08		c0.18	0.13	0.04	0.03	c0.09	
v/s Ratio Perm									0.05			
v/c Ratio	0.38	0.55		0.95	0.19		1.00	0.51	0.18	0.45	0.59	
Uniform Delay, d1	48.1	34.1		40.1	18.7		42.5	32.7	15.6	46.6	40.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	1.6		33.6	0.2		51.3	2.4	0.0	2.8	3.4	
Delay (s)	49.3	35.7		73.7	18.9		93.7	35.2	15.6	49.4	44.3	
Level of Service	D	D		E	B		F	D	B	D	D	
Approach Delay (s)		36.3			49.2			50.6			45.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	103.5	Sum of lost time (s)	22.2
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	30	66	1	29	14	119	53	50	36	692	116	23
Future Volume (vph)	30	66	1	29	14	119	53	50	36	692	116	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (prot)		1828		1583			1800	1583	1770	3459		
Flt Permitted		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (perm)		1828		1583			1800	1583	1770	3459		
Peak-hour factor, PHF	0.79	0.74	0.25	0.67	0.54	0.73	0.66	0.73	0.72	0.83	0.78	0.43
Adj. Flow (vph)	38	89	4	43	26	163	80	68	50	834	149	53
RTOR Reduction (vph)	0	0	0	37	0	0	0	54	0	0	0	0
Lane Group Flow (vph)	0	131	0	6	0	0	269	14	50	983	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		13.7		13.7			21.3	21.3	5.3	48.5		
Effective Green, g (s)		13.7		13.7			21.3	21.3	5.3	48.5		
Actuated g/C Ratio		0.14		0.14			0.21	0.21	0.05	0.48		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		249		216			382	336	93	1672		
v/s Ratio Prot		c0.07					c0.15		0.03	c0.28		
v/s Ratio Perm				0.00				0.01				
v/c Ratio		0.53		0.03			0.70	0.04	0.54	0.59		
Uniform Delay, d1		40.3		37.5			36.6	31.4	46.3	18.7		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		2.6		0.1			6.2	0.1	3.0	1.0		
Delay (s)		42.9		37.6			42.8	31.5	49.3	19.7		
Level of Service		D		D			D	C	D	B		
Approach Delay (s)		41.6					40.5			21.1		
Approach LOS		D					D			C		

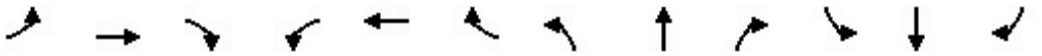
Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.3	Sum of lost time (s)	21.5
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	27	552	24	37
Future Volume (vph)	27	552	24	37
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3511		1611
Flt Permitted	0.25	1.00		1.00
Satd. Flow (perm)	465	3511		1611
Peak-hour factor, PHF	0.65	0.75	0.57	0.73
Adj. Flow (vph)	42	736	42	51
RTOR Reduction (vph)	0	2	0	51
Lane Group Flow (vph)	95	776	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	38.5	38.5		0.0
Effective Green, g (s)	38.5	38.5		0.0
Actuated g/C Ratio	0.38	0.38		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	178	1347		0
v/s Ratio Prot		0.22		
v/s Ratio Perm	0.20			
v/c Ratio	0.53	0.58		0.00
Uniform Delay, d1	23.9	24.4		50.1
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	7.1	1.2		0.0
Delay (s)	31.1	25.6		50.1
Level of Service	C	C		D
Approach Delay (s)		26.2		
Approach LOS		C		

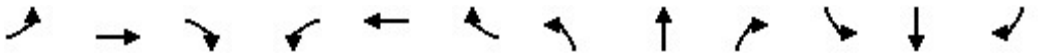
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	54	244	152	61	20	241	774	159	9	673	12
Future Volume (vph)	2	54	244	152	61	20	241	774	159	9	673	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.99		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1854	1583		1776		1770	3441		1770	3528	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1854	1583		1776		1770	3441		1770	3528	
Peak-hour factor, PHF	0.25	0.71	0.86	0.71	0.85	0.57	0.84	0.97	0.88	0.50	0.76	0.63
Adj. Flow (vph)	8	76	284	214	72	35	287	798	181	18	886	19
RTOR Reduction (vph)	0	0	254	0	4	0	0	13	0	0	1	0
Lane Group Flow (vph)	0	84	30	0	317	0	287	966	0	18	904	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.1	10.1		19.3		18.3	43.6		3.5	28.8	
Effective Green, g (s)		10.1	10.1		19.3		18.3	43.6		3.5	28.8	
Actuated g/C Ratio		0.10	0.10		0.20		0.19	0.45		0.04	0.30	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		193	164		353		333	1546		63	1047	
v/s Ratio Prot		c0.05			c0.18		c0.16	0.28		0.01	c0.26	
v/s Ratio Perm			0.02									
v/c Ratio		0.44	0.18		0.90		0.86	0.62		0.29	0.86	
Uniform Delay, d1		40.8	39.7		37.9		38.1	20.4		45.5	32.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.5		24.2		19.3	1.4		0.9	9.4	
Delay (s)		42.3	40.2		62.1		57.4	21.8		46.4	41.6	
Level of Service		D	D		E		E	C		D	D	
Approach Delay (s)		40.7			62.1			29.9			41.7	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	97.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

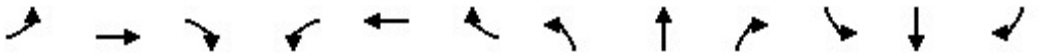
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	66	31	44	48	165	43	911	49	214	783	107
Future Volume (vph)	84	66	31	44	48	165	43	911	49	214	783	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.65	0.64	0.78	0.80	0.93	0.73	0.84	0.58	0.97	0.89	0.84
Adj. Flow (vph)	127	102	48	56	60	177	59	1085	84	221	880	127
RTOR Reduction (vph)	0	0	41	0	84	0	0	0	40	0	0	61
Lane Group Flow (vph)	127	102	7	56	153	0	59	1085	44	221	880	66
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	13.3	13.3	13.3	14.9	14.9		7.0	36.6	51.5	8.0	37.6	50.9
Effective Green, g (s)	13.3	13.3	13.3	14.9	14.9		7.0	36.6	51.5	8.0	37.6	50.9
Actuated g/C Ratio	0.14	0.14	0.14	0.15	0.15		0.07	0.38	0.53	0.08	0.39	0.52
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	241	483	216	525	253		246	1329	837	281	1366	827
v/s Ratio Prot	c0.07	0.03		0.02	c0.09		0.02	c0.31	0.01	c0.06	0.25	0.01
v/s Ratio Perm			0.00						0.02			0.03
v/c Ratio	0.53	0.21	0.03	0.11	0.61		0.24	0.82	0.05	0.79	0.64	0.08
Uniform Delay, d1	39.1	37.4	36.5	35.5	38.5		42.7	27.4	11.1	43.9	24.4	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	0.1	0.1	4.1		2.3	5.0	0.0	19.6	2.0	0.0
Delay (s)	41.2	37.6	36.5	35.6	42.6		45.0	32.3	11.2	63.5	26.4	11.6
Level of Service	D	D	D	D	D		D	C	B	E	C	B
Approach Delay (s)		39.1			41.2			31.5			31.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	24.6
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

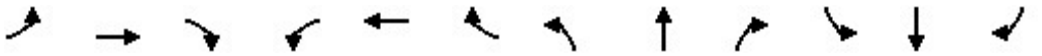
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	62	151	141	55	362	108	518	197	393	400	50
Future Volume (vph)	72	62	151	141	55	362	108	518	197	393	400	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	*1.00	*1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1819	1583		1795	2787	1770	3539	1583	3539	3656	
Flt Permitted		0.98	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1819	1583		1795	2787	1770	3539	1583	3539	3656	
Peak-hour factor, PHF	0.77	0.62	0.81	0.76	0.93	0.94	0.94	0.82	0.85	0.95	0.95	0.84
Adj. Flow (vph)	94	100	186	186	59	385	115	632	232	414	421	60
RTOR Reduction (vph)	0	0	132	0	0	229	0	0	172	0	8	0
Lane Group Flow (vph)	0	194	54	0	245	156	115	632	60	414	473	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		15.9	26.7		20.5	34.5	10.8	23.7	23.7	8.3	21.2	
Effective Green, g (s)		15.9	26.7		20.5	34.5	10.8	23.7	23.7	8.3	21.2	
Actuated g/C Ratio		0.17	0.29		0.22	0.38	0.12	0.26	0.26	0.09	0.23	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		314	459		399	1045	207	911	407	319	842	
v/s Ratio Prot		c0.11	0.01		c0.14	0.06	0.06	c0.18		c0.12	0.13	
v/s Ratio Perm			0.02						0.04			
v/c Ratio		0.62	0.12		0.61	0.15	0.56	0.69	0.15	1.30	0.56	
Uniform Delay, d1		35.2	24.0		32.2	19.0	38.3	30.9	26.3	41.9	31.3	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.6	0.0		2.8	0.1	1.8	2.3	0.2	155.2	0.9	
Delay (s)		38.8	24.0		35.0	19.1	40.2	33.2	26.5	197.1	32.1	
Level of Service		D	C		C	B	D	C	C	F	C	
Approach Delay (s)		31.6			25.3			32.4			108.4	
Approach LOS		C			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	54.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	152	303	0	98	0	320	0	0	0	0	140
Future Volume (vph)	197	152	303	0	98	0	320	0	0	0	0	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Lane Util. Factor	1.00	1.00	1.00		0.95		1.00				1.00	
Frt	1.00	1.00	0.85		1.00		1.00				0.86	
Flt Protected	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (prot)	1770	1863	1583		3539		1770				1611	
Flt Permitted	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (perm)	1770	1863	1583		3539		1770				1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	165	329	0	107	0	348	0	0	0	0	152
RTOR Reduction (vph)	0	0	221	0	0	0	0	0	0	0	109	0
Lane Group Flow (vph)	214	165	108	0	107	0	348	0	0	0	43	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Perm		NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	11.7	22.2	22.2		6.0		12.6				19.3	
Effective Green, g (s)	11.7	22.2	22.2		6.0		12.6				19.3	
Actuated g/C Ratio	0.17	0.33	0.33		0.09		0.19				0.29	
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0				3.0	
Lane Grp Cap (vph)	306	611	519		314		329				459	
v/s Ratio Prot	c0.12	c0.09			0.03		c0.20				c0.03	
v/s Ratio Perm			0.07									
v/c Ratio	0.70	0.27	0.21		0.34		1.06				0.09	
Uniform Delay, d1	26.3	16.7	16.4		28.9		27.5				17.7	
Progression Factor	1.00	1.00	1.00		1.00		1.00				1.00	
Incremental Delay, d2	6.8	0.2	0.2		0.7		65.7				0.4	
Delay (s)	33.1	17.0	16.6		29.6		93.2				18.1	
Level of Service	C	B	B		C		F				B	
Approach Delay (s)		21.7			29.6			93.2			18.1	
Approach LOS		C			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	119	33	0	79	19	0
Future Volume (Veh/h)	119	33	0	79	19	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	36	0	86	21	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	726					
pX, platoon unblocked						
vC, conflicting volume			165		215	129
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			165		215	129
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1413		773	921

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	129	36	0	86	21
Volume Left	0	0	0	0	21
Volume Right	0	36	0	0	0
cSH	1700	1700	1700	1700	773
Volume to Capacity	0.08	0.02	0.00	0.05	0.03
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	9.8
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.8
Approach LOS					A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	16.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	21	98	0	21	58	0
Future Volume (Veh/h)	21	98	0	21	58	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	107	0	23	63	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		46	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		46	23
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1455		964	1054

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	23	107	0	23	63	0
Volume Left	0	0	0	0	63	0
Volume Right	0	107	0	0	0	0
cSH	1700	1700	1700	1700	964	1700
Volume to Capacity	0.01	0.06	0.00	0.01	0.07	0.00
Queue Length 95th (ft)	0	0	0	0	5	0
Control Delay (s)	0.0	0.0	0.0	0.0	9.0	0.0
Lane LOS					A	A
Approach Delay (s)	0.0		0.0		9.0	
Approach LOS					A	

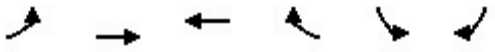
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	180	0	823	171	0	692
Future Volume (vph)	180	0	823	171	0	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00		0.95	1.00		0.95
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	1770		3539	1583		3539
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	1770		3539	1583		3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	0	895	186	0	752
RTOR Reduction (vph)	0	0	0	67	0	0
Lane Group Flow (vph)	196	0	895	119	0	752
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	9.2		32.5	32.5		32.5
Effective Green, g (s)	9.2		32.5	32.5		32.5
Actuated g/C Ratio	0.18		0.64	0.64		0.64
Clearance Time (s)	4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	321		2268	1014		2268
v/s Ratio Prot	c0.11		c0.25			0.21
v/s Ratio Perm				0.08		
v/c Ratio	0.61		0.39	0.12		0.33
Uniform Delay, d1	19.1		4.4	3.5		4.1
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.4		0.5	0.2		0.4
Delay (s)	22.5		4.9	3.8		4.5
Level of Service	C		A	A		A
Approach Delay (s)	22.5		4.7			4.5
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	171	0	0	0	0	180
Future Volume (Veh/h)	171	0	0	0	0	180
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	186	0	0	0	0	196
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1140				
pX, platoon unblocked						
vC, conflicting volume	0				372	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				372	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	82
cM capacity (veh/h)	1623				557	1085

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	186	0	0	196
Volume Left	186	0	0	0
Volume Right	0	0	0	196
cSH	1623	1700	1700	1085
Volume to Capacity	0.11	0.00	0.00	0.18
Queue Length 95th (ft)	10	0	0	16
Control Delay (s)	7.5	0.0	0.0	9.0
Lane LOS	A			A
Approach Delay (s)	7.5		0.0	9.0
Approach LOS				A

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	27.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	22	15	42	31	61	11	794	18	81	728	62
Future Volume (vph)	68	22	15	42	31	61	11	794	18	81	728	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.98			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1771			1723		1770	3539	1583	1770	3539	1583
Flt Permitted		0.48			0.82		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		879			1444		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.73	0.66	0.70	0.67	0.81	0.78	0.50	0.80	0.71	0.94	0.92	0.65
Adj. Flow (vph)	93	33	21	63	38	78	22	992	25	86	791	95
RTOR Reduction (vph)	0	4	0	0	28	0	0	0	17	0	0	59
Lane Group Flow (vph)	0	143	0	0	151	0	22	993	8	86	791	36
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		14.0			15.6		3.1	34.6	34.6	8.0	39.5	39.5
Effective Green, g (s)		14.0			15.6		3.1	34.6	34.6	8.0	39.5	39.5
Actuated g/C Ratio		0.14			0.15		0.03	0.33	0.33	0.08	0.38	0.38
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		119			218		53	1185	530	137	1353	605
v/s Ratio Prot							0.01	c0.28		c0.05	c0.22	
v/s Ratio Perm		c0.16			c0.10				0.01			0.02
v/c Ratio		1.20			0.69		0.42	0.84	0.02	0.63	0.58	0.06
Uniform Delay, d1		44.6			41.6		49.2	31.8	23.0	46.2	25.4	20.2
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		145.6			9.1		1.9	6.2	0.0	6.3	1.2	0.1
Delay (s)		190.2			50.7		51.1	38.0	23.0	52.5	26.6	20.3
Level of Service		F			D		D	D	C	D	C	C
Approach Delay (s)		190.2			50.7			37.9			28.3	
Approach LOS		F			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	31.1
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

PEER REVIEW

To:	Cynthia Mancha (planning@brawley-ca.gov)	YK Master Plan Brawley Mixed Use Development Brawley Avenue and Legion Road Brawley, CA
From:	BenJetta Johnson, PE, PTOE (benjetta.johnson@NV5.com)	
cc:	James Miller, PE (james.miller@NV5.com)	
Date:	August 20, 2025	

KEY FINDINGS

- Development expected to have minor impact on surrounding transportation network; Less than significant VMT impact.
- Traffic signals recommended at S. Brawley Avenue & Future Road and Future Legion Road & Project Driveway #1.

This memorandum was prepared to document our review of the transportation impact study (TIS) related to the YK America Master Plan which will include the proposed Brawley Mixed Use Development located in Brawley, California. The report prepared on April 22, 2025, by Michael Baker International, Inc., amends the January 2025 report.

Traffic Impact Study Review and Requirements

The updated TIS includes modified trip generation estimates and evaluates the potential delay, operations, and vehicle miles traveled (VMT) impacts associated with the mixed-use development. The analyses were conducted in accordance with the Local Mobility Assessment and California Environmental Quality Act (CEQA) guidelines.

Trip Generation

The updated TIS memorandum includes total estimated trips for the proposed mixed-use development. Modifications include a 50-room increase in lodging and 16,500 square foot reduction in commercial space. These changes result in lower daily and peak hour trips compared to the previous TIS submittal. The table below summarizes the trip generation based on the Institute of Transportation Engineers Trip Generation Manual, 11th Edition methodology for various land uses.

Land Use	Size	Daily	Weekday AM Peak			Weekday PM Peak		
			In	Out	Total	In	Out	Total
Hotel	150 Rooms	1,199	39	30	69	45	44	89
Multi-Family Residential	408 Units	2,750	39	124	163	131	77	208
Shopping Plaza	65,500 SF	4,423	70	43	113	167	173	340
Shopping Center	243,000 SF	8,993	127	77	204	397	429	826
Pass-By Trips Reduction (34%)		*-3,058*	*-43*	*-26*	*-69*	*-135*	*-146*	*-281*
TOTAL TRIP GENERATION		14,307	232	248	480	605	577	1,182

Traffic Operations and Mitigation

The updated TIS memorandum includes a Level of Service (LOS) analysis for the surrounding transportation network operations during the morning and evening peak hours. The analysis found that all study area intersections currently operate at acceptable levels of service and are projected to continue to operate acceptably in the future based on the proposed development mitigation. It should be noted that a section of S. Brawley Avenue from Malan Street to Wildcat Drive is expected to operate at LOS F under 2028 Plus Project conditions. This section has been built to its ultimate cross section; therefore, additional widening is not recommended. The table below summarizes the traffic operations by scenario.

Scenario Year	Operation	Traffic Issue/Mitigation
2024 Existing Conditions	Good	None/Not Recommended
2028 Opening Year Without Project Conditions	Good	None/Not Recommended
2028 Opening Year Plus Project Conditions	Good	None/Mitigation Includes: • New Traffic Signal at S. Brawley Avenue & Future Road • New Traffic Signal at Future Legion Road & Project Driveway #1 (D1)