CITY OF BREA
NOTICE OF PREPARATION
of a DRAFT ENVIRONMENTAL IMPACT REPORT
for the GASLIGHT SQUARE REDEVELOPMENT PROJECT
and NOTICE OF SCOPING MEETING

Date:	June 20, 2022
Subject:	Notice of Preparation and Scoping Meeting for the Gaslight Square Redevelopment Project Draft Environmental Impact Report
To:	State Clearinghouse, State Responsible Agencies, State Trustee Agencies, Other Public Agencies, Interested Organizations
Lead Agency/Sponsor:	City of Brea, Planning Division
Project Title:	Gaslight Square Redevelopment Project

NOTICE IS HEREBY GIVEN that the City of Brea (City) will prepare an environment impact report (EIR) for the Gaslight Square Redevelopment Project ("Project"). The City is the lead agency for the project. The purpose of this notice is to (1) serve as a Notice of Preparation (NOP) of an EIR pursuant to the California Environment Quality Act (CEQA) Guidelines Section 15082, (2) solicit comments and suggestions regarding the scope and content of the EIR to be prepared for the Project, and (3) notice the public scoping meeting.

NOTICE OF PREPARATION: The City determined that the proposed project would require preparation of a full-scope EIR; thus, an Initial Study was not prepared in conjunction with this NOP. The City of Brea, as Lead Agency, requests that responsible and trustee agencies respond in a manner consistent with Section 15082(b) of the CEQA Guidelines. Pursuant to Section 21080.4 of the CEQA Guidelines, all responsible agencies must submit any comments in response to this notice no later than 30 days after receipt. The public review period will commence on **Monday, June 20, 2022** and will close on **Wednesday, July 20, 2022.** A copy of the NOP can be viewed electronically on the City's webpage at: www.cityofbrea.net/projectsinprocess

PUBLIC SCOPING MEETING: The City will hold a scoping meeting in order to present the project and the EIR process, and to provide an opportunity for agency representatives and the public to assist the lead agency in determining the scope and content of the environmental analysis for the EIR. The public scoping meeting will be held at the time and location listed below:

Date: June 28, 2022
Time: 6:00 p.m. – 7:00 p.m.
Location: Community Room A (2nd Floor)
1 Civic Center Circle
Brea, CA 92821

WRITTEN COMMENTS: We ask that any person wishing to comment on the NOP provide written comments by the end of the public review period at **5:00 p.m., Wednesday, July 20, 2022**, addressed to:

City of Brea – Planning Division
Cecilia Madrigal-Gonzalez, Assistant Planner
1 Civic Center Circle, Level 3
Brea, CA 92821

Or

at ceciliamg@cityofbrea.net

PROPERTY LOCATION: As shown *on Figure 1 - Aerial Photograph*, the Project site, commonly known as Gaslight Square Center, is approximately 1.88 acres in size and is located at 255 East Imperial Highway in the City of Brea. The Gaslight Square Center is generally bounded by a City owned parking lot and residential uses to the north, Laurel Elementary School to the east, across

generally bounded by a City owned parking lot and residential uses to the north, Laurel Elementary School to the east, across Flower Street, commercial uses to the south across Imperial Highway/SR-90, and commercial uses and a City-owned parking structure to the west, across Orange Avenue.

PROJECT DESCRIPTION: The project location is at 255 E. Imperial Hwy., commonly known as the Gaslight Square. The Gaslight Square is currently developed with five existing commercial buildings, totaling 23,558 square feet. The project proposes to retain two of the existing five buildings that are currently used for medical uses. The remaining three commercial buildings totaling 18,286 square feet would be demolished to facilitate the construction of a 2,000 square foot drive-through restaurant with an outdoor seating area and a 6,000 square foot commercial building consisting of 2,400 square feet of restaurant and 3,600 square feet of medical or retail space ("Project"). The drive-through restaurant building would be located on the southeast portion of the site and could accommodate 12 vehicles within the drive-through. The restaurant and retail/medical building would be located at the southwest portion of the site. New landscape is proposed throughout the site featuring new trees and planters. The project would also reconfigure the existing parking lot and proposes 92 parking spaces on-site and 12 parking space off-site, for a total of 104 spaces. As proposed the new buildings architectural style is modern with a variety of exterior material including wood siding, concrete, smooth stucco, brick and aluminum. At this time, the project is not proposing any specific tenants or businesses. The project is requesting the following entitlements: (1) Precise Development for the construction of the new commercial buildings, (2) General Plan Amendment from Office/Financial Commercial to MixedUse III, (3) Zone Change from C-P (PD) Commercial, Administrative and Professional Office (Precise Development) to MU-III (Mixed Use III), (4) Conditional Use Permit to allow a drive-through restaurant and (5) Amendment to Conditional Use Permit No. 90-20 to amend the Brea Gaslight Square sign program.

POTENTIAL SIGNIFICANT EFFECTS: The EIR to be prepared will discuss potential environment impacts of the proposed project, including potential pre-construction, construction, and operations impacts, and whether the implementation of the proposed project would reduce environmental impacts, or whether additional mitigations measures would be required to ensure that environmental impacts are reduced to the extent feasible. The EIR will address the proposed project's potential impacts to the following environmental topics:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources/Trial Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Utilities and Services Systems
- Wildfire

Date: June 16, 2022

Signature:

Jason Killebrew, Community Development Director

ATTACHMENT(s):
Figure 1 – Aerial Photograph

FIGURE 1—Aerial Photograph

Gaslight Square Redevelopment Project • 255 E. Imperial Highway, Brea California



Project Boundary

Area of Disturbance

Brea Olinda Unified School District

1 Civic Center Circle, Level II
P.O. Box 300
Brea, CA 92822-0300
(714) 990-7800
Fax: (714) 529-2137
www.bousd.us

July 19, 2022

Cecilia Madrigal-Gonzalez, Assistant Planner
City of Brea
1 Civic Center Circle, Level 3
Brea, Ca. 92821

Re: Notice of Preparation- Gaslight Square Redevelopment Project

Dear Ms. Madrigal-Gonzalez,

The Brea Olinda Unified School District is in receipt of the Notice of Preparation (NOP), dated June 20, 2022 for Gaslight Square, seeking comments by July 20, 2022. Please know that previous feedback was shared with the City in a letter dated January 29, 2021 for the same property.

With the understanding that a possible Environmental Impact Report (EIR) will be prepared requesting a response from the District, the attached plans and document do not provide enough information to sufficiently form a response to the NOP. Therefore, we reserve the right for future comments on this proposal and further discussions specifically addressing mitigation measures. Upon receipt of the EIR, the District will engage in a more in-depth analysis and discussion on possible impacts and mitigation measures to avoid significant adverse impacts on Laurel Magnet Elementary School. In the meantime, we refer you to the Laurel Traffic Study for initial information regarding increased traffic on South Flower Avenue presented to our elementary school, as a result of this NOP.

The Brea Olinda Unified School District looks forward to partnering with the City of Brea on this project when more details become available.

Kind Regards,

Brinda C. Leon
Superintendent of Schools
Brea Olinda USD

BOARD TRUSTEES: **Carrie Flanders,** President · **Deana Miller**, Vice President/Clerk · **Nicole Colon** · **Gail Lyons** · **Paul Ruiz**
ADMINISTRATION: **Brinda Leon**, *Superintendent* · **Phil D'Agostino, Ed.D.**, *Asst. Supt./ Educational Services* · **Richard Champion**, *Asst. Supt./ Business Services*

DEPARTMENT OF TRANSPORTATION
DISTRICT 12
1750 EAST 4TH STREET, SUITE 100
SANTA ANA, CA 92705
PHONE (657) 328-6000
FAX (657) 328-6522
TTY 711
www.dot.ca.gov/caltrans-near-me/district12

Making Conservation a California Way of Life.

July 20, 2022

Ms. Cecilia Madrigal-Gonzalez
Assistant Planner
City of Brea
1 Civic Center Circle
Brea, CA. 92821

File: LDR/CEQA
SCH: 2022060598
12-ORA-2022-02002
SR-90, PM 4.052

Dear Ms. Madrigal-Gonzalez,

Thank you for including the California Department of Transportation (Caltrans) in the review of the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the Gaslight Square Redevelopment Project. The Gaslight Square is currently developed with five existing commercial buildings, totaling 23,558 square feet. The project proposes to retain two of the existing five buildings that are currently used for medical uses. The remaining three commercial buildings, totaling 18,286 square feet, would be demolished to facilitate the construction of a 2,000 square foot drive-through restaurant with an outdoor seating area and a 6,000 square foot commercial building consisting of 2,400 square feet of restaurant and 3,600 square feet of medical or retail space.

The project location is at 255 E. Imperial Hwy., commonly known as the Gaslight Square and is directly adjacent to State Route (SR) 90. State Route 90 is owned and operated by Caltrans. Therefore, Caltrans is a responsible agency on this project, and has the following comments:

Transportation and System Planning

1. Consider discussing multi-modal and transit mobility connections to existing bus services and nearest train stations to improve regional connectivity.

2. Caltrans supports encouraging the use of transit among future residents, visitors, and workers of the development. This may lead to a reduction in

congestion, through lower VMT (Vehicle Miles Travelled). Consider coordination with Orange County Transportation Authority.

3. Consider bicycle, pedestrian, electric vehicle charging, and ridesharing opportunities at the site including bicycle storage, accessible walkways, charging stations, and pick-up/drop-off locations.

Traffic Operations

4. Submit copies of all traffic related documents for review. The data used in the Traffic Impact Analysis (TIA) should not be more than 2 years old and shall be based on the Southern California Association of Governments Regional Transportation Plan Model. Use the Highway Capacity Manual methodology for all traffic analyses.

Encroachment Permits

5. Any project work proposed in the vicinity of the State Right-of-Way (ROW) would require an encroachment permit and all environmental concerns must be adequately addressed. If the environmental documentation for the project does not meet Caltrans's requirements for work done within State ROW, additional documentation would be required before approval of the encroachment permit. For specific details for Encroachment Permits procedure, please refer to the Caltrans's Encroachment Permits Manual at: http://www.dot.ca.gov/hq/traffops/developserv/permits/

6. Additional information regarding encroachment permits may be obtained by contacting the Caltrans Permits Office at (657) 328-6553 or D12.Permits@dot.ca.gov. Early coordination with Caltrans is strongly advised for all encroachment permits.

Caltrans' mission is to provide a safe, sustainable, equitable, integrated, and efficient transportation system to enhance California's economy and livability. Please continue to coordinate with Caltrans for any future developments that could potentially impact State transportation facilities. If you have any

questions, please do not hesitate to contact Julie Lugaro at Julie.lugaro@dot.ca.gov.

Sincerely,

Julie Lugaro

for Scott Shelley
Branch Chief, Regional-IGR-Transit Planning
Caltrans, District 12

LOZEAU DRURY LLP
T 510.836.4200
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1939 Harrison Street, Ste. 150
Oakland, CA 94612
www.lozeaudrury.com
richard@lozeaudrury.com

Via Email

July 20, 2022

Jason Killebrew, Community
Development Director of Brea
1 Civic Center Circle Brea, CA 92821
jasonk@cityofbrea.net

Lillian Harris-Neal, City Clerk
City of Brea
1 Civic Center Circle
Brea, CA 92821
cityclerksgroup@ci.brea.ca.us

Cecilia Madrigal-Gonzalez, City Planner
1 Civic Center Circle
Brea, CA 92821
ceciliamg@ci.brea.ca.us

Re: CEQA and Land Use Notice Request for the Gaslight Square Redevelopment Project

Dear Mr. Killebrew, Ms. Harris-Neal and Ms. Madrigal-Gonzalez,

I am writing on behalf of Supporters Alliance for Environmental Responsibility ("SAFER") regarding the Gaslight Square Redevelopment Project project, including all actions related or referring to the proposed construction of a 2000 square foot drive through restaurant and 6000 square foot commercial space, located at 255 E. Imperial Highway ("Project").

We hereby request that the City of Brea send by electronic mail, if possible or U.S. mail to our firm at the address below notice of any and all actions or hearings related to activities undertaken, authorized, approved, permitted, licensed, or certified by the City of Brea and any of its subdivisions, and/or supported, in whole or in part, through contracts, grants, subsidies, loans or other forms of assistance from the City of Brea, including, but not limited to the following:

- Notice of any public hearing in connection with the Project as required by California Planning and Zoning Law pursuant to Government Code Section 65091.
- Any and all notices prepared for the Project pursuant to the California Environmental Quality Act ("CEQA"), including, but not limited to:
    - Notices of any public hearing held pursuant to CEQA.
    - Notices of determination that an Environmental Impact Report ("EIR") is required for the Project, prepared pursuant to Public Resources Code Section 21080.4.
    - Notices of any scoping meeting held pursuant to Public Resources Code Section 21083.9.
    - Notices of preparation of an EIR or a negative declaration for the Project, prepared pursuant to Public Resources Code Section 21092.
    - Notices of availability of an EIR or a negative declaration for the Project, prepared pursuant to Public Resources Code Section 21152 and Section 15087 of Title 14 of the California Code of Regulations.

- Notices of approval and/or determination to carry out the Project, prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notices of any addenda prepared to a previously certified or approved EIR.
- Notices of approval or certification of any EIR or negative declaration, prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notices of determination that the Project is exempt from CEQA, prepared pursuant to Public Resources Code section 21152 or any other provision of law.
- Notice of any Final EIR prepared pursuant to CEQA.
- Notice of determination, prepared pursuant to Public Resources Code Section 21108 or Section 21152.

Please note that we are requesting notices of CEQA actions and notices of any public hearings to be held under any provision of Title 7 of the California Government Code governing California Planning and Zoning Law. **This request is filed pursuant to Public Resources Code Sections 21092.2 and 21167(f), and Government Code Section 65092**, which require local counties to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

Please send notice by electronic mail or U.S. Mail to:

Richard Drury
Molly Greene
Colby Gonzales
Lozeau Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612
richard@lozeaudrury.com
molly@lozeaudrury.com
colby@lozeaudrury.com

Please call if you have any questions. Thank you for your attention to this matter.

Sincerely,
Colby Gonzalez
Lozeau | Drury LLP

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
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SECRETARY
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COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok/Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

July 1, 2022

RECEIVED
JUL 07 2022
PLANNING DIVISION

Cecilia Madrigal-Gonzalez
City of Brea
1 Civic Center Circle
Brea, CA 92821

Re: 2022060598, GASLIGHT SQUARE REDEVELOPMENT PROJECT, Orange County

Dear Ms. Madrigal-Gonzalez:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse

From:	Safer Avenues For Everyone SAFE
To:	Madrigal-Gonzalez, Cecilia; Planning; Daus, Christy; City ClerksGroup; Terry Christensen
Cc:	rchampion@bousd.us; bleon@bousd.us; pdagostino@bousd.us
Subject:	Re: Keeping Laurel students SAFE
Date:	Monday, July 18, 2022 4:18:19 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png Flower Mid-Block Laurel Elementary .pdf

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Dear Ms. Madrigal-Gonzalez and Mr. Christensen,

We agree with Mr. Christensen, the City of Brea and Brea-Olinda Unified School District (BOUSD) - there are existing problems with traffic and parking, in and around Laurel Elementary and Gaslight Square.

So to take your point to the logical conclusion, Mr. Christensen, the application for a proposal to change the City of Brea's General Plan and Zoning designation for Gaslight Sq, as well as the addition of a drive-through and another restaurant, et. al. would compound the existing problems.

But you are focusing on the existing problems. The City, the School District, Caltrans, as well as the Community have a role to play.

Complex problems deserve thoughtful, thorough analysis and actions. And to be fair, Mr. Christensen, The Laurel Traffic Study which was initiated and contractually obligated by the City of Brea when it was signed by the then Mayor Vargas on May 20, 2021. These problems are outlined in the City's 43 page service agreement with consultants, Kittelson & Associates.

The City of Brea and BOUSD Staff have recently been researching the problems and contemplating short, medium and long-term solutions.

Here are links to BOUSD School Board mtg documents discussing The Laurel Elem Traffic Study:
CIRCULATION AND PARKING PLAN LAUREL ELEMENTARY MAGNET SCHOOL

LAUREL ELEMENTARY SCHOOL CIRCULATION AND PARKING STUDY

from BOUD mtg; here's full link BOUSD Regular Board Meeting | 03/10/2022 - 06:30 PM

This is a community problem. City Streets are the responsibility of the City of Brea. BOUSD is responsible for its land and use. Imperial Highway is the purview of the State of California, CALTRANS. Community members are responsible for doing their part, sharing as you and we are doing.

One of the many forums it has been discussed has also been the City of Brea Traffic

Committee as an example, here's the TRAFFIC COMMITTEE AGENDA 3-17-2022. I have included Traffic Committee Staff (Christy) so they too can hear from you.

And not only have we witnessed the midblock crossing of pedestrians, so has the BOUSD school district. The attached photos were presented to the Traffic Committee at the March mtg by Mr. Rick Champion, Assistant Superintendent, BOUSD when the City of Brea and BOUSD discussed many problems and solutions, including, a mid-block crosswalk.

Many schools have congestion and people in cars waiting for their children when picking up students and many people walking with their children at pick-up and drop-off times. Laurel is no different. We see similar problems of congestion at other Brea Schools during these times. And of course, Brea is not alone, this is a common problem in other communities, especially for elementary schools.

Of course, we pray for the day there is no backup, no traffic congestion for Laurel Elementary. Let's say that day has come. There is still all the activity that an elementary school generates.

Laurel is used for TK-6 school and has has its regular school activities and Laurel provides for District Summer School with students walking to and from school.

Walking through Gaslight Square is an easement right that all pedestrians have - just like walking through any parking lot.

The City of Brea just built that new Car Garage on Orange Avenue - so people park on Orange and in the Garage and walk to pick-up students. We expect this is what the City of Brea wants, people using public parking and walking. The City's General Plan takes note of having this vision.

As we've heard at the City of Brea Traffic Committee meeting, there are 3 things that help the community when there are traffic concerns: Engineering, Education, and Enforcement.

We encourage the City of Brea to continue to work with the Caltrans, BOUSD and the community.

We encourage the City of Bea to do an in-depth, inclusive analysis of this Gaslight proposal or any proposal with the priorities being as they state in their documents: the health, safety and welfare of the existing community, especially the children who are dependent on all of us.

We cannot fathom adding anything more to an existing, well-documented problem that puts young lives at risk. Safety First is a good motto.

Laurel Elementary just celebrated 100 years, let's hope it's next 100 are even better; it will take work from community members to make it happen.

So, all this to say, Mr. Christensen, please continue to reach out to the City of Brea and the BOUSD school district and even Caltrans. I share your concern and will continue to do so as well.

Stay Safe.

Sincerely,
Diane Stites
Volunteer of SAFE,
Safer Avenues For Everyone

On Tue, Jul 5, 2022 at 9:26 AM Madrigal-Gonzalez, Cecilia <ceciliamg@ci.brea.ca.us> wrote:

> Good morning,
>
> Thank you for your comments regarding the Notice of Preparation (NOP) of the Draft Environmental Impact Report (DEIR) for the Gaslight Square Redevelopment project at 255 E. Imperial Highway, Brea CA. The city will record your comments and/or questions moving forward with the preparation of the DEIR.
>
> Respectfully,
>
> **CECILIA MADRIGAL-GONZALEZ**
>
> **Assistant Planner**
> Community Development Department | Planning Division
>
> **P:** 714.990.7674 | **E:** ceciliamg@cityofbrea.net | **W:** www.cityofbrea.net
> **City of Brea** | 1 Civic Center Circle | Brea, California 92821
>
> CITY of BREA

From: Terry Christensen <tttterryc@aol.com>
Sent: Monday, July 4, 2022 3:03 PM
To: saferavenuesforeveryone@gmail.com
Cc: Madrigal-Gonzalez, Cecilia <ceciliamg@ci.brea.ca.us>; Planning <Planning@ci.brea.ca.us>; City ClerksGroup <CityClerksGroup@ci.brea.ca.us>
Subject: Keeping Laurel students SAFE

I wholeheartedly agree... we must protect the students, parents, grandparents and all others involved with Laurel Elementary.

However, whether the Gaslight Square is allowed to develop or not, **the CURRENT SITUATION must be changed**!!!

If you so-called "concerned folks" would just spend 30 minutes in the morning as well as the afternoon... OBSERVING the carelessness by which guardians of these young Laurel school children hurry them across mid-street Flower without crosswalks nor safety officers as well as the "pick up time" row of cars spilling onto Imperial... I think you will realize that the **immediate solution is in the hands of the Brea School District**. It starts with no parking in the Gaslight, nor walking children thru that parking lot as a shortcut.

Before I can support your efforts, I insist on seeing **what plans the School District is proposing**. Like I said, whether or not the Gaslight redevelopment proceeds or not.


Birch St




Birch St
6KPR037



SHUTE, MIHALY & WEINBERGER LLP

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SARAH M. LUCEY
Attorney
slucey@smwlaw.com

July 20, 2022

Via Electronic Mail Only

Cecilia Madrigal-Gonzalez
Assistant Planner
City of Brea -Planning Division
1 Civic Center Circle, Level 3
Brea, CA 92821
E-Mail: ceciliamg@cityofbrea.net

Re: Notice of Preparation for the Gaslight Square Redevelopment Project

Dear Ms. Madrigal-Gonzalez:

On behalf of our clients, Safer Avenues for Everyone ("SAFE"), we write to provide comments on the City of Brea's Notice of Preparation ("NOP") of an Environmental Impact Report ("EIR") for the Gaslight Square Redevelopment Project ("Project"). SAFE was formed to safeguard the people of Brea, especially students and pedestrians, from incompatible development. It represents volunteers at Laurel Elementary School, a Laurel Elementary librarian, and neighbors. Like all concerned members of the public, SAFE will rely heavily on the environmental document required by the California Environmental Quality Act ("CEQA") for an honest and thorough assessment of the Project's environmental impacts. To this end, we submit the following comments on the City of Brea's NOP.

I. Introduction

SAFE initially became involved in the City's development process for the Gaslight Square site in 2020, in opposition to a Raising Cane's drive-thru restaurant proposed at the site. Like many Brea residents, SAFE's members were extremely concerned that the project threatened the safety of Laurel Elementary students and caregivers, many of whom walk to and from school by crossing the already congested and dangerous intersection of Imperial Hwy. and Flower Ave. In March 2021, SAFE and several individual Brea residents filed litigation challenging the City's approval of the Raising Cane's project. Shortly after SAFE filed its opening brief, Raising Cane's agreed

to settle the lawsuit and relinquish its interest in the project approvals. In February 2022, the City Council accepted Raising Cane's relinquishment and rescinded its approvals.

The City now considers the "Gaslight Square Redevelopment Project," more than *double* the size of the previously proposed Raising Cane's project. The new Project seeks to add not only a 2,000 square-foot drive-thru restaurant, but also a 2,400 square-foot dine-in restaurant plus 3,600 square feet of medical or retail space. The record before the City on the Raising Cane's project included substantial evidence that that project would have greatly increased risks to pedestrians walking near Gaslight Square, especially Laurel Elementary students and their caregivers walking to and from school. It is therefore common sense that the safety impacts of the Project—clearly designed to draw even more visitors to Gaslight Square than the Raising Cane's—will surpass even those impacts threatened by the Raising Cane's project.

Despite the Project's likely safety impacts, the City's NOP completely fails to identify these impacts for analysis. Nor does it identify the Project's other probable environmental impacts, including but not limited to its inconsistency with the City's zoning code and General Plan.

Beyond these impacts, the NOP more generally fails to describe the Project. Indeed, at the July 14, 2022 Brea-Olinda Unified School District ("BOUSD") board meeting, the district superintendent noted that "Unfortunately, there's not enough project information [in the NOP] to discuss with the board and form a comprehensive response." BOUSD July 14, 2022 Board Meeting ("BOUSD Meeting") at 15:14; *see also id.* at 18:06 ("Unfortunately, the NOP provided lack of sufficient information and detail to prepare a comprehensive response."); *id.* at 16:22 ("We need greater specificity from the City planner's office before we can engage in an in depth conversation.").[1] This failure violates CEQA's requirement that the NOP to include information sufficient to "enable [] responsible agencies to make a meaningful response." 14 Cal. Code Regs. ("CEQA Guidelines") § 15082(a)(1).

The NOP is clearly inadequate. SAFE urges the City to correct this error, first by preparing a sufficient NOP, and then by both preparing a thorough and adequate EIR to inform stakeholders of the Project's impacts, and by denying the Project, which threatens public health, safety, and welfare, and is clearly inconsistent with neighborhood and surrounding uses.

[1] A video of the board meeting can be found online at https://www.youtube.com/watch?v=mtXaOXzEros (last visited July 18, 2022).

II. The NOP fails to describe the Project's probable environmental impacts.

The purpose of an NOP is to "solicit guidance from members of the public agencies as to the scope and content of the environmental information to be included in the EIR." CEQA Guidelines § 15375; *see also* CEQA Guidelines § 15082. In order to effectively solicit such guidance, the NOP must provide adequate and reliable information regarding the nature of the project and its probable environmental impacts. "At a minimum," the NOP must contain a description of the project, the location of the project, and a description of the project's "[p]robable environmental effects." CEQA Guidelines § 15082(a)(1); *see also City of Maywood v. Los Angeles Unified School Dist.* (2012) 208 Cal.App.4th 362, 372 fn. 1; Practice Under the California Environmental Quality Act (2d ed Cal CEB) § 8.16 ("The notice of preparation should describe the project's probable environmental effects in some detail.").

The NOP does not even attempt to describe the Project's probable environmental effects and thus fails to meet CEQA's mandate. Instead, it only provides a list of "issue areas" that will be analyzed in the EIR—essentially a checklist of the topics required for *any* CEQA analysis. The NOP makes no effort to identify what the probable effects within these areas might be, to identify what resources, conditions, or people might be affected, or how they will be addressed in the EIR. The NOP likewise provides no indication as to the extent of impacts to the surrounding community. Without more information, the reviewing agencies and other interested parties cannot provide a "meaningful response" to the NOP, the Project's likely impacts, or the scope of the EIR. CEQA Guidelines §15082(a)(1); *see also* BOUSD Meeting at 18:06 ("Unfortunately, the NOP provided lack of sufficient information and detail to prepare a comprehensive response.").

A. The NOP does not identify the Project's probable impacts to pedestrian and student safety.

Under CEQA, increased safety risks to pedestrians are significant environmental impacts. CEQA Guidelines, Appx. G, § XVII(c) (project has potentially significant transportation impact if it would "[s]ubstantially increase hazards due to . . . incompatible uses"); *see also*, *e.g.*, *City of Long Beach v. Los Angeles Unified School Dist.* (2009) 176 Cal.App.4th 889, 914-16 (EIR adequately analyzed traffic-related pedestrian safety impacts).

As noted above, the record before the City on the Raising Cane's project contained ample evidence of that project's likely safety impacts on pedestrians, especially students walking to and from Laurel Elementary. In particular, the record contained extensive

reports from local residents and Laurel Elementary families. They consistently described existing traffic congestion and back-up at the intersection of Flower Ave. and Imperial Hwy., and the resulting risk to children walking in that area. Likewise, BOUSD data presented to the City Council indicated that 27% of Laurel's 429 students live south of Imperial Hwy., and must therefore cross that busy road to get to school. The City's own traffic study concluded that the Raising Cane's project would have resulted in an additional 800-plus vehicles per day at Gaslight Square. Neighbors and concerned residents, in public comments on the Raising Cane's project, noted the obvious conclusion that the drastic increase in traffic from a drive-thru restaurant would greatly exacerbate existing hazards.

Since its recission of the Raising Cane's project approvals, the City and BOUSD completed a Laurel Elementary circulation and parking study that underscores the existing circulation problems at the site. "Circulation and Parking Plan, Laurel Elementary Magnet School," March 17, 2022. Among other things, the study notes that "Students are being picked up and dropped off **on public streets**," "The **site is constrained** due to the historic nature of the building and proximity to a major highway," "Off-street **parking is insufficient** to accommodate demand from staff, volunteers, and visitors," and "There is **limited pedestrian connectivity** and barriers for students who walk to school." *Id.* (emphasis in original).

It is self-evident that the proposed Project—more than double the size of the Raising Cane's project—will cause safety impacts beyond even those expected from the Raising Cane's. Compared with a single drive-thru restaurant, the Project proposes **a 2,000 square-foot drive-thru**, **a 2,400 square-foot restaurant**, **plus 3,600 square-feet of medical or retail space**. The additional restaurant and commercial uses will draw even more vehicles to Gaslight Square on a daily basis than the Raising Cane's would have, creating an even greater risk to pedestrians and Laurel Elementary students. Moreover, according to the NOP, the Project will include only 104 parking spaces, compared to the 93 spaces proposed for the Raising Cane's. Given the Project's size relative to the Raising Cane's project, 11 additional parking spaces appears vastly inadequate, and will only contribute to further circulation problems.[2]

In clear violation of CEQA, the NOP gives no indication of these substantial and probable impacts. Regardless of this failure, however, the EIR must thoroughly analyze

[2] The NOP states that 12 of these spaces will be located off-site, but does not say where. Considering that there is already insufficient off-site parking for Laurel Elementary staff, volunteers, and visitors (Circulation and Parking Plan), it's unclear how the area around Gaslight Square could possibly accommodate additional parking.

the Project's safety impacts, including further comprehensive analysis of the current traffic and circulation problems at Laurel Elementary. The EIR must also correct the City's previously flawed traffic study, which inappropriately and inexplicably analyzed traffic at Laurel Elementary during the early months of the COVID-19 pandemic when the school was physically closed to students and staff. The updated study must account for full in-person use of Laurel Elementary, including vehicles, pedestrians, and bicyclists.[3]

B. The NOP fails to identify the Project's probable land use impacts.

The NOP likewise fails to identify the Project's probable inconsistencies with the City's General Plan and zoning code. *See* CEQA Guidelines § 15125(d). The Project requests amendment of Gaslight Square's General Plan land use designation from Office/Financial Commercial to Mixed-Use III. However, the Mixed-Use III designation "allow[s] the development of *neighborhood-serving* commercial uses." General Plan, p. 2-18 (emphasis added). It explicitly prohibits "regional-serving retail uses." *Id.* The designation is therefore inconsistent with the substance of the Project, which proposes a 2,000 square foot drive-thru restaurant, a 2,400 square foot dine-in restaurant, and 3,600 square feet of additional commercial use. These intense, visitor-heavy uses are clearly designed to serve the region rather the neighborhood. For the same reason, the Project is inconsistent with the proposed Mixed-Use III zoning designation, which likewise prohibits regional-serving retail uses. Municipal Code § 20.258.010(A)(3)(b).

The proposed drive-thru would also require a conditional use permit ("CUP"), but the Project is inconsistent with provisions in the zoning code governing CUPs. In considering the appropriateness of a CUP, the City must consider "[t]he extent of traffic generation . . . ; special locational and space requirements; the effect that such uses may have on property values, health, safety and welfare; and any other characteristic which

[3] Relatedly, CEQA requires an EIR to "include a description of the physical environmental conditions in the vicinity of the project," which "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." CEQA Guidelines § 15125(a). The appropriate baseline traffic condition for this Project should reflect full, in-person use of Laurel Elementary, regardless of whether such use was occurring at the time the NOP was published. *See* CEQA Guidelines § 15125(a)(1) ("Where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project's impacts, a lead agency may define existing conditions by referencing historic conditions, or conditions expected when the project becomes operational, or both, that are supported with substantial evidence.").

may affect the compatibility of the use with the neighborhood or the community." Municipal Code § 20.408.030(A). Additionally, before the City approves a CUP, it must find that the proposed use is not detrimental to existing uses or adverse to public health, safety, or general welfare. *Id.* § 20.408.030(D). It must also find that "the proposed site relates to streets and highways which are properly designed and improved to carry the type and quantity of traffic generated or to be generated by the proposed development." *Id.* § 20.408.030(D)(4).

The Project meets none of these requirements. As described above, the Project is incompatible with surrounding uses, especially Laurel Elementary. It will create significant safety hazards for students and caregivers walking to and from the school, and will likely have a detrimental effect on property values of homes surrounding Gaslight Square. Moreover, S. Orange Ave. and S. Flower Ave. are not designed to carry the traffic that the Project will generate. Both are residential streets with 25mph speed limits. Gaslight Square does not have and cannot have ingress/egress directly to Imperial Highway. Therefore, all the existing and new traffic generated by the Project must use Flower & Orange Aves to enter and exit the site. The increased volume of traffic will overwhelm these streets, exacerbating the existing circulation and safety issues identified above. For all these reasons, approval of the requested CUP will be contrary to the City's zoning code.[4]

III. The NOP lacks a concrete Project description.

An adequate NOP must provide enough information and describe the proposed project in sufficient detail to enable members of the public to make a meaningful response to the NOP. CEQA Guidelines § 15082(a)(1)(A),(B).

As BOUSD has already acknowledged, the City's NOP fails to meet this basic standard. The Project as described in the NOP lacks sufficient specificity to allow the public to understand what the applicant and City contemplate for the site. Critical Project components remain undefined. The NOP only includes an aerial photograph with the

[4] Beyond requiring CEQA analysis, the Project's inconsistencies with the zoning code and General Plan preclude the City from approving the Project as a general matter. *See*, *e.g.*, *Land Waste Management v. Contra Costa County Bd. of Supervisors* (1990) 222 Cal.App.3d 950, 959 (noting "cardinal principle" of California land-use law that "land-use permits must be consistent with zoning"); *Families Unafraid to Uphold Rural El Dorado County v. El Dorado County Bd. of Supervisors* (1998) 62 Cal.App.4th 1332, 1336 ("The propriety of virtually any local decision affecting land use and development depends upon consistency with the applicable general plan.") (internal citations omitted).

project boundary. Those aspects of the Project that the NOP attempts to describe are depicted with so little detail that a reader is left with no idea of what the Project will look like at build-out or how it will work.

The most glaring deficiency is the NOP's failure to include the site plan for the Project and its failure to indicate the location of roads, public services, and other infrastructure improvements such as storm water facilities. Similarly, the NOP fails to specify the development regulations that apply to the Project. These issues must be comprehensively addressed in the EIR in order to understand the implications for the site and the region.

IV. The EIR must identify effective project alternatives.

CEQA emphasizes that an EIR must analyze a range of reasonable alternatives to the project. The alternatives must feasibly attain most of the basic project objectives while avoiding or substantially lessening the project's environmental impacts. Public Resources Code § 21100(b)(4); *see also* CEQA Guidelines § 15126.6(a). The CEQA Guidelines state that the selection and discussion of alternatives should foster informed decision making and informed public participation. CEQA Guidelines § 15126(d)(5).

Unfortunately, the NOP does not identify any alternatives to the proposed Project or disclose how alternatives will be developed or selected for inclusion in the EIR. Given the size and scale of the Project, the potential exists for significant environmental impacts, beyond even those impacts discussed above. Consequently, the EIR should identify and evaluate several alternatives to the Project capable of avoiding or substantially reducing those impacts. In addition to the legally required no-project alternative, the EIR should consider an alternative that complies with the existing General Plan and the zoning codes. It will also be important for the EIR to fully flesh out the details of each alternative so that the public and decisionmakers are adequately informed of each alternative's benefits and environmental impacts.

V. Conclusion

SAFE is extremely concerned about the far-reaching impacts of this Project and urges the City to thoroughly analyze the Project's clear environmental impacts. SAFE is likewise confident that such analysis will counsel denial of the Project. Please provide this office with notification of the release of the Project's draft EIR. We also request that the City keep us informed of all contracts, notices, hearings, staff reports, briefings, meetings, and any other events related to the Project.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Sarah M. Lucey

From: Anastasia Tan
To: Madrigal-Gonzalez, Cecilia; Planning; City ClerksGroup
Subject: Zoning changes at Gaslight Square
Date: Tuesday, July 12, 2022 11:21:54 AM

To Whom it May Concern,

I am a parent of two students at Laurel and I have a number of concerns regarding a drive thru restaurant being in close proximity to an elementary school.

Traffic and parking at Laurel is already atrocious. There are very few street parking spots and the church parking lot is regularly not open so the only reliable option is the parking structure. Many cars drive through the area and many don't follow the rules such as no turns onto Birch from Flower; I've seen a significant number of cars consistently ignore the crossing guard and turn right anyway risking running into the many parents and children crossing the street. If choosing to go through the pick up line as a parent, the lines run into Imperial Hwy and onto Birch blocking traffic at least twice a day. There must be a valid reason for the zoning to not permit a drive-thru restaurant.

I'm also concerned about drawing people to the neighborhood until late at night as drive-thru restaurants tend to stay open until 10, midnight or even later. There has been vandalism at least a few times at Laurel to the building and the little free library on campus as there is no fencing around the school; I'm worried that vandalism will worsen if people are drawn to the area so late at night.

My concerns about a drive thru being located on Flower/Imperial are just a few; however, I feel that they are important enough to reconsider the location of this establishment. I am concerned about vandalism and loitering but mostly I'm worried about the traffic and congestion and the safety of the many students and parents at Laurel.

Thank you for hearing my concerns,

Anastasia Tan
949-295-6133

From:	Ang Porter
To:	Madrigal-Gonzalez, Cecilia; Planning; City ClerksGroup
Subject:	Please retain Gaslight Square"s current General Plan and Zoning
Date:	Sunday, July 3, 2022 4:27:54 PM

Hello,

"Gaslight Square" is indeed a fitting name, it seems Brea citizens and Laurel Elementary parents were apparently gaslit about the "need" to put a drive-through next to the school being over.

Gaslight Square is already properly planned and zoned. It doesn't need to be replanned or rezoned. The people who made the decision decades ago to not allow restaurants/drive-throughs there knew what they were doing. They made an informed decision that took Laurel into account. And they got it right. Nothing's changed . . . and nothing should.

This isn't a matter of updating or correcting something outdated or out of step with the times. Gaslight Square is still located across the street from a bustling elementary school and on Brea's busiest street. Drive-throughs still increase traffic. Drive-throughs still attract people from outside the area who won't be aware of what's nearby as they try to dart across and through the surrounding streets to grab some lunch. And elementary-aged kids still aren't the greatest at traffic safety because they're still learning.

Our (Brea citizens and Laurel parents) objections, actions, letters, and protests last year weren't about Raising Cane's—we always made that very clear. They were about not having a drive-through across the street from a school that's already got a dangerous traffic situation. And that's still our position. Nothing's changed . . . and nothing should.

When this all began in 2020, I—as a Brea citizen and Laurel parent—was shocked and saddened that we even had to have this conversation. That we had to actively, vocally, and repeatedly ask our city, neighbors, and business owners to defend Brea's youngest citizens against a decision that would knowingly put their safety at risk. Yet here we are again.

Please leave Gaslight Square's zoning as it is. Nothing's changed . . . and nothing should.

Best regards,

Angela Sylcott

From: Becky Czerwinski
To: Planning
Subject: Keep Laurel Safe
Date: Thursday, July 14, 2022 10:57:46 AM

As a retired school teacher, I am aware of how difficult it is for parents to safely drop off and pick up their children from school, in any circumstances. I can't even imagine how much more difficult it would be if there was a drive-thru restaurant in the vicinity.

Please do whatever you can to assure that no drive-thru restaurants are approved near any of our schools, as is now under consideration near Laurel.

Sincerely,

Becky Czerwinski
resident of Brea

From: carolyn campbell
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Subject: Gaslight Square Redevelopment Application
Date: Wednesday, July 20, 2022 3:16:58 PM

Dear City Council Members,

As you are aware, approximately two years has past since the community expressed its outrage in the city council's initial review and later approved redevelopment drive-thru restaurant project for Gaslight Square, that posed a safety risk for Laurel Elementary students, neighborhood residents, and senior housing dwellers. The first attempt to favor commerce over community safety foiled as a group of concerned community members stepped up, filed a lawsuit against locating a 3,267 square Raising Cane's drive-thru restaurant mere feet from the elementary school — and won.

Sadly, we are back at the beginning stages of yet another Gaslight Square application submission to the city council for review. This time not only is a drive- thru listed again — but a zoning change from its 1988 CUP commercial zone to mixed usage, adding a redevelopment project of 8,000 square feet, is requested.

A mixed usage poses a mixed baggage of problems unless it is well defined.

A question to ponder: what has changed since the failure of the first application submission?

Nothing. Yet a drive-thru is being entertained again. As we wait for the city's environmental impact report, we are well aware that traffic is an enormous threatening issue. Not to mention drive-thru restaurants possibly posing safety risks for children from predators.

How many times do we have to reiterate that community safety is and always should be the focus!

Concerned Citizen

Sent from my iPhone

From: Destiny Conwi
To: Madrigal-Gonzalez, Cecilia; Planning; City ClerksGroup
Subject: Gaslight Square Zoning
Date: Wednesday, July 20, 2022 12:44:14 PM

July 20, 2022

To Whom It May Concern,

I'm pleading with you to keep the current General Plan and Zoning at Gaslight Square in order to keep the surrounding community safe.

My children attend Laurel Elementary Magnet School and have done so for five years. We love our school and our community! However, it cannot go without notice that Laurel is in between **two majorly busy streets**. There have been countless times where I have witnessed cars speeding down Flower Ave, as well as Birch Ave. Cars daily run red lights on Birch, putting students who cross that street at risk. Our crossing guard has previously been **harassed** many times, because people are not following the signs and traffic laws. Getting through Imperial Hwy and surrounding streets during pick up and drop off is already hectic and dangerous for students who cross Flower and Orange Ave, which is where the expected entrance to the drive-thru is expected to be located. It should be noted that there is no crossing guard on either of those streets. If we intend to make Brea a more pedestrian friendly city, putting a drive-thru directly across the street from Laurel school will not accomplish that goal, and will instead put countless lives at risk.

Now if the city allows a drive-thru to be built 30 ft away from Laurel Elementary, it will most definitely increase the amount of cars and traffic in this area ten fold. It is claimed that "One of the most leading places for auto accidents is the fast-food restaurant parking lot and drive-thru area" (Ehiline Law Firm). The Ehiline Law Firm also states that because "More and more people congregate at these locations, statistically, there is an increased likelihood of a low-speed fender bender, or **running over a child**." Adding more cars in this area is asking for a child to be hit by a car. Children walk home down Birch (both ways), they cross Flower St and Orange Ave. Having a drive-thru restaurant so close to an elementary school will put these children in a deadly situation.

It should be understood that the traffic in this area is constant through the whole day while school is in session (Morning drop off, Kindergarten late drop off, kindergarten pick up, special ed pick up). I plead with the council members to also take note that the school will have special events during school hours, as well as after school when those peak hours overlap; the lack of parking and safety will undoubtedly be felt by the community. Why would any parent want to send their children to a school right next to a fast food restaurant where their children's safety is at risk?

While building a drive-thru will generate a lot of money for the property owner, building one directly across the street from an elementary school is not in the best interest for the children who attend Laurel Elementary Magnet School, nor is it in the best interest of the community.

For the sake of my children, the children who attend Laurel Elementary Magnet School, and the entire community, please consider keeping the zoning plan in place.

Sincerely,

Destiny Conwi

Destiny Conwi

From:	Diane Stites
To:	Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Cc:	me
Subject:	NOP Comments for Gaslight Sq Redevelopment Project Proposal
Date:	Wednesday, July 20, 2022 3:59:13 PM
Attachments:	RE_ BOUSD Contact information.pdf Petitioners Opening Brief ISO Petition for Writ of Mandate20Aug2021.pdf SAFEvCityOfBreaEtal22March2021.pdf Raising Cane"s Proudction #4 05 12 21 (4 of 4).pdf (page 5 of 245).png

Dear Ms. Madrigal-Gonzalez,

Please include this email and all of the attachments as my comments on scope, focus and content for the Gaslight Square Project proposal. Additionally, see the City of Brea's copies of the documents filed in 2021 with the Superior Court of the State of California regarding SAFE's lawsuit v the City of Brea, Brea City Council, Raising Canes, et. al. Please print all attachments and include as part of my comments to City of Brea's NOP.

People have already explained that a drive-through restaurant is an incompatible use at Gaslight Square given its type of use, increase of use, especially given residential streets and the 30-foot distance between its Flower Avenue driveway and driveway of Laurel Elementary Magnet School of Innovation & Career Exploration.

People have already explained that current traffic problems exist, that the joint City of Brea-Brea-Olinda School District (BOUSD) Laurel Traffic Circulation and Parking Study has not been completed and the City of Brea has in-depth knowledge of these traffic and parking problems.

Therefore my comments focus on **some*** of the problems and errors that occurred during the Raising Canes (RC) Project Proposal with this goal: **City of Brea, please review your past errors and please make changes to your processes and quality control so they are not repeated.**

From last night's City Council meeting, it seemed pretty evident that there was agreement that errors were made in the math and analysis for the Brea Plaza Project.

This is what we, volunteers of SAFE, saw that with the RC Project.

We only saw some of the errors during the appeal period. We found many errors after our appeal was filed and we received your public records from our request. We plan on discussing these with the City Manager but given that this Project's application is in process, it's a civic duty to point out what we learned. Our concern is for the safety, especially the children who attend Laurel Elementary; a safe learning environment includes a safe community.

This document points to what we learned. Respectfully, after you study this, I pray that the City of Brea will respond that lessons have been learned by City Staff and

Committee Members.

Please review and analyze what & how processes were done during the RC project. Please use what you learn to ensure that work for this project and future projects is done properly and accurately.

To state the obvious, if the documents the Planning Commissioners and/or City Council Members use to rely upon for their decisions are inaccurate, incomplete and/or misleading, then one cannot expect a fair judgment and decision.

Overall questions for this proposed Project:
How will you, the City of Brea, check and review documents and details to reasonably ensure that these types of errors do not happen again?

And how will the City of Brea ensure that a Project review and analysis processes be done accurately and completely?

Are roles, responsibilities and decision-making understood?

Does the City of Brea audit their processes such as these? Will this be done?

Detailed Questions with Examples of City of Brea Errors in the Raising Canes Project that Require Changes in Processes so that Future Errors do not Occur.

Project Authorization Documents do not match wording of General Plan and Zoning Code
For your current Project, read City of Brea's copies of the documents filed in 2021 with the Superior Court of the State of California regarding SAFE's lawsuit v the City of Brea, Brea City Council, Raising Canes, et. al.

As noted in the SAFE Lawsuit documents, the wording on the Raising Canes approval documents was changed from actual Brea General Plan and Zoning Code.

The City Staff wording on the approval documents was at times misleading and/or inaccurate.

As an example: the RC project is "consistent with General Plan as a restaurant use that will meet the needs of the **employee population in the vicinity**." However the Office/Financial Commercial designation does not authorize those uses; it authorizes uses that serve the needs of "**on-site**" employees.

Little wording change made a big difference.

How will the City of Brea institute processes and checks of work to prevent such changes in code in the future?

Traffic Circulation and Queuing Analysis -
Traffic should be studied at peak times for Proposed Project and Laurel Elementary - ***See City of Brea 1st Plan Review*** that states (copy attached) "The traffic circulation study is to include a traffic analysis based on anticipated arriving and departing traffic during peak hours and during peak school traffic conditions."

This was not done.

Will you would do it this time? If you do not, explain how your actions and analysis are in the best interests of the community, esp. their health, safety and welfare?

LOS F - Level of Service (LOS)
Flower & Imperial intersection was failing before addition of traffic from proposed RC project. LOS D or a higher standard is the target per Brea General Plan. **For safety's sake, who in the City of Brea makes the decision that an LOS F is acceptable? You state it is not Staff but Planning Commissioners? City Council? How would it be acceptable in this situation? Please be transparent in your answer.**

The "Domino Effect" Porkchop & Widening Driveways - Additions & Changes merit changes to the numbers.
In correspondence to us, the City of Brea said the porkchop island improvement is anticipated significantly reduce motorist delay thus eliminating oversaturated conditions. Change LOS? Your tables did not show this. This proposed porkchop would impact traffic flow. But to what degree, how much? Again for safety's sake, will you ensure that all numbers and maths are accurate and complete for this project proposal?

Also in internal emails, the material impact of the porkchop on the numbers is noted and the question: Should Brea Blvd & Imperial Hwy intersection be included in study?

When the City of Brea looks at the Project or any future ones, please make sure that all pertinent intersections are included in scope and that if something materially changes the numbers, the scope is expanded.

Overall: How will the City of Brea ensure that if anything is added as a solution (porkchop) or changed (widening driveways so they are ADA compliant) during the process, those changes are then incorporated back into your analysis?

The Numbers
MPH 25mph not 30mph on Orange & Flower Aves - RC tables used 30mph. Please ensure the correct MPH is used.

Pass by Reduction - Why if no ingress/egress on Imperial Highway would you use it in your calculations and find it acceptable?
Given that the traffic is exponentially higher on Imperial Hwy versus the residential

streets of Flower and Orange Avenues but ingress/egress is only on the avenues, how will you analyze your findings in this regard? (With an estimate: 50,000 cars on Imperial and 2,000 on Flower, that would be 25times the traffic.)

How do decide 50% or 35%? Do you explain to others?

Assumptions
And some numbers were assumed - see "Attachment 2" - What is your basis and process for explaining to others?

Transparency of Staff Increasing or decreasing of the numbers - see photo of internal Feb 1, 2021 email that shows numbers that were increased/decreased. When these decisions are made, what is the priority/goal? Is it safety? Who makes these decisions? How will you ensure in your processes and communications that any reduction or increase is explained to the decision-makers and the public? If you are not going to do this as a standard of practice, please explain?

Noted in some internal reports that in lieu of improvements, a fair-share contribution can also be considered. Would you do this in this Project if it puts the safety of children at considerable risk? If yes, please explain thoroughly.

Too Much Traffic for Residential Streets -
Pls see attached Plan Review pg. 3 of 7, Item #9 which in essence states the number of vehicles would be greater than the block between Imperial & Birch. This is one example were analysis shows that the RC Project was not feasible. If the analysis for this project comes out with such numbers does that disqualify it? If not, please explain.

Parking Analysis - By the time the City Council approved the parking plan, there were the at least the following errors:

Restaurants ≠Banks. Parking credit given for the restaurant drive-thru spaces - City code allows for credit for bank drive-throughs but does not state the credit can be given to drive-thru restaurants.

Reserved v Shared Parking - Both were done. Reserved Pkng slots were given to existing businesses AND shared parking credits also given to lower the number of required parking spots for the Project - City Code states City Staff can apply one or the other, not both.

How do you not make these mistakes again?

Changes During Mtgs
If my memory serves correctly, the Reserved Spots were added at the Feb 26, 2021 City Council Mtg. To that end, if changes are made at a Planning or City Council Meeting how will Staff verify it's allowed and ensure that there are no "domino effects"?

Communication with BOUSD & Public
How will the City of Brea improve their processes to ensure that all pertinent information is provided to the school district, BOUSD and the public?

Attached is an email with RC Project details from City Staff to School Administrators **after** the Planning Commissioners decision.

The Planning Staff had a "Community Forum" after the Planning Commissioners decision.

The Planning Staff had a "School Board Presentation" after the Planning Commissioners decision.

With this current project the City Staff has been more proactive, but as you know the school district and public find the current project details lacking. Please explain if there have been process changes to ensure consistently reliable communication and sharing of pertinent facts with BOUSD and the public?

At the Dec 20, 2020 Planning Commission mtg, a Commissioner asks for postponement and Staff Person replies they don't have the paperwork. And then City Staff-person states that in their professional opinion is that a delay would not change BOUSD's non-position. The rules are that Planning Commissioners are to be presented with paperwork for all options, correct? How will you ensure this happens and the rules are followed for this and future projects?

Attached email shows that another Commissioner takes a BOUSD attendee's silence as the reason that BOUSD was okay with the project. Is this standard procedure for Commissioners to rely on silence? If yes, do the attendees know this? If not, what is?

Caltrans
Have you reached out to them yet? It's been close to 1 1/2 years that we've talked about problems, projects and potential solutions that include Caltrans.

Application completeness and accuracy - How do you ensure that from where you start, the applicant has fully and accurately completed their application? I refer you to the letter from Shute, Mihaly and Weinberger in this regard.

Laurel Elementary Magnet School of Innovation & Career Exploration
In the future, Please refer to Laurel Elementary at least once as Laurel Elementary Magnet School of Innovation & Career Exploration (it is only mentioned as "school" on the application) and please state the thoughtful history of the creation of Gaslight Sq, Laurel and the community, accurately and fully. It's in your records.

The evident result is that your decisions impact hundreds if not thousands of people's daily lives. I trust you take the comments about your process seriously because as we all know, if we are working off of faulty information, then we cannot expect good results.

I hope your focus is on safety, the impacts to the community, especially children. I plead with you to ensure your content is accurate and that you ensure your scope is one that has the community health, safety and welfare paramount.

Plese provide me with notifications, including the release of the Project's draft EIR, all contracts, notices, herings staff reports, briefings, meetings and any other communications and events related to the Project.

Stay safe.

Respectfully,
Diane Stites,
Volunteer and community member

*Some - there are more.

From: [redacted]
Sent: Saturday, January 30, 2021 1:42:00 PM
To: Barnes-Ramos, Sara
Subject: Re: Gary Brattain and Raising Canes
Sensitivity: Normal

Hi Sara,

Thank you for the response.

Debbie

> Hi Debbie.
> Thank you for reaching out to me via Nextdoor. Hope you are doing well and
> staying safe.
>
> To answer your question why Melanie Schlotterbeck is now Chair instead of
> Vice Chair Gary Brattain:
>
> The first item on the agenda at our study session was the
> re-organization. Melanie Schlotterbeck nominated herself because she said
> since there will be a couple large projects coming to us this year like
> the Brea Mall and Brea 265, she is the most experienced at reading EIR's
> and with CEQA and she should be Chair. The new commissioner Chandel voted
> yes and so did Dan Foo. I voted to keep the rotation and for Gary to be
> Chair and so did Gary. So the majority voted in favor of Melanie to be
> Chair this year.
>
> Regarding the question about Raising Cane's and if the school district had
> any communication with the Planning Commission about the project:
>
> We did not get any input from the school district at the PC hearing.
> Assistant Superintendent Rick Champion was president on the zoom call at
> the Dec. hearing and we gave him a chance to speak when we were discussing
> the project but he didn't say anything. For this reason, I assumed
> personally that the school district was fine with the project and had no
> questions or concerns to bring up.
> If you go back to the recording of the hearing when we discuss Raising
> Cane's, I had several concerns about the school children, siblings and
> parents who walk to school. I also gave my personal experience right after
> the earthquake when my kids from Fanning had to go to Laurel and how very
> chaotic drop off and pick up was and I thought that would be a concern. I
> was not 100% comfortable with Raising Cane's being in that location. 1.
> Since the school district didn't have anything to say or ask and 2. I was
> last to vote with a majority who already voted in- favor of the project, I
> voted yes.
> All the planning commission hearings are recorded and available online if
> anyone wants to go back to December's hearing to hear the discussion on
> Raising Cane's. Here is the link:
> https://breaca.swagit.com/play/12092020-1392
>
> I really hope the school and Raising Canes can coexist because Mr. Manley

From: Killebrew, Jason
To: "Richard Champion"
Cc: Mason, Brad; Steinkruger, Tracy; Gallardo, Bill
Subject: RE: BOUSD Contact information
Date: Monday, December 14, 2020 8:50:04 AM

Hi Rick and Brad,

Good Morning. Here is a link to the Raising Canes packet that was considered by Planning Commission last week. This link includes the Traffic and Parking Studies that are attached at the bottom of the webpage. In addition, I have attached the conditions of approval and resolutions that were modified at the meeting. Please review and let me know if you have any questions. Thanks!

Link: http://207.213.88.203:8085/agenda_publish.cfm?id=&mt=ALL&get_month=12&get_year=2020&dsp=agm&seq=2959&rev=0&ag=900&ln=22877&nseq=2946&nrev=0&pseq=&prev=#ReturnTo22877

Jason

Jason KILLEBREW

City Planner

Community Development | Planning Division

P: 714.990.7674 | E: jasonk@cityofbrea.net | W: www.cityofbrea.net

City of Brea | 1 Civic Center Circle | Brea, California 92821

[City of Brea]<https://www.ci.brea.ca.us/>

[Facebook]<https://www.facebook.com/BreaCityHall/>

[Instagram]<https://www.instagram.com/city_of_brea/>

[YouTube]<https://www.youtube.com/user/CityofBrea>

[Twitter]<https://twitter.com/cityofbrea?lang=en>

From: Killebrew, Jason
Sent: Thursday, November 12, 2020 11:01 AM
To: 'Richard Champion' <rchampion@bousd.us>
Cc: Mason, Brad <bmason@bousd.us>; Steinkruger, Tracy <tracys@ci.brea.ca.us>
Subject: RE: BOUSD Contact information

Hi Rick,

Just following up to my email from a couple weeks ago about the proposed Raising Canes across the street from Laurel Elementary School. I was wondering if your Board has provided any questions or insights on the project? Any update is appreciated! Thanks!

Jason

Jason Killebrew | City Planner
Community Development Dept. | Planning Division
1 Civic Center Circle, Brea CA 92821
714.990.7674

[Email Signatuer Logo]

From: Killebrew, Jason
Sent: Wednesday, October 28, 2020 5:39 PM

To: 'Richard Champion' <rchampion@bousd.us<mailto:rchampion@bousd.us>>
Cc: Mason, Brad <bmason@bousd.us<mailto:bmason@bousd.us>>; Steinkruger, Tracy <tracys@ci.brea.ca.us<mailto:tracys@ci.brea.ca.us>>
Subject: RE: BOUSD Contact information

Hi Brad and Rick,

As promised I am sharing information related to the Raising Cane's that you can share with your Board. Here are some of the project details:

Location: Directly to the west of Laurel Elementary School at the corner of Imperial Hwy and Flower/Orange (highlighted in yellow).

[cid:image014.png@01D6D1F6.087C6B60]

Project Description:

* Demolition of two existing buildings totaling 9,588 square feet.
* Construction of a 3,267 square foot restaurant building
* 780 square foot patio
* Proposed drive through with two order board/lanes
* A Conditional Use Permit has been submitted to allow for a restaurant with a Drive-Thru
* A Conditional Use Permit is required to amend an existing sign program.

Please let me know if you have any questions, or if you need any additional information. It would great if we could get any formal comments or concerns from the School District on the project. If there are no comments, a neutral letter would also be helpful. Thanks again!

Jason Killebrew | City Planner
Community Development Dept. | Planning Division
1 Civic Center Circle, Brea CA 92821
714.990.7674

[Email Signatuer Logo]

From: Richard Champion <rchampion@bousd.us<mailto:rchampion@bousd.us>>
Sent: Monday, October 5, 2020 3:06 PM
To: Killebrew, Jason <jasonk@ci.brea.ca.us<mailto:jasonk@ci.brea.ca.us>>
Cc: Mason, Brad <bmason@bousd.us<mailto:bmason@bousd.us>>
Subject: RE: BOUSD Contact information

Jason,

Thanks for the conversation today. Please find below information requested.
We are looking forward to working with you.

Rick Champion

* Last day of school year 20/21 Is June 3, 2021
* School board meetings (Our 2021 meeting date will be approved this December)

Thursday, October 8 Regular Board Meeting - 6:30 PM
Thursday, October 22 Regular Board Meeting - 6:30 PM
Thursday, November 12 Regular Board Meeting - 6:30 PM
Thursday, December 10 Regular Board Meeting - 6:30 PM

* Laurel Elementary School Bell Schedule (Below)

Office Hours

The office is open from 7:30 a.m. to 4:00 p.m. daily. You may call the school at (714) 529-2520 anytime during these hours. We also have voicemail for messages after 4:00 p.m.

If you would like to report an absence, please call us at (714) 990-7833.

Regular Schedule Monday, Tuesday, Thursday, Friday
Grade Level

Class Time

Recess/Snack

Lunch

TK (Early)

8:00 am - 11:30 am

10:00 am - 10:20 am

N/A

TK (Late)

10:20 am - 2:10 pm

N/A

11:30 am - 12:10 pm

Kinder (Early)

8:00 am - 11:30 am

10:00 am - 10:20 am

N/A

Kinder (Late)

10:20 am - 2:10 pm

N/A

11:30 am - 12:10 pm

Grades 1-2

8:00 am - 2:10 pm

10:10 am - 10:25 am

11:45 am - 12:25 pm

Grades 3-6

8:00 am - 2:10 pm

9:55 am - 10:10 am

12:15 pm - 12:55 pm

Early Release Wednesday Schedule

Grade Level

ERW Schedule

TK/K (Early)

8:00 am - 11:15 am

TK/K (Late)

9:50 am - 1:25 pm

Grades 1-6

8:00 am - 1:25 pm

--

Richard Champion

Assistant Superintendent, Business Services

rchampion@bousd.us<mailto:rchampion@bousd.us>

https://www.bousd.us/

Brea Olinda Unified School District

1 Civic Center Circle, Level 2

Brea, CA 92821

(714) 990-7800

http://www.breaedfoundation.org/ "Every student deserves a strong foundation"

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Attorneys for SAFER AVENUES FOR EVERYONE; DIANE AND MAX STITES; KARI WINDES; and MARY MARTINEZ

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF ORANGE

SAFER AVENUES FOR EVERYONE; DIANE AND MAX STITES; KARI WINDES; and MARY MARTINEZ,

Petitioners and Plaintiffs,

v.

CITY OF BREA AND BREA CITY COUNCIL; and DOES 1-20,

Respondents and Defendants.

RAISING CANE'S RESTAURANTS, LLC; ONE BERRY LLC; and DOES 21-40,

Real Parties in Interest.

Case No. 30-2021-01192037-CU-WM-CXC

PETITIONERS' OPENING BRIEF IN SUPPORT OF PETITION FOR WRIT OF MANDATE

Assigned for All Purposes to:
Hon. William Claster, Dept. CX-104

Action Filed: March 24, 2021

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES 3

INTRODUCTION 6

STATEMENT OF FACTS 6

I. The Project site and the 1988 CUP. 6

II. The proposed Project. 7

III. Planning Commission approval, public comments, and appeal to the City Council. 8

STANDARD OF REVIEW 10

I. Standard of review for Brea City Code and General Plan claims. 10

II. Standard of review for CEQA claim. 11

ARGUMENT 12

I. The City's approval of the Project violated the Brea City Code. 12

II. The Project is inconsistent with the City's General Plan. 15

III. The City unlawfully determined that the Project was categorically exempt from CEQA. 17

A. The Small Structures exemption does not apply to the Project. 18

B. The Existing Facilities exemption does not apply to the Project. 19

C. The In-fill Development exemption does not apply to the Project. 20

D. Because the unusual circumstances exception applies to the Project, the City was prohibited from relying on categorical exemptions. 23

CONCLUSION 26

CERTIFICATE OF WORD COUNT 27

TABLE OF AUTHORITIES

Page(s)

Cases

Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster (1997)
52 Cal.App.4th 1165 18

Berkeley Hillside Preservation v. City of Berkeley (2015)
60 Cal.4th 1086 ..... 11, 24, 25

Citizens for Environmental Responsibility v. State ex rel. 14th Dist. Ag. Assn. (2015)
242 Cal.App.4th 555 ..... 11, 24, 25, 26

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176 Cal.App.4th 889 21

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62 Cal.App.4th 1332 ..... 10, 15, 17

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190 Cal.App.4th 286 ..... 13, 14

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236 Cal.App.4th 714 21

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2 Cal.5th 141 17

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124 Cal.App.4th 903 21

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268 Cal.App.2d 269 12

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139 Cal.App.4th 1356 11

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141 Cal.App.4th 677 11

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248 Cal.App.4th 410 10

Statutes

Code of Civil Procedure
§ 1094.5(b) 10, 15

Government Code
§ 65300 15

Pub. Resources Code (CEQA)
§ 21080(e)(2) 23
§ 21084(a) 17
§ 21168.5 17

Regulations

California Code of Regulations, Title 14 (CEQA Guidelines)
§ 15000 et seq 17
§ 15064(f)(5) 21
§ 15300 17
§ 15300.2 ..... 18, 23
§ 15301 ..... 18, 19, 20
§ 15303 18
§ 15332 ..... 18, 20
§ 15354 17

Other Authorities

Brea City Code
§ 20.224 ..... 12, 13, 15
§ 20.224.020 14
§ 20.224.020(A) 12
§ 20.224.020(B) 12
§ 20.224.030 ..... 12, 13

§ 20.224.050 13
§ 20.236.020(B) 13
§ 20.260.020 14
§ 20.260.030 14
§ 20.408.030(D)(2) 15
§ 20.424.050(B) 8

Brea General Plan
General Plan 2-15 ..... 15, 16, 17, 20

INTRODUCTION

This is a straightforward case. The City of Brea (the "City") approved a Raising Cane's Chicken Fingers—a high-volume, drive-thru, fast-food chain restaurant—directly across the street from an elementary school (the "Project"). Petitioners, a group of school staff, volunteers, and parents, informed the City that the Project violates both the Brea City Code and the Brea General Plan: zoning at the Project site prohibits standalone and drive-thru restaurants, and the General Plan authorizes restaurant uses only if they are designed to serve on-site employees. The City, unable to justify the Project on the basis of the site's *actual* zoning and General Plan designations, instead approved it while relying on the irrelevant fact that restaurants are permitted in *other* commercial areas of the City.

The land-use limitations at the Project site make good sense: a high-traffic use like a standalone restaurant is dangerous across the street from a pedestrian-heavy elementary school. Unsurprisingly, the record reflects that the Project will threaten the safety of schoolchildren walking to and from the adjacent school. This impact to pedestrian safety is exactly the kind of impact the California Environmental Quality Act, Public Resources Code sections 21000 et seq. ("CEQA"), is meant to uncover and mitigate. However, rather than analyzing the Project's safety impacts, the City—again without legal support and after Petitioners identified the error—claimed that the Project was exempt from CEQA, thus avoiding environmental review. For each of these reasons, the City's approval of the Project is invalid.

STATEMENT OF FACTS

I. The Project site and the 1988 CUP.

The Project site is in Gaslight Square, a small shopping center in Brea, north of Imperial Hwy., between Flower Ave. and Orange Ave. Administrative Record ("AR") 467. The primary zoning designation is "Commercial, Administrative and Professional Office (C-P)," but the site is also subject to a "Precise Development (PD)" overlay. AR 90-91. Its General Plan designation is "Office/Financial Commercial." AR 5. It contains six commercial buildings currently occupied by professional and medical offices, and vacant retail spaces. AR 467.

The initial development of Gaslight Square was approved in 1988 by the City's Planning Commission. AR 468. As that time, the Planning Commission approved a conditional use permit (the "1988 CUP"), which addressed community concerns by permitting only certain retail uses at the Project site, specifically barring "[f]ast food and sit-down restaurants." AR 131, 141.

Directly across Flower Ave. from the Project site is Laurel Elementary School ("Laurel Elementary" or "Laurel"), a TK-6 school operated by the Brea-Olinda Unified School District ("School District"). AR 467-68, 315. Laurel's pick-up/drop-off zone is located on Flower Ave., just north of Imperial Hwy. AR 316.

II. The proposed Project.

The Project would demolish two existing buildings on the Project site and construct a 3,267 square-foot fast-food restaurant with a 780 square-foot outdoor dining area. AR 468-69. It would also include drive-thru lanes that would accommodate up to 22 vehicles (*id.*), double the capacity of Raising Cane's restaurants in nearby Orange and Anaheim (AR 89). Vehicular access to the Project would be through existing driveways on Flower Ave. and Orange Ave. AR 468.

The figure below is an aerial view of the Project site, including Laurel Elementary to the east. AR 467.



The applicant—Javier Sola (for Raising Cane's)—filed the Project application with the City on June 22, 2020. AR 86. The application requested three entitlements: (1) a CUP to amend the 1988 CUP to allow a drive-thru restaurant at Gaslight Square; (2) precise development plan review under the zoning code's "Precise Development" provision; and (3) a CUP for signage. *Id*.

III. Planning Commission approval, public comments, and appeal to the City Council.

The Project came before the Planning Commission on December 8, 2020. AR 465. The Commission approved the Project on a 4-1 vote. AR 858. On December 14, 2020 Petitioner Kari Windes, a librarian at Laurel Elementary, acting "on behalf of a large group of parents" timely appealed the Planning Commission's decision to the City Council. AR 160.

Pursuant to Brea City Code section 20.424.050(B)[1], Ms. Windes identified the "specific aspect of the decision being appealed": the "approval of the proposed construction of the Raising Cane's drive thru restaurant across from Laurel Magnet Elementary." AR 160. She additionally identified the substance of the appeal: "[t]he addition of a high-traffic restaurant would greatly increase the chances for a tragic incident." *Id.*

After Ms. Windes filed her appeal, but before the City Council considered it, City staff offered to correspond with Ms. Windes about the substantive elements of her appeal. AR 172. Ms. Windes sent questions to the City on January 3, 2021. *Id.* The questions raised legal issues including the Planning Commission's reliance on other zoning districts to justify approval of the Project (AR 174), the Project's inconsistency with the Brea General Plan (AR 174), and its potential impacts on pedestrian safety (AR 175). Meanwhile, on January 28, 2021, the School District's Board voted to oppose the project based on concerns for "[p]edestrian/student safety." AR 315-16.

The City Council held a public hearing on Ms. Windes' appeal on February 2, 2021. AR 80, 82. The City received fifty-six public comments on the Project, nearly all in opposition. AR 703. The comments raised concerns about the Project's effect on the safety of children and families walking to and from Laurel Elementary, increased traffic near the Project, and the

[1] All referenced sections of the Brea City Code are attached as Exhibit B to Petitioners' Request for Judicial Notice ("RJN"), filed with this brief.

Project's likely adverse impact on adjacent businesses in Gaslight Square. *See* AR 226-317. A former Laurel Elementary teacher's comments are exemplary: "To put more cars on that street would be a disaster! . . . The volume of traffic will be unsafe! The safety of our children, teachers, and parents are paramount!" AR 240; *see also* AR 286 ("Too many children are walking in this area. . . . It will be especially dangerous with lots of cars driving in and out of the fast food parking lot."). Other comments noted the Project's likely adverse impact on adjacent businesses in Gaslight Square (AR 297-98) and the City's improper use of CEQA exemptions (AR 315-16). The comments also addressed the inadequacy of the City's "Focused Transportation Assessment" (the "Traffic Study"), which estimated the amount of traffic the Project would generate, but was conducted while Laurel Elementary was physically closed due to COVID-19. AR 528 (Traffic Study); 303, 315 (public comments). Nine members of the public spoke at the hearing. AR 703-04.

Near the end of the hearing, recognizing the need for additional information about the Project's potential safety impacts, the City Council directed staff to gather statistics on traffic in the vicinity of the Project site, along with information about where Laurel Elementary students live and how they get to school. AR 42. The City Council then continued the item to February 16, 2021. *Id.*

Subsequently, City staff contacted the School District and the Brea Police Department. *Id.* The School District could not provide information about how Laurel Elementary students travel to and from school, but did provide data showing that 27% of Laurel's 429 students live south of Imperial Hwy., and must therefore cross that busy road to get to school. *Id.* The Police Department reported 65 total "incidents" at the Project site and adjacent intersections in 2019 and 2020. AR 46-53. Thirty-four of those were traffic-related incidents at the intersections of Imperial Hwy. and Flower Ave. or Orange Ave., the two nearest the Project site. AR 50-53.

Zoom-related technical difficulties prevented Petitioners Diane Stites, a longtime Laurel Elementary volunteer, and Ms. Windes from making all their planned comments at the February 2, 2021 hearing. AR 59. Accordingly, they submitted additional comments to the City on February

10, 2021. AR 59-61, 66-68. These comments reiterated that the Project violated the City's zoning code and General Plan, and that the City improperly relied on CEQA exemptions. AR 66-68.

The City Council held a second meeting on the Project on February 16, 2021. The Staff Report attached public comments submitted after the February 2, 2021 hearing (AR 58-79), including the February 10 comments from Ms. Stites and Ms. Windes (AR 59, 66). The City Clerk summarized for the record email comments that were not published in the Staff Report. AR 693-94. Fourteen members of the public commented on the Project via Zoom. AR. 694. The City Council voted 3-2 to deny Ms. Windes' appeal, thus granting the requested entitlements: a signage-related CUP; a CUP amending the 1988 CUP to allow drive-thru restaurants at the Project site; and a precise development plan. AR 696. Safer Avenues for Everyone, a community organization seeking to protect Laurel Elementary, along with several of its members, timely filed this petition.

STANDARD OF REVIEW

I. Standard of review for Brea City Code and General Plan claims.

Petitioner challenges the City's approval of three land-use permits, including two CUPs and one "precise development" plan. The granting of land-use permits is a quasi-judicial act. *Neighborhood Action Group v. County of Calavera*s (1984) 156 Cal.App.3d 1176, 1186. Courts review a public agency's quasi-judicial act to determine whether the agency abused its discretion. Code Civ. Proc. § 1094.5(b). An abuse of discretion is shown if (1) the agency does not proceed in the matter required by law; (2) findings fail to support the decision; or (3) the findings are not supported by substantial evidence. *Id*. "[W]hether an agency has proceeded lawfully is a legal question that the trial court . . . review[s] de novo*." Stewart Enterprises, Inc. v. City of Oakland* (2016) 248 Cal.App.4th 410, 420-21. Courts invalidate the approval of a development project where the approving agency abused its discretion by incorrectly determining that the project is consistent with its general plan or zoning ordinances. *Families Unafraid to Uphold Rural El Dorado County v. El Dorado County Bd. of Supervisors* (1998) 62 Cal.App.4th 1332, 1338 ("*FUTURE*") (general plan); *Neighborhood Action Group*, 156 Cal.App.3d at 1184 (zoning).

II. Standard of review for CEQA claim.

Petitioners challenge the City's determination that the Project is exempt from CEQA review based on three categorical exemptions, arguing that the Project does not meet the exemptions' criteria. Petitioners further claim that even if a categorical exemption facially encompasses the Project, there is a reasonable possibility that the Project will have a significant effect on the environment due to unusual circumstances, thus precluding use of exemptions.

In interpreting the scope of a particular categorical exemption, "the court's task is to determine whether, *as a matter of law*, the [activity meets] the definition of a categorically exempt project." *San Lorenzo Valley Community Advocates for Responsible Education v. San Lorenzo Valley Unified School Dist.* (2006) 139 Cal.App.4th 1356, 1386 (emphasis and brackets in original). The court reviews that question de novo. *Id.* at 1387. The court "interpret[s] the exemption, starting with its plain language." *Id.* The court "must construe the exemptions narrowly in order to afford the fullest possible environmental protection." *Save Our Carmel River v. Monterey Peninsula Water Management Dist.* (2006) 141 Cal.App.4th 677, 697.

As to the "unusual circumstances" exception, the standard of review contains two parts. First, the court asks whether substantial evidence in the record shows that the project presents unusual circumstances, such as its size or location, as compared to others in the exempt class. *Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086, 1105, 1114. If so, the court considers whether there is a "reasonable possibility" that the unusual circumstance will produce a significant environmental effect. *Id.* at 1115. To this second question, the court applies the less-deferential "fair argument" standard. *Id.* Under this standard, petitioners prevail if the record contains "evidence of a *fair argument* that there *may be* a significant effect." *Citizens for Environmental Responsibility v. State ex rel. 14th Dist. Ag. Assn.* (2015) 242 Cal.App.4th 555, 575 (internal quotations omitted; emphasis in original). If substantial evidence points toward a potentially significant impact, a fair argument exists even if the record contains countervailing substantial evidence. *Id.*

ARGUMENT

I. The City's approval of the Project violated the Brea City Code.

In direct violation of the Brea City Code, the City approved the Project—a stand-alone, drive-thru restaurant—on a parcel zoned to prohibit both stand-alone restaurants and *any use* not conducted entirely within a building. A city's land-use approvals must comply with the city's own ordinances. *Robison v. City of Oakland* (1968) 268 Cal.App.2d 269, 274. Indeed, it is a "cardinal principle" of California land-use law that "land-use permits must be consistent with zoning." *Land Waste Management v. Contra Costa County Bd. of Supervisors* (1990) 222 Cal.App.3d 950, 959. Therefore, a city "cannot issue land-use permits that are inconsistent with controlling land-use legislation, as embodied in zoning ordinances." *Id.* at 957-58; *see also id.* at 958 ("Issuances of a permit inconsistent with zoning ordinances or the general plan may be set aside and invalidated as ultra vires.").

The Project site is zoned "Commercial, Administrative and Professional Office (C-P)." AR 90. Land uses in C-P zones are governed by Brea City Code ("BCC" or "Code") section 20.224. Section 20.224 lists the "principal permitted" uses in C-P zones, known as by-right uses. BCC §§ 20.224.020(A). It then lists uses permitted subject to a conditional use permit (CUP). BCC §§ 20.224.020(B). Restaurants are not on either list.[2] Lastly, section 20.224 permits certain "accessory" uses under very limited circumstances: the use must be "accessory" to an otherwise allowable use; it must be contained in a "totally enclosed building" with the primary use ; and it must occupy no more than 25% of that building's area. BCC § 20.224.020(A). All uses in C-P zones must be "conducted entirely within a building"; all uses "not specifically permitted" are prohibited. BCC §§ 20.224.030, 050.

[2] The principal permitted uses in C-P zones are art galleries, dental clinics, laboratories and other medical offices, libraries, certain massage establishments, medical clinics, medical equipment and supply offices, mimeo and addressing services, photographers studios, post offices, public utility commercial offices, and tourist information centers. BCC § 20.224.020(A). Uses permitted subject to a CUP are alcohol sales, ambulance services, auditoriums and conference rooms, churches, dancing schools, hospitals, lodges and meeting halls, mortuaries, private schools, and residential care facilities. BCC § 20.224.020(B).

Because restaurants are not permitted either by-right or pursuant to a CUP in C-P zones, the only way the Project could comply with the Code is as an "accessory use." However, the Project meets none of the accessory use requirements. First, it is a standalone use and building, not an accessory to an otherwise permitted use. AR 468-69. Second, as a standalone building, it is not operated within a totally enclosed building being used for an otherwise permitted use. *Id*. Third, as a standalone building, it occupies 100% of its own building area, rather than less than 25% of the building area of another building in a permitted use. *Id*. Moreover, as a drive-thru restaurant, the Project necessarily is not "conducted entirely within a building." *See* BCC § 20.224.050. This alone disqualifies it in a C-P zone, regardless of whether it meets the accessory use requirements (which it does not).

To justify approval of the Project despite these clear zoning limitations, the City inexplicably and improperly relied on Code provisions regulating *other* zoning districts. The City Council found that "the use applied for"—i.e., a standalone, drive-thru restaurant—"is one for which a Conditional Use Permit (CUP) is authorized by the Zoning Code." AR 6. To support this finding, the City Council pointed to Code section 20.236.020(B), governing uses in General Commercial (C-G) zones, and which allows restaurants in those zones subject to a CUP. *Id.* According to the City Council, section 20.236.020(B) "is applied to other commercial zones of the city, such as the C-P zone." *Id.*

However, the Code provides *no* support for the assertion that a provision permitting uses in one zoning district may be applied to a different district. To the contrary, Section 20.224—which governs the C-P-zoned Project site—unambiguously and expressly prohibits all uses not specifically permitted in that section. BCC § 20.224.030. Nor is there evidence in the record that the City has ever applied section 20.236.020(B) outside the C-G zone, including C-P zones. In any case, even if the City could show that it has applied section 20.236.020(B) in non-C-G districts, this practice could not override the Code's plain language, which permits restaurants in C-P zones only under very specific conditions, none of which are met here. *See*, *e.g., Friends of Juana Briones House v. City of Palo Alto* (2010) 190 Cal.App.4th 286, 303 ("In construing a statute or an ordinance, we look first to the language of the provision itself. If the language is clear and

unambiguous our inquiry ends.") (internal citations and quotations omitted). The City did not proceed in the manner required by law when it found that a CUP for a standalone restaurant at the Project is "authorized by the Zoning Code."

Similarly, in support of its finding that the Project would not be detrimental to existing uses or uses permitted in the C-P zone, the City Council asserted as "fact" that "Restaurants are permitted by-right uses in all commercial zones of the city, including General Commercial (C-G), Major Shopping Center (C-C), and Neighborhood Commercial (C-N). A restaurant at the Project Site is typical of commercial zones throughout the city. There are over 20 restaurants located within a one-third (1/3) mile radius from the Project Site, three of which have a drive-thru." AR 7; *see also* AR 90 ("[T]he Applicant's request to allow a restaurant at the Project site is typical of commercial zones throughout the city."); 470 ("Restaurants with drive-thru are allowed subject to a CUP within all commercial zones.").

These statements are misleading at best. That restaurants are typical or permitted by-right uses in *other* City zoning districts is irrelevant to whether a restaurant is permitted at the Project site, zoned C-P. The question before the City, and now this Court, is not, "would this project be allowed in many parts of the City?" The question is, "is this project allowed on this C-P zoned parcel?" The plain language of the C-P section of Code, not the general prevalence of restaurants, is the first and last resort for answering that question. *Friends of Juana Briones House*, 190 Cal.App.4th at 303. The Code is clear: the City's statement that "[r]estaurants are permitted by-right uses in all commercial zones of the city" (AR 7) is plainly false. The C-P zone unequivocally does not permit restaurants by-right. BCC § 20.224.020.

Finally, in correspondence with Petitioner Kari Windes, the City justified Project approval by claiming that the site is in a "Precise Development" zone. AR 183-84. According to this justification, the City could authorize the Project by approving a precise development plan. *Id.* However, the Code is again clear: with respect to permitted and prohibited uses in Precise Development zones, "[t]he provisions of the zone to which this supplemental zone is added shall apply." BCC §§ 20.260.020, 030. In other words, a precise development plan may authorize only uses already permitted by the underlying zoning.

"The validity of the permit process derives from" compliance with planning laws, including zoning ordinances. *Neighborhood Action Group*, 156 Cal.App.3d at 1184. Here, the City's approval of the Project was in direct violation of Code section 20.224. In violating its own Code, the City failed to proceed in the manner required by law. Code Civ. Proc. § 1094.5(b); *see also Land Waste Management*, 222 Cal.App.3d at 958. The City's approval of the Project was therefore invalid.

II. The Project is inconsistent with the City's General Plan.

Like its zoning designation, the Project site's designation in the Brea General Plan does not allow restaurants as a primary use, but does permit "small convenience" activities to support the needs of employees working in buildings hosting primary uses. The Project is patently inconsistent with this designation: it is a primary use, and it will serve vastly greater numbers of people than there are employees at existing Gaslight Square businesses.

Government Code § 65300 requires the legislative body of each city to adopt a general plan for the physical development of the city. The general plan is the constitution for all future development. *Lesher Communications, Inc. v. City of Walnut Creek* (1990) 52 Cal.3d 531, 540. "The propriety of virtually any local decision affecting land use and development depends upon consistency with the applicable general plan." *FUTURE*, 62 Cal.App.4th at 1336 (internal citations omitted). This consistency requirement applies to land-use permits, including conditional use permits. *Neighborhood Action Group*, 156 Cal.App.3d at 1184; *see also* Brea City Code section 20.408.030(D)(2) (CUP must be "in harmony with the various elements or objectives of the General Plan"). A city therefore abuses its discretion if it issues a permit conflicting with general plan requirements. *See FUTURE*, 62 Cal.App.4th at 1342.

The City's General Plan Land Use Element designates the Project site as "Office/Financial Commercial." AR 5. This designation provides for "single-tenant and multi-tenant offices that house professional, legal, medical, financial, administrative, research and development, corporate and general business offices, and other uses." Brea General Plan ("GP"), 2-15 (excerpted in Exhibit A to RJN). Development on land designated Office/Financial Commercial may also include "[s]upport uses," i.e., "small convenience or service commercial activities intended to

meet the needs of the on-site employee population." *Id.* The Office/Financial Commercial designation parallels the C-P zoning designation: neither allow restaurants as principal uses, but may allow very limited restaurants serving employees working in buildings hosting a principal permitted use. For example, a small café may be located within an office building to serve employees in that building.

Without any support or analysis, the City Council summarily concluded that the Project is "consistent with the General Plan as a restaurant use that will meet the needs of the employee population in the vicinity." AR 8. However, the Office/Financial Commercial designation does not authorize uses that meet the needs of employees "in the vicinity" of a project. Rather, it authorizes uses that serve the needs of "*on-site*" employees, here employees of Gaslight Square businesses. GP, 2-15. The City cannot ignore the General Plan's text.

The record includes no evidence that the Project will serve on-site employees. To the contrary, there is ample evidence that the Project will serve a far larger population. First, the Project is a *drive-thru* restaurant, designed with two drive-thru lanes, capable of accommodating 22 vehicles at any given time. AR 469. Since on-site employees have no need to drive to the restaurant, the drive-thru component alone shows that the Project will not primarily serve on-site employees.[3] Second, the Project is estimated to generate an additional 1,727 vehicle trips each day. AR 543. Each "trip" is one-way (AR 179-80), meaning that over *800 vehicles* are anticipated to visit the Project each day. The record does not explain how many people work at Gaslight Square, but evidence suggests it must be vastly smaller than the number of transactions expected to occur daily at the Project.[4] Third, the City's own Traffic Engineer recognized that "Raising

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[3] Many on-site employees submitted comments opposing the Project. For instance, the owner of an orthodontist clinic in Gaslight Square commented that the 1988 CUP—which prohibited fast food and sit-down restaurants—"should be upheld," since it "was agreed upon with the adjacent school, homes, and businesses in mind." AR 297; *see also* AR 682 (Project-related traffic would create unsafe conditions for adjacent dental clinic's elderly patients), 684 (Project would result in lost business). By contrast, the record includes no evidence that on-site employees favor the Project.

[4] For example, Gaslight Square has only 91 parking spaces, and only some of those are used by employees of existing businesses. AR 562.

Cane's has a tendency to . . . draw from a wide area." February 2, 2021 City Council Hearing Partial Transcript, 1:17-1:18 (attached to Notice of Lodging of Partial Transcript, filed simultaneously with this brief). Finally, the Project's hours of operation would be 9:00 a.m. to 1 a.m. Sunday through Thursday, and 9 a.m. to 3:30 a.m. on Fridays and Saturdays. AR 469-70. Employees in Gaslight Square's professional and medical offices are unlikely to have work-related food needs extending to the wee hours of Sunday mornings. Indeed, the City notes that the "[p]eak operating hours for office uses are typically mid-morning and mid-afternoon on weekdays, while peak operating hours for restaurants are typically during the dinner hour." AR 470.

In sum, the Project—a high volume, high-turnover fast-food restaurant designed and anticipated to accommodate visits from at least 800 vehicles daily—is a far cry from the "small convenience or service commercial activities intended to meet the needs of the on-site employee population" that the General Plan permits. *See* GP, 2-15. It is inconsistent with a "fundamental, mandatory and specific land use policy " of the General Plan, and on the evidence before the City, "[n]o reasonable person . . . could conclude otherwise." *FUTURE*, 62 Cal.App.4th at 1341. The City's approval of the Project was therefore an abuse of discretion and must be invalidated. *Orange Citizens for Parks & Recreation v. Superior Court* (2016) 2 Cal.5th 141, 157.

III. The City unlawfully determined that the Project was categorically exempt from CEQA.

The City avoided CEQA review of the Project by invoking three categorical exemptions; each is facially inapplicable to the Project. Even if the exemptions applied, the Project's location across the street from an elementary school triggers the "unusual circumstances" exception, precluding the City's use of an exemption. CEQA identifies certain classes of projects as exempt from the provisions of CEQA. Pub. Resources Code § 21084(a); Guidelines[5] §§ 15300, 15354. If a project is subject to a categorical exemption, no CEQA review is required. Public agencies utilizing exemptions must support their determination with substantial evidence. Pub. Resources Code § 21168.5. CEQA exemptions are narrowly construed and "[e]xemption categories are not to

[5] The CEQA "Guidelines" are found at Cal. Code Regs., tit. 14, § 15000 et seq.

be expanded beyond the reasonable scope of their statutory language." *Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 125. Erroneous reliance by an agency on a categorical exemption constitutes a prejudicial abuse of discretion and is a violation of CEQA. *Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (1997) 52 Cal.App.4th 1165, 1192.

Even if a project fits within an exempt category, "exceptions" may prohibit reliance on exemptions. Guidelines § 15300.2. One such exception prohibits reliance on an exemption where there is a "reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances" *Id.* § 15300.2(c).

The City determined that the Project was exempt from CEQA based on the "Existing Facilities" exemption (*id.* § 15301), the "Small Structures" exemption (*id.* § 15303), and the "In-fill Development Projects" exemption (*id.* § 15332). AR 1. None of the three applies to the Project, as a matter of law. Moreover, even if the exemptions applied, there is a reasonable probability the Project will have significant effects on the environment due to unusual circumstances: the Project site is adjacent to an elementary school, which potentially will cause significant safety hazards. Accordingly, CEQA prohibited the City from relying on any exemption, regardless of applicability.

A. The Small Structures exemption does not apply to the Project.

The City erroneously applied the Small Structures exemption, which requires consistency between the exempted activity and applicable zoning regulations. The Small Structures exemption consists of, inter alia, "construction and location of limited numbers of new, small facilities or structures." Guidelines § 15303. In urban areas, the Small Structures exemption may apply to commercial buildings not exceeding 10,000 square feet in floor area, but only if they are "*on sites zoned for such use*." *Id.* § 15303(c) (emphasis added).

As described above, the Project site's zoning designation—Commercial, Administrative and Professional Office (C-P)—does not allow for standalone, drive-thru restaurant uses. The Project site is not "zoned for such use"; the Project therefore does not fall under the Small Structures exemption. The City abused its discretion in applying the exemption.

B. The Existing Facilities exemption does not apply to the Project.

The Project—which proposes to construct a new building—is not subject to the Existing Facilities exemption, which applies to changes to existing structures. The Existing Facilities category consists of "the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use." Guidelines § 15301. Examples include "[i]nterior or exterior alterations involving such things as interior partitions, plumbing, and electrical conveyances." *Id.* § 15301(a). Thus, as its moniker implies, the Existing Facilities exemption applies to changes—i.e., alterations, repairs, maintenance, and additions—to *existing* structures. *See*, *e.g.*, *San Diegans for Open Gov. v. City of San Diego* (2018) 31 Cal.App.5th 349, 371 (Existing Facilities exemption applied to lease because it did not contemplate "construction of any new structures," but only "refurbishment of a preexisting facility"). Beyond its strict applicability to existing structures, the "key consideration" under this exemption is whether the project involves negligible or no expansion of use. Guidelines § 15301.

Contrary to the clear language of the exemption, the Project would *demolish* two existing structures and *construct an entirely new structure*. AR 89. This activity is categorically different than the "operation, repair, maintenance, . . . or minor alteration" of existing facilities contemplated by the Existing Facilities exemption. *See* Guidelines § 15301. Moreover, the Project would result in considerable expansion of use at the Project site. It would demolish two buildings and replace them with a high-volume drive-thru fast food restaurant expected to generate over 800 new daily vehicle trips. AR 543. The exemption, which requires "negligible or no expansion of existing or former use," cannot apply. Guidelines § 15301. In stretching the exemption to include the Project, the City impermissibly expanded it "beyond the reasonable scope of [its] statutory language." *Mountain Lion Foundation*, 16 Cal.4th at 125.[6]

[6] The Small Structures and Existing Facilities exemptions are mutually exclusive. The Small Structures exemption applies to the construction "of *new*, small facilities or structures." Guidelines15303 (emphasis added); see also AR 94 (City applying exemption to Project because it "would *construct a new . . . building*") (emphasis added). On the other hand, the Existing Facilities

(footnote continued on next page)

Moreover, the City's determination that the Existing Facilities exemption applies to the Project was based solely on the fact that the Project would reduce the total onsite building area. AR 1, 94. This fact is irrelevant to the exemption, which does not turn on whether a project or activity will reduce building area. Rather, the exemption addresses certain activities—"operation, repair, maintenance, permitting, leasing, licensing, or minor alteration"—as applied to *existing* facilities and structures. Guidelines § 15301. Nor does a reduction in building area alone establish that the Project would not expand the use of the demolished buildings. To the contrary, replacing a professional office building with a drive-thru, fast-food restaurant is a non-negligible expansion of use, regardless of any changes in building area. The City's application of this exemption was an abuse of discretion and a violation of CEQA.

C. The In-fill Development exemption does not apply to the Project.

The In-fill Development exemption applies to certain in-fill development in urban areas. However, by its own terms, it applies only if: (1) the project "is consistent with the applicable general plan designation and all applicable general plan policies as well as with the applicable zoning designation and regulations"; and (2) approval of the project "would not result in any significant effects relating to traffic, noise, air quality, or water quality." Guidelines § 15332. The Project satisfies neither requirement.

1. The Project is inconsistent with the Code and the General Plan.

As described above, the Project site's zoning designation—Commercial, Administrative and Professional Office (C-P)—does not allow for standalone, drive-thru restaurant uses, with or without a CUP. Similarly, and also described above, the Project is inconsistent with the Project site's General Plan designation, which only permits restaurants serving on-site employees. GP, 2-15. The Project is a primary use, and will serve a far broader population than on-site employees. Therefore, it is not consistent with "the applicable zoning designation and regulations." Guidelines § 15332. As a matter of law, this deficiency alone renders the In-fill Development exemption inapplicable.

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exemption applies to changes to existing buildings. Guidelines § 15301. It is therefore impossible as a matter of law for both exemptions to apply to a project.

2. The Project would result in significant environmental effects relating to traffic and transportation.

The record before the City included substantial evidence that the Project would greatly increase risks to pedestrians—primarily Laurel Elementary students and their adult caregivers. Under CEQA such safety risks are significant traffic- and transportation-related environmental impacts. Guidelines, Appx. G, § XVII(c) (project has potentially significant transportation impact if it would "[s]ubstantially increase hazards due to . . . incompatible uses"); *see also*, *e.g.*, *City of Long Beach v. Los Angeles Unified School Dist.* (2009) 176 Cal.App.4th 889, 914-16 (EIR adequately analyzed traffic-related pedestrian safety impacts).

Vehicles will access the Project via existing Gaslight Square driveways, one of which is on Flower Ave., directly across the street from Laurel Elementary. AR 467-68. Laurel's pick-up/drop-off zone, and the sole entrance to the Laurel staff parking lot, are also located on Flower Ave. AR 316. Vehicles accessing Laurel Elementary via Imperial Hwy. must turn onto Flower Ave. AR 467.

The traffic congestion and back-up at the intersection of Flower Ave. and Imperial—and the corresponding impact on children and their caregivers walking to and from Laurel Elementary—is well-documented. For example, the Staff Report for the February 16, 2021 City Council hearing references the City's potential partnership with the School District "on a feasibility study that would examine potential solutions to the drop-off/pick-up/circulation issues that Laurel Elementary is experiencing." AR 42. Public comments from neighbors and Laurel Elementary parents and teachers describe the problem in detail. "Relevant personal observations of area residents on nontechnical subjects may qualify as substantial evidence." *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 928. For example, "an adjacent property owner may testify to traffic conditions based upon personal knowledge." *Keep Our Mountains Quiet v. County of Santa Clara* (2015) 236 Cal.App.4th 714, 730 (quoting *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 173); *see also* Guidelines § 15064(f)(5) ("Substantial evidence" includes "facts [and] reasonable assumptions predicated upon facts.").

To that end, a Flower Ave. resident notes that the location of Laurel Elementary's pick-up and drop-off zone causes "enormous traffic jam[s]" on the corner of Imperial Hwy. and Flower Ave., and that this is "very dangerous" for children on foot near that intersection. AR 393. A parent comments that "the lack of caution from drivers on Flower Ave, on top of the scary backup and near-collision-misses at [the Laurel Elementary] drop off & pick up line (from Imperial Hwy) is already frightening." AR 396. Another parent offers a similar observation: "Getting through Imperial Hwy and surrounding streets during pick up and drop off is already hectic and dangerous for students who cross Flower St and Orange Ave, which is where the expected entrance to the drive thru is located. . . . It should be understood that the traffic in this area is constant through the whole day while school is in session." AR 397; *see also* AR 284 ("I have observed in the last few years . . . new changes for the pick up of these students, bringing the line out to IMPERIAL HWY so eventually, you have standstill traffic in the busy morning rush hour and the pickup times! Every time I see this I can not imagine the safety concerns of this."); 294 ("This corner is so busy at pickup and drop off time at the school, with people in the crosswalk, that this is downright dangerous.").

According to the City's own Traffic Study, the Project is expected to result in an additional 800-plus vehicles visiting the Project site each day. AR 543. These additional vehicles can only exacerbate the existing hazards near the Project site and Laurel Elementary. They would significantly increase the risks to school children and others walking to and from the school. Again, public comments submitted in opposition to the Project bolster this obvious conclusion. One parent comments,

> "At school pickup, the drive-up line wraps around the corner and onto Imperial. This already is dangerous as cars crowd the unmanned crosswalk (while children are crossing!) at Flower and Imperial. If you have ever been in this line you know the constant fear of being rear ended, all the honking that occurs and the semi trucks trying to maneuver around the line. *Add all the additional traffic a Drive Thru would bring, plus distracted drivers trying to check their order and eat while driving and this is a tragedy waiting to happen*."

AR 399 (emphasis added). A Laurel Elementary TK teacher writes, "My 4 year old students are released/arrive mid day. Many walk to and from home with their younger siblings and parents. *The increased lunch traffic will make it dangerous and chaotic for my littlest learners*." AR 232

(emphasis added). Another resident similarly highlights the additive danger posed by the Project: "If you have ever been on afternoon duty, overseeing the exit flow of the students, as I have, it can be dicey. Especially when parents park across the street. *Add to that congestion the drive through traffic of afternoon snackers entering Rai[s]ng Cane[s], the proposed new restaurant, would unnecessarily imperil children*." AR 274 (emphasis added).

The City claims that the Project will not have a significant traffic-safety impact, but substantial evidence does not support this conclusion. The City's Traffic Study technically considered pedestrian traffic, but the study was conducted while Laurel Elementary was physically closed to students and staff due to the COVID-19 pandemic. AR 179. Its data and conclusions are thus useless as evidence of normal conditions. Unsurprisingly, the study reported few pedestrians using the intersections near the Project site at the intersection of Flower Ave. and Imperial Hwy. *See, e.g.*, AR 577, 599 (showing zero pedestrians during the study period at Flower Ave./Imperial intersection). Considering the extensive evidence in the record establishing heavy school-related pedestrian traffic at the intersection, this figure is clearly not representative. It is not substantial evidence for purposes of considering the Project's actual impacts on pedestrian safety. Pub. Resources Code § 21080(e)(2) ("Substantial evidence is not . . . evidence that is clearly inaccurate or erroneous.").

In sum, there is substantial evidence in the record that the Project will cause a significant traffic-related environmental impact. Moreover, because the City's traffic study failed to consider pre- (or post-) COVID-19 pedestrian usage on and around the Project site, there is no countervailing evidence to support the finding that the Project will have no significant traffic-related impact. Because this required finding is invalid, the City abused its discretion in determining that the In-fill Development exemption applies to the Project.

D. Because the unusual circumstances exception applies to the Project, the City was prohibited from relying on categorical exemptions.

Categorical exemptions may not be used if there is a "reasonable possibility" that a project will have a significant effect on the environment due to "unusual circumstances." Guidelines § 15300.2(c). In challenging the use of an exemption, petitioners may establish application of the

unusual circumstance exception using two methods. Under the first method, the challenger shows (1) that "the project has some feature that distinguishes it from others in the exempt class, such as its size or location," and (2) "a reasonable possibility of a significant effect due to that unusual circumstance." *Berkeley Hillside*, 60 Cal.4th at 1105. Under the second method, the opponent need only show that the project "*will have* a significant environmental effect." *Id.* (emphasis added). Here, the unusual circumstance exception can be established using either method. First, the Project's location across the street from an elementary school is a unique feature distinguishing it from others in the exempt classes. Second, as described above, the Project *will have* a significant impact on pedestrian safety arising from those unusual circumstances.

1. The Project's location is an unusual circumstance.

The Project proposes to build a high-volume, fast-food, drive-thru restaurant across the street from a busy, pedestrian-heavy elementary school. The cited exemptions represent the Secretary of the Natural Resources Agency's determination that projects in the exempt categories "typically do not have significant impacts." *Berkeley Hillside*, 60 Cal.4th at 1105. But even if the claimed exemptions applied, unusual circumstances surrounding the Project take it out of those categories: it is atypical, so "the Secretary's findings as to the typical environmental effects of projects in an exempt category no longer control." *Id.* at 1116.

"Whether a particular project presents circumstances that are unusual for projects in an exempt class is an essentially factual inquiry, founded on the application of the [agency's] experience with the mainsprings of human conduct." *Id.* at 1114 (internal quotation marks omitted). Additionally, courts considering whether a project's location gives rise to an unusual circumstance "may . . . look to conditions in the immediate vicinity," including whether "the project is consistent with surrounding zoning and land uses." *Citizens for Environmental Responsibility*, 242 Cal.App.4th at 586."[E]vidence of a significant [environmental] effect may be offered to prove unusual circumstances." *Berkeley Hillside,* 60 Cal.4th at 1115.

Here, the Project's high-traffic character and its location across the street from an elementary school are unusual circumstances that remove it from the claimed categories of exempt development. Common sense and "the mainsprings of human conduct" demonstrate that among

the run of new small structures or infill projects, it is unusual to site a traffic-intensive use across the street from an elementary school. A school presents unique and sensitive circumstances. It brings to its neighborhood at least two waves of daily foot and vehicle traffic, which necessarily include children. Its boundaries are often porous, with grounds giving directly onto the street and people, again including children, coming and going. In short, an elementary school is not a typical neighbor for projects in any of the claimed categories. The record supports this incontrovertible conclusion. *See*, *e.g.*, AR 783 ("It is to my understanding that none of the other elementary schools in the district of Brea Olinda are near or remotely close to a fast food restaurant."); *see also* February 2, 2021 City Council Hearing Transcript, 2:14-18 ("This Project is unique. Compared to the drive-thrus in Brea, McDonalds, Taco Bell, Jack in the Box . . . None of them share a street with an elementary school.").

Experience, along with evidence in the record, additionally show that a school and a drive-thru are not only unusual neighbors, they are inconsistent uses, bolstering the conclusion that the Project is outside the norm of the claimed exemptions. *Citizens for Environmental Responsibility*, 242 Cal.App.4th at 586. The City itself acknowledged this inconsistency: the 1988 CUP's prohibition on fast-food restaurants was based on concerns of Laurel Elementary stakeholders as to the incompatibility of the school and fast-food uses. AR 131. Indeed, the sheer volume of opposition to the Project reveals just how unusual the proposed location is, as do the number of comments that express opposition to the Project solely in terms of its location. *See*, *e.g.*, AR 786 ("I do not oppose Raisin[g] Canes in general, but there has to be a better place to put it."); 822 ("Great restaurant, not a great location."); 827 ("[Raising] Canes would be a great addition to Brea. However, not in that location where it is being proposed.").

2. The Project will have a significant environmental impact.

As described above, the record contains substantial evidence that the Project will have a significant impact on pedestrian safety, a problem that arises from its unusual location across the street from a school. This impact further establishes the Project's unusual circumstances. *Berkeley Hillside,* 60 Cal.4th at 1105. It is, moreover, a direct result of the Project's location adjacent to an elementary school, and thus establishes that the unusual circumstances exception applies. *Id.* at

1104-05. Alternately, at the very least, the evidence supports a *fair argument* that the Project will have a significant impact on pedestrian safety. This would be true even if the City could point to substantial evidence in the record that the danger to schoolchildren is not significant. *See Citizens for Environmental Responsibility*, 242 Cal.App.4th at 575. In combination with the Project's unusual location, this fair argument is all that is required to show that the unusual circumstances exception applies. The City impermissibly relied on categorical exemptions to avoid environmental review of the Project.

CONCLUSION

For all of these reasons, Petitioners respectfully request that the Court issue a Writ of Mandate directing the City to rescind its approval of the Project.

DATED: August 20, 2021

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CERTIFICATE OF WORD COUNT

In accordance with California Rules of Court Rules 8.204 and 8.216, I certify that the text of this Petitioners' Opening Brief In Support of Petition for Writ of Mandate contains 7,180 words, as determined by the word count of the computer used to prepare this brief and exclusive of this certification and the other exclusions references in Rule of Court 8.204(c)(3).

DATED: August 20, 2021

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Assigned for All Purposes

Judge William Claster

CX-104

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF ORANGE

SAFER AVENUES FOR EVERYONE; DIANE AND MAX STITES; KARI WINDES; and MARY MARTINEZ,

Petitioners and Plaintiffs.

v.

CITY OF BREA AND BREA CITY COUNCIL; and DOES 1-20,

Respondents and Defendants.

JAVIER SOLA FOR RAISING CANE'S; RAISING CANE'S LLC; RAISING CANE'S RESTAURANTS, LLC; RAISING CANE'S USA, LLC; ONE BERRY LLC; and DOES 21-40,

Real Parties in Interest.

Case No. 30-2021-01192037-CU-WM-CXC

VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR INJUNCTIVE RELIEF

CCP §§ 1085 and 1094.5; State Planning and Zoning Law, Gov't Code §§ 65000 et seq.; California Environmental Quality Act, Pub. Res. Code §§ 21000 et seq.; Brea City Code

1. This action challenges the decision of the City of Brea to approve the construction of a drive-through fast food restaurant ("the Project") across the street from an elementary school, in a location where the City Code does not allow such a business.

2. Once schools fully reopen following the current COVID-19 pandemic, significant numbers of schoolchildren will resume their daily walks to and from Laurel Elementary School. The City prepared studies showing that these pedestrians would be met by hazardous traffic from the Project. Despite this knowledge, the City declined to give the Project's traffic or safety impacts any further consideration. Instead, the City declared that the Project was categorically exempt from the California Environmental Quality Act and approved it without any serious analysis of its effects on Laurel Elementary students, its neighbors, or any other aspect of the environment.

3. The City's approval of the Project violated the Brea City Code, the State Planning and Zoning Law (Government Code sections 65000 et seq.), the California Environmental Quality Act ("CEQA") (Public Resources Code sections 21000 et seq.), and the CEQA Guidelines title 15, California Code of Regulations, sections 15000 et seq.). This Court must therefore overturn the City's approval of the Project and enjoin any further approvals for and implementation of the Project.

PARTIES

4. Petitioner and Plaintiff Safer Avenues for Everyone ("SAFE") is an unincorporated association of residents and taxpayers who live, volunteer, and do business in the City of Brea. SAFE was formed to safeguard the people of Brea, especially students and pedestrians, from incompatible development. Its members include volunteers at Laurel Elementary, a librarian there, and neighbors. They consider the environment, walkability and safety of the area to be a key component of the City's quality of life.

5. By filing this action, SAFE seeks to further these purposes of the organization. Its members have a direct and beneficial interest in the City's compliance with the State Planning and Zoning Law, CEQA, and the City's Municipal Code because these laws are designed to protect the public and taxpayers from the hazards and other impacts of unregulated

development. The interests of SAFE and its members are and have been adversely and directly affected by the City's approval of the Project, which violates state and local law as set forth in this Petition and Complaint. By permitting inappropriate and dangerous development on the Project site, the City's approval of the Project could cause substantial and irreversible harm to the City, pedestrians, and visitors. The prosecution of this action will confer a substantial benefit on the public by protecting the public from the environmental, land use, planning, and other harms alleged herein.

6. Members of SAFE appeared at public hearings and submitted written comments in opposition to the Project throughout the administrative phase. Those comments raised the claims asserted in this action.

7. Petitioners and Plaintiffs Diane and Max Stites are volunteers at Laurel Elementary and frequent visitors to its neighborhood. They are members of SAFE and share its interests. Ms. and Mr. Stites opposed the Project during the administrative phase.

8. Petitioner and Plaintiff Kari Windes is a resident and taxpayer of the City of Brea. She is a member of SAFE and shares its interests. Ms. Windes opposed the Project during the administrative phase and appealed it from the Planning Commission to the City Council.

9. Petitioner and Plaintiff Mary Martinez is a resident and taxpayer of the City of Brea. She is a member of SAFE and shares its interests. Ms. Martinez opposed the Project during the administrative phase.

10. Respondent and Defendant City of Brea (the "City") is a municipal corporation formed under the laws of the State of California and located in the County of Orange, California.

11. Respondent and Defendant City Council of the City of Brea (the "City Council") is responsible for compliance with the requirements of State Planning and Zoning Law, CEQA, and the City's Municipal and Zoning Code. The City Council made the approvals challenged in this action.

12. Petitioners and Plaintiffs do not know the true names and capacities, whether individual, corporate, associate or otherwise, of Respondents and Defendants Doe 1 through 20, inclusive, and therefore sues said Respondents and Defendants under fictional names.

Petitioners and Plaintiffs allege, upon information and believe, that each fictionally named Respondent and Defendant is responsible in some manner for committing the acts upon which this action is based. Petitioners and Plaintiffs will amend this Petition and Complaint to show their true names and capacities if and when they have been ascertained.

13. Real Party in Interest Javier Sola for Raising Cane's is listed as the Project Applicant on the CEQA Notice of Exemption that the City filed with the Orange County Clerk-Recorder upon approval of the Project.

14. Petitioners and Plaintiffs are informed and on that basis allege that Real Parties in Interest Raising Cane's LLC, Raising Cane's USA, LLC, and Raising Cane's Restaurants, LLC are additional or actual applicants for the approvals for the Project or otherwise have an interest in the Project.

15. Petitioners and Plaintiffs are informed and on that basis allege that Real Party in Interest One Berry, LLC was responsible for at least part of the fees charged by the City for processing of the Project's application and approval and has an interest in the Project.

16. Petitioners and Plaintiffs do not know the true names and capacities, whether individual, corporate, associate or otherwise, of Real Parties in Interest Doe 21 through 40, inclusive, and therefore sues said Real Parties in Interest under fictional names. Petitioners and Plaintiffs will amend this Petition and Complaint to show their true names and capacities if and when they have been ascertained. Petitioners and Plaintiffs are informed and believe that each of the Real Parties in Interest is the agent, employee, or successor in interest of each other Real Party in Interest, and each performed acts on which this action is based in its capacity as agent, employee, or successor in interest.

JURISDICTION AND VENUE

17. This Court has jurisdiction under Code of Civil Procedure sections 1094.5 and 1085.

18. Venue is proper in this Court because the cause of action alleged in this Petition and Complaint arose in the City of Brea, Orange County, where the Project was approved and would be carried out.

19. Petitioner has complied with the requirements of Public Resources Code section 21167.5 by serving a written notice of Petitioner's intention to commence this action on the City on March 22, 2021. Copies of this written notice and proof of service are attached as Exhibit A to this Petition.

20. Petitioner is complying with the requirements of Public Resources Code section 21167.6 by concurrently filing a notice concerning preparation of the record of administrative proceedings relating to this action.

21. Petitioner is sending a copy of this Petition to the California Attorney General concurrently with this filing, complying with the requirements of Public Resources Code section 22167.7. A copy of this written notice is attached as Exhibit B to this Petition.

22. Petitioner has performed any and all conditions precedent to filing this instant action and has exhausted any and all available administrative remedies to the extent required by law

23. Petitioner has no plain, speedy, or adequate remedy in the course of ordinary law unless this Court grants the requested writ of mandate to require the City to set aside its approval of the Project until it complies with the City Code, the state Planning and Zoning Law, and CEQA. In the absence of such remedies, the City's approval will remain in effect in violation of state law.

FACTUAL BACKGROUND

24. The Project site is in a small (1.73 acre) commercial center known as Gaslight Square, which presently contains offices, including medical offices.

25. The City's Zoning Code places Gaslight Square in the "Commercial, Administrative, and Professional Office" or "C-P" zone. This designation allows "administrative and professional" office uses such as medical and dental clinics, libraries, photography studios, and art galleries. It additionally allows certain uses if they are "accessory," "operated within a totally enclosed building being used" for a permitted use, and does not occupy more than twenty-five percent of the total building area. These accessory uses include "restaurant." The C-P zone additionally allows certain uses pursuant to a conditional use permit. These conditional

uses do not include any form of restaurant. The C-P zoning designation bars "[a]ll uses not specifically permitted."

26. As to the Project site, the Zoning Code is consistent with the Brea General Plan, which designates the site "Office/Financial Commercial. This designation allows "offices that house professional, legal, medical, financial, administrative, research and development, corporate and general business offices, and other uses." The only non-office uses it allows are "support uses . . . includ[ing] small convenience or service commercial activities intended to meet the needs of the on-site employee population."

27. In 1988, the City's Planning Commission approved the initial development of Gaslight Square. As part of this approval, the Planning Condition by Resolution P.C. 88-56 approved a conditional use permit allowing retail uses to exceed fifty percent of the development's total building area ("the 1988 CUP"). It is not clear how this permit was consistent with the C-P designation in the Zoning Code, which does provide for such increases in use area by conditional use permit.

28. To address community concerns, the 1988 CUP limited allowable retail uses to certain types, and specifically barred "[f]ast food and sit-down restaurants."

29. Laurel Elementary School is a TK-6 school operated by the Brea-Olinda Unified School District. It is directly across Flower Avenue from the Project site. As a magnet school it serves students from across the district; a substantial number of its students receive free or reduced-cost lunch. By the City's own studies, approximately 27% of the school's 429 students must cross Imperial Highway to reach school and return home.

30. On December 8, 2020 the City's Planning Commission took up an application from the fast-food restaurant chain Raising Cane's. The application sought approval to demolish two existing buildings on the Project site and construct a 3,267 square-foot single-story restaurant with a drive-thru. Specifically, the applicant requested an amendment to the to the 1988 CUP, plan review under the Zoning Code's "Precise Development" provisions, and a conditional use permit relating to signage. Petitioner and plaintiff Kari Windes appeared at the Planning Commission hearing and spoke in opposition to the Project.

31. The Planning Commission approved the Project on December 8, 2020.

32. On January 20, 2021 , the City held a community meeting regarding the Project. Members of the public, including Plaintiffs and Petitioners Mary Martinez and Max Stites appeared at the meeting and spoke in opposition to the Project.

33. On December 14, 2020 Petitioner and Plaintiff Kari Windes timely appealed the matter to the City Council pursuant to Brea City Code sections 20.424.010 et seq.

34. Following Ms. Windes's appeal, the City held a community meeting to receive public comment on the Project. City staff also made a presentation to the Board of Education of the Brea-Olinda Unified School District ("the BOUSD Board"). Both the public and the BOUSD Board focused their concern on the safety of students at Laurel Elementary.

35. In advance of the December 8, 2020 Planning Commission hearing, the City prepared a "Focused Transportation Assessment" to estimate the amount of additional traffic that the Project would add to the adjacent roadways. The Assessment determined that would cause over a thousand additional car trips each day on Flower Avenue and Orange Avenue, the side streets serving the Project.

36. The City's two studies—the Focused Transportation Assessment and the study of Laurel Elementary students' residence-- thus showed that the Project would cause additional traffic in the path of a significant number of school children each morning and afternoon.

37. Members of the public, including Petitioners and Plaintiffs, submitted comments to the City highlighting the danger to students that the Project would pose and the need for further study of such hazards. For example, Petitioner and Plaintiff Diane Stites submitted a comment on February 10, 2021 noting, inter alia, that a "CEQA study was not done" even though "the volume of autos would increase six-fold." In the same comment, Ms. Stites noted that "The main safety concern comes from the exponential increase in use and the type of use, a drive-thru restaurant, will have to the immediate community. Patrons will be required to interact with the elementary school and neighborhood population because of the current configuration of the ingress/egress."

38. Other commenters noted flaws in the City's Focused Traffic Assessment, including without limitation its failure to consider future pedestrian and cyclist volumes after the end of the COVID-19 pandemic and its failure to consider midday traffic.

39. Veronica Carey, another commenter and the parent of Laurel Elementary student, voiced her concern that the Project "would increase traffic and reduce safety around the school. Children who walk to and from school would be at greater risk due to the increase in traffic." Other members of the public, including members of Plaintiff and Petitioner SAFE, submitted similar comments highlighting the dangerous conditions that the Project would cause.

40. Other comments from the public noted that the Project is inconsistent with the site's zoning and General Plan designation. For example, a comment dated February 10, 2021 from Petitioner and Plaintiff Kari Windes explained that neither the C-P zone nor the General Plan's Office/Financial Commercial designation allow drive-through restaurants of the type the Project would build.

41. The City nevertheless approved the Project on February 16, 2021 with no review under CEQA.

42. To justify its approval of a drive-through restaurant occupying an entire building in a zone district that only allows restaurants that occupy no more than 25% of a building's area, the City stated that "restaurants are permitted by-right uses in all commercial zones of the city, including General Commercial (C-G), Major Shopping Center (C-C), and Neighborhood Commercial (C-N)." As members of the public pointed out, this description of uses allowed in other commercial zones is both misleading and irrelevant to the question of whether a drive-through restaurant is allowed in the C-P zone.

43. To justify its failure to study the Project's safety hazards and environmental impacts, the City relied on two Categorical Exemptions: the Staff Report supporting the City Council's approval claimed, pursuant to CEQA Guidelines sections 15301 and 15302, respectively, that the Project was exempt from CEQA because it involved "operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures" and because it involved construction of a building of less than 10000 square feet.

44. The City filed a Notice of Exemption with the Orange County Clerk-Recorder on February 17, 2021. In the Notice of Exemption, the City added a third exemption, for "In-Fill Development."

FIRST CASE OF ACTION

(Violation of Brea City Code)

45. Petitioners hereby reallege and incorporate paragraphs 1 through 44, inclusive.

46. All land use approvals must comply with the City's own ordinances. *Robison v. City of Oakland* (1968) 268 Cal.App.2d 269, 274.

47. The City violated the law when it approved the Project because the Project is not allowed under the Brea City Code.

48. Brea Zoning Code section 20.244.020(A) lists the "[p]rincipal permitted uses" allowed in the C-P zone. This list does not include any form of restaurant.

49. Brea Zoning Code section 20.244.020(A) allows restaurants in the C-P zone under very limited circumstances: the restaurant must be "accessory" to an otherwise-allowed use, it must be contained in "a totally enclosed building being used for" such a use, and it must take up no more than 25% of that building's area. This section makes no provision for drive-thru restaurants.

50. The Project meets none of these requirements. It is a drive-thru restaurant. It is a standalone use, not accessory to any other use at Gaslight Square. Its drive-through facility would by definition not be a totally enclosed building. It would occupy 100% of its building, and no other use would exist in the building.

51. Brea Zoning Code section 20.244.020(B) lists the uses which may be allowed in the C-P zone pursuant to a conditional use permit. It does not list any form of restaurant.

52. Brea Zoning Code section 20.224.030 bars all uses in the C-P zone that are not specially allowed. Because the Project is not allowed under section 20.224.020, the Brea Zoning Code bars the project.

53. By approving the Project, the City thus violated its own City Code.

54. As a result of the foregoing defects, (1) the City did not proceed in the manner required by law, (2) its decision to approve the Project was arbitrary and capricious, and (3) its decision was not supported by substantial evidence. As such, the approval of the Project must be set aside.

SECOND CAUSE OF ACTION

(Inconsistency with Brea General Plan; Violation of State Planning and Zoning Law, Gov. Code §§ 65000 et. Seq. and Brea City Code)

55. Petitioners and Plaintiffs hereby reallege and incorporate paragraphs 1 through 54, inclusive.

56. Government Code section 65300 requires the legislative body of each city to adopt a general plan for the physical development of the city. The general plan serves as a charter for future development to which all other land use decisions must conform.

57. Because the general plan is the constitution for all future development in a city, any decision of the city affecting land use and development must be consistent with the general plan. *Neighborhood Action Group v. County of Calaveras* (1984) 156 Cal.App.3d 1176.

58. Brea City Code section 20.408.030(D)(2) requires that the Planning Commission's approval of a condition use permit include a finding that the use is "in harmony with the various elements or objectives of the General Plan."

59. Thus, both state and local law demand consistency between the General Plan and the Project approval.

60. The Project is not in harmony with the General Plan designation for the site. The designation is Office/Financial Commercial, which does not provide for drive-through restaurant uses.

61. The City's approval of the Project thus violated both the state Planning and Zoning Law and the Brea City Code.

62. As a result of the foregoing defects, (1) the City did not proceed in the manner required by law, (2) its decision to approve the Project was arbitrary and capricious, and (3) its

decision was not supported by substantial evidence. As such, the approval of the Project must be set aside.

THIRD CAUSE OF ACTION

(Violation of CEQA, Public Resources Code § 21000 et seq.)

63. Petitioner realleges and incorporates by reference Paragraphs 1 through 62, inclusive, of this Petition, as if fully set forth below.

64. CEQA is designed to ensure that the long-term protection of the environment is the guiding criterion in discretionary public decisions. CEQA accomplishes its purpose by requiring public agencies to determine, and to disclose to the public detailed information about, the effect that a proposed project is likely to have on the environment; to list ways in which the effects of the project might be avoided or minimized; and to develop and compare alternatives to the project.

65. The City unlawfully determined that the Project was categorically exempt from CEQA, relying on two mutually inconsistent exemptions.

66. In approving the Project, the City determined that the Project is subject to the Categorical Exemption for Small Structures, which applies to "consists of construction and location of limited numbers of new, small facilities or structures." However, no categorical exemption may be used where there is a reasonable possibility that the project will cause a significant environmental effect due to unusual circumstances. CEQA Guidelines § 15300.2(c). Such circumstances exist as to the Project. For example, without limitation, the Project's location across the street from an elementary school is an unusual circumstance that gives rise to the reasonable possibility that the Project will cause significant traffic safety hazards for students. Such hazards are an adverse impact on the physical environmental, within the scope of CEQA. *See* CEQA Guidelines, Appx. G, § XVII(c) (project has potentially significant transportation impact if it would "[s]ubstantially increase hazards due to . . . incompatible uses"). The Categorical Exemption for Small Structures therefore does not excuse the City from undertaking CEQA review of the Project.

67. In approving the Project, the City determined that the Project is subject to the Categorical Exemption for Existing Facilities. This exemption applies to "the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features." This exemption for *existing* structures is inconsistent with the City's reliance on the exemption for new small structures. Moreover, this exemption is inapplicable to the Project, which involves the demolition of two existing structures and the construction of one entirely new structure. Even if it did apply to the facts of the Project, the reasonable possibility of a significant impact due to unusual circumstances, as described above, bars the exemptions application.

68. After approval, the City filed a Notice of Exemption with the Orange County Clerk-Recorder. The Notice listed a third Categorical Exemption, for an "In-Fill Development Project."

69. This late exemption, which the City Council did approve and on which the City Council did not rely, cannot support the approval of the Project. Moreover, by its own terms, the In-Fill Development Exemption does not apply to the Project, and it was not supported the required evidence in the record. For example, without limitation, this exemption only excuses a project from CEQA compliance when the project "is consistent with the applicable general plan designation and all applicable general plan policies as with applicable zoning designation ad regulations," and "would not result in any significant effects relating to traffic, noise, air quality, or water quality." CEQA Guidelines § 151332. As described above, the Project is not consistent with the applicable general plan or zoning designation. Moreover, the City's studies demonstrate a potentially significant impact related to the hazards Project traffic poses to Laurel Elementary students. The City's Focused Transportation Assessment, moreover, is insufficient to support the required finding that the Project will have no significant traffic impact: for example, without limitation, it does not account for inevitable increases in pedestrian traffic after the end of economic disruptions caused by the COVID-19 pandemic.

70. Because neither the Categorical Exemptions that the City Council approved nor the one later added excuse CEQA compliance, the City violated CEQA by approving the Project without undertaking environmental review.

71. As a result of the foregoing defects, (1) the City did not proceed in the manner required by law, (2) its decision to approve the Project was arbitrary and capricious, and (3) its decision was not supported by substantial evidence. As such, the approval of the Project must be set aside.

PRAYER FOR RELIEF

WHEREFORE, Petitioners pray for judgment as follows:

1. For alternative and peremptory writs of mandate directing the City to vacate and set aside its approval of the Project;

2. For alternative and peremptory writs of mandate directing the City to comply with CEQA, and to take any other action required by Public Resources Code section 21168.9 or as otherwise required by law;

3. For a preliminary and permanent injunction restraining respondent, real parties in interest and their agents, employees, officers, and representatives from undertaking activities to implement the Project pending full compliance with the requirements of the City Code, the Planning and Zoning Law, and CEQA;

4. For costs of the suit;

5. For attorneys' fees as authorized by Code of Civil Procedure section 1021.5 and other provisions of law; and

6. For such other and future relief as the Court deems just and proper.

DATED: March 23, 2021

SHUTE, MIHALY & WEINBERGER LLP



By: _____

GABRIEL M.B. ROSS

Attorneys for Safer Avenues for Everyone; Diane & Max Stites, Kari Windes, and Mary Martinez

1353007.3

VERIFICATION

STATE OF CALIFORNIA, COUNTY OF ORANGE

I have read the foregoing **VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR INJUNCTIVE RELIEF** and know its contents.

I am a party to this action. The matters stated in the foregoing document are true of my own knowledge except as to those matters which are stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on March 23, 2021, at Yorba Linda, California.

Diane Stites
Print Name of Signatory

Signature

1353007.2

EXHIBIT 1

SHUTE, MIHALY & WEINBERGER LLP

396 HAYES STREET, SAN FRANCISCO, CA 94102
T: (415) 552-7272 F: (415) 552-5816
www.smwlaw.com

GABRIEL M.B. ROSS
Attorney
Ross@smwlaw.com

March 20, 2021

Via By FedEx Overnight

Lillian Harris-Neal
City Clerk
City of Brea
1 Civic Center Circle
Brea, CA 92821

Re: Notice of Intent to Sue re Conditional Use Permit 20- 10, Precise Development Plan 20-04, Conditional Use Permit 20- 18

Dear Ms. Harris-Neal:

This letter is to notify you that Safer Avenues for Everyone, Diane and Max Stites, Kari Windes, and Mary Martinez will file suit against the City of Brea and the Brea City Council for failure to observe the requirements of the California Environmental Quality Act ("CEQA"), Public Resources Code section 21000 et seq., in the administrative process that culminated in the City's decision to approve the construction of a drive-through Raising Cane's restaurant at the Gaslight Square commercial center.. This notice is given pursuant to Public Resources Code section 21167.5.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Gabriel M.B. Ross

1352801.1

PROOF OF SERVICE

Safer Avenues For Everyone, et al v. City of Brea, et al.
Case No.:
Superior Court of the State of California, County of Orange

At the time of service, I was over 18 years of age and **not a party to this action**. I am employed in the County of San Francisco, State of California. My business address is 396 Hayes Street, San Francisco, CA 94102.

On March 22, 2021, I served true copies of the following document(s) described as:

NOTICE OF INTENT TO SUE

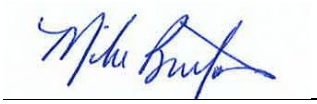
on the parties in this action as follows:

SEE ATTACHED SERVICE LIST

BY FEDEX: I enclosed said document(s) in an envelope or package provided by FedEx and addressed to the persons at the addresses listed in the Service List. I placed the envelope or package for collection and overnight delivery at an office or a regularly utilized drop box of FedEx or delivered such document(s) to a courier or driver authorized by FedEx to receive documents.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on March 24, 2021, at Tampa, Florida.



Mike Burton

SERVICE LIST
Safer Avenues For Everyone, et al v. City of Brea, et al.
Case No.:
Superior Court of the State of California, County of Orange

Lillian Harris-Neal
City Clerk
City of Brea
1 Civic Center Circle
Brea, CA 92821
Via FedEx

1353698.1

EXHIBIT 2

SHUTE, MIHALY & WEINBERGER LLP

396 HAYES STREET, SAN FRANCISCO, CA 94102
T: (415) 552-7272 F: (415) 552-5816
www.smwlaw.com

GABRIEL M.B. ROSS
Attorney
Ross@smwlaw.com

March 22, 2021

Matthew Rodriquez
Acting Attorney General
California Department of Justice
1300 I Street
Sacramento, CA 95814-2919

Re: Notice of Filing CEQA Litigation (Safer Avenues for Everyone et al. v. City of Brea et al.

Dear Acting Attorney General Rodriquez:

Enclosed please find a copy of the Verified Petition for Writ of Mandate in the above-titled action. The petition is provided to you in compliance with Public Resources Code section 21167.7 and Code of Civil Procedure section 388. Please acknowledge receipt in the enclosed prepaid, self-addressed envelope.

Thank you for your attention to this matter.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Gabriel M.B. Ross

1352958.1

Attachment A
Plan Review No. PR 20-07
255 E Imperial Highway

Entitlements: This project will require the following entitlements approved through resolution by the Planning Commission:

- Amendment to Conditional Use Permit No. CUP 88-39 to amend Condition Q (attached for referenced)
- Conditional Use Permit for the Drive Thru Restaurant
- Precise Development for building design and site design.
- Conditional Use Permit to amend existing sign program (see Planning Division Comment 7).

Section 1. Incomplete Check List

The application has been deemed incomplete, consistent with the requirements of Government Code Section 65943(a). The following items are required in order to complete your application:

1. **Color and Materials Board:** The plans currently call out conceptual material finishes on the elevations, however staff will need the opportunity to review a full color and materials board.

2. **Floor Plan:** Please submit a floor plan showing the proposed layout of the dining area, kitchen, restrooms, and patio.

3. **Parking Study:** For the City to consider modifications to the required parking standards, a parking study prepared by a professional parking consultant demonstrating how the proposed condition will meet the shared parking demand, maintain access and serve the site is required. Said study will be paid for by the applicant and reviewed by the City's parking consultant and Planning Division Staff.

4. **Queuing Analysis:** Please provide both a drive-through queuing analysis and a traffic circulation study based on empirical data gathered from three similar raising canes restaurants. It is suggested that La Habra, Orange, and Anaheim restaurants be used as comparative sites. The traffic circulation study is to include a traffic analysis based on anticipated arriving and departing traffic during peak hours and during peak school traffic conditions. The study is also to include an assessment of traffic controls in the general vicinity of the restaurant and specifically if the new restaurant necessitates the traffic signalization of the Imperial Highway and Flower intersection. The traffic circulation study is also to consider traffic safety as well as access and circulation for those patrons choosing alternative modes of travel. All studies to be reviewed and approved to the satisfaction of the City Engineer.

5. **Title Report:** Please submit a title report with a hyperlink to the supporting documents for review by the Public Works Department.

6. **WQMP:** Please submit a preliminary WQMP for review by the Public Works Department.

Section 2. Plan Review

morning if we need another conference or zoom meeting.

SLIDE #1:

Transportation Assessment Study

Conservative Analysis

Increased the size of the building by +24%
Increased trip rate by +34%
Reduced the pass-by trip rate by up to +50%
Increased street traffic by +37%

Reviewed Imperial Highway & Flower for a Traffic Signal

Reviewed Pedestrian and Bicycle Circulation

Reviewed Drive through Queueing

SLIDE #2:

Project Related Traffic Improvements

Imperial Highway & Flower Pork Chop
Eliminate Project Access to/from the Alley
Improvements to Project Driveways
Striping Modifications on Flower
Traffic Monitoring Report

SLIDE #3:

Other Considerations

Caltrans
Pandemic
Traffic Congestion
Level of Service
Traffic Safety

ATTACHMENT 2
SUMMARY OF PROJECT TRIP GENERATION
BREA RAISING CANE'S

Land Use	ITE Code	Unit	Trip Generation Rates [1]						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Small Office Building	712	KSF	16.190	1.594	0.326	1.920	0.784	1.666	2.450
Fast-Food Restaurant w/ Drive-Through[2]	934	KSF	715.390	N/A [3]	N/A [3]	N/A [3]	26.281	24.259	50.540

Land Use	Quantity	Unit	Trip Generation Estimates						
			Daily	AM Peak Hour [3]			PM Peak Hour		
				In	Out	Total	In	Out	Total
EXISTING USE									
Small Office Building	9.588	KSF	155	15	3	18	8	16	24
PROPOSED USE									
Fast-Food Restaurant w/ Drive-Through	4.047	KSF	2,895	0	0	0	106	98	204
Pass-by Trips (35% Daily,35% PM)[4]			-1,013	0	0	0	-37	-34	-71
Total Net Trips for Proposed Conditions			1,882	0	0	0	69	64	133
Net Difference (Proposed Minus Existing)			1,727	-15	-3	-18	61	48	109

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, Volume 2 (September 2017)
[2] Trip Generation rates is equal to average rate plus standard deviation to account for higher trip generation than typical land use.
[3] Raising Cane's (proposed use) is not open during the morning peak hour.
[4] Per City's guidance, a maximum pass-by reduction of 35% was assumed for the proposed project

ATTACHMENT 2
SUMMARY OF PROJECT TRIP GENERATION
BREA RAISING CANE'S

Land Use	ITE Code	Unit	Trip Generation Rates [1]						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Small Office Building	712	KSF	16.190	1.594	0.326	1.920	0.784	1.666	2.450
Fast-Food Restaurant w/ Drive-Through	934	KSF	470.950	N/A [2]	N/A [2]	N/A [2]	16.988	15.682	32.670

Land Use	Quantity	Unit	Trip Generation Estimates						
			Daily	AM Peak Hour [2]			PM Peak Hour		
				In	Out	Total	In	Out	Total
EXISTING USE									
Small Office Building	9.588	KSF	155	15	3	18	8	16	24
PROPOSED USE									
Fast-Food Restaurant w/ Drive-Through	3.198	KSF	1,506	0	0	0	54	50	104
Pass-by Trips (50% Daily, 50% PM)[3]			-753	0	0	0	-27	-25	-52
Total Net Trips for Proposed Conditions			753	0	0	0	27	25	52
Net Difference (Proposed Minus Existing)			598	-15	-3	-18	19	9	28

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, Volume 2 (September 2017)
[2] Raising Cane's (proposed use) is not open during the morning peak hour.
[3] ITE Trip Generation Manual does not have a daily pass-by percentages, therefore the pass-by percentage for the PM peak hour was assumed.

Operating conditions for both ICU and HCM methodologies are expressed in terms of "Level of Service" which is also referred to by its acronym, LOS. The ICU calculation returns a volume-to-capacity (V/C) ratio that translates into a corresponding Level of Service, ranging from LOS A, representing uncongested, free-flowing conditions; to LOS F, representing congested, over-capacity conditions.

A summary description of each Level of Service and the corresponding V/C ratio or delay is provided below.

LEVEL OF SERVICE DESCRIPTIONS			
Level of Service	Signalized: ICU	Unsignalized: HCM [1]	Description
	V/C Ratio	Delay (sec)	
A	0.00 - 0.60	≤10	EXCELLENT – No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.61 - 0.70	> 10 and ≤ 15	VERY GOOD – An occasional approach phase is fully utilized; drivers begin to feel somewhat restricted within groups of vehicles.
C	0.71 - 0.80	> 15 and ≤ 25	GOOD – Occasionally, drivers may have to wait through more than one red light; back-ups may develop behind turning vehicles.
D	0.81 - 0.90	> 25 and ≤ 35	FAIR – Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive back-ups.
E	0.91 - 1.00	> 35 and ≤ 50	POOR – Represents the most vehicles that the intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.00	> 50	FAILURE – Back-ups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

LOS = Level of Service; ICU = Intersection Capacity Utilization; HCM = Highway Capacity Manual; V/C = volume-to-capacity
[1]Source: Source: Highway Capacity Manual, 6th Edition

Performance Criteria

The City of Brea Level of Service standard for intersection operation is Level of Service D or better. If the project traffic causes operations at an intersection to go from acceptable to unacceptable, the project would have a significant effect at the intersection.

AREA CONDITIONS

Existing Street System

Regional access to the site is provided by Imperial Highway (SR-90) adjacent to the project site, and State Route 57 (SR-57), located nearly one mile east of the project site. The following provides a description of the roadways providing access to the project area.

4. Executive Summary, Page 2 – Revise paragraphs 2 & 3 based on comments on the parking assessment.

5. Area Conditions, Page 8 – For both Imperial Highway and Birch Street, please note that the project is located in a 25 mph school zone "which is applicable when children are present".

6. Existing Traffic Volumes, Page 9 – Please clarify how the 24% adjustment factor was derived. Comparisons of the 2017 and 2020 count data in the appendix indicate that a factor of 33% may be more appropriate.

7. Figure 5, Page 14 - Please provide a figure that illustrates the inbound and outbound turning movement distributions at the study intersections as well. Please footnote which movements have pass-by adjustments applied, or describe this in more detail in the report text.

8. Table 3, Page 15 – Please include columns to report the change in delay or v/c ration due to the addition of project traffic.

9. Table 3, Page 15 – The current assignment of project trips to the SB left-turn movement is resulting in unreasonable delays and queuing on Flower Street. With addition of project traffic, the minor street approach delay at Flower St/Imperial Hwy is calculated at over 4,500 seconds per vehicle, corresponding to well over 60 minutes per vehicle, which exceeds the one-hour analysis time period. Minor street queues are also forecast at over 167 vehicles, which far exceeds the length of the block between Imperial Hwy and Birch St. These results are unreasonable and need to be explained, or access alternatives should be considered to address these unacceptable "with project" conditions.

10. Table 3, Page 15 – Has an alternative right-out access scheme for the north leg of the Flower St/Imperial Hwy intersection has been considered (similar to the south leg)? Evaluation of this alternative should consider the redistribution of existing trips generated by the residential neighborhood to the north and by the Laurel School. Also keep in mind that intersections with more than 50 trips assigned to it should be included in the study, and on account of this the number of study intersections may need to be increased.

    It is expected that both the proposed project and the Laurel School would benefit from more reasonable delay/queuing on Flower Street throughout the day, therefore there may be an opportunity to share the cost of any improvements. Suggested alternatives for providing a fair-share contribution can also be considered.

11. Table 3, Page 15 – The project will contribute traffic to intersections which are operating at a deficient LOS, thus further worsening the LOS. Please explain what intersection improvements and project modifications were considered or proposed to lessen the project's effects at these intersections, and why they were found infeasible or insufficient to address the deficiency.

From: Eric Eichinger
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup
Subject: Laurel Safe
Date: Tuesday, July 5, 2022 7:53:22 AM

Hello Everyone!
Thank you for all that you do to keep Brea a wonderful community!
My friend, Mary Martinez, approached me at the 4th of July fair to share the upcoming possibility of a new plan for a drive thru restaurant by Laurel Elementary. It made me sad that so many people had invested time, effort, and money to defeat the Cane's proposal in this area only to hear that another restaurant is being considered.

I subbed at Laurel Elementary many years ago and was surprised by how chaotic and poorly designed the pick-up area for parents and students was and is. Flower Street is not conducive to more traffic during school hours. I agree with the idea that drive-thru restaurants and schools especially one on such a small street could create a chaotic and potentially unsafe traffic situation with pedestrians; people picking up children; people trying to get into or out of the restaurant parking; residents and random cars - it just seems so unnecessary and poorly planned.

Please reconsider allowing a drive-thru business to be so close to our very special Laurel Elementary School community. It seems to me that parents, students, teachers, administrators, and school staff have enough concerns post-pandemic, achieving academic standards, maintaining a campus, maintaining a safe environment, helping individuals cope with so many issues, and many other issues - having to be extra vigilant about traffic safety and extra unknown people around seems like an extra unfair burden to place on all these individuals.

Thank you for your attention,
Susan Eichinger

From: Gloria Chen
To: City ClerksGroup; Planning
Subject: Gaslight
Date: Tuesday, July 19, 2022 7:12:43 PM

Dear Brea City Clerks Group,

I am writing in regards to the Gaslight Square: 207-235 W Imperial Hwy. I unfortunately disagree with the city planning to change the zoning for restaurants and drive-thru's. Our city has grown tremendously but not without cost, to air quality, traffic congestion, and crime. Having any type of Drive-thru AND now a restaurant on top of a medical building, at this location would most definitely pose a threat to the safety of the students, faculty, staff (& families walking children to and from school & even just the parking lot at the church across the street from Birch St.) and general welfare of the kids and neighbors.

I have lived in Brea for over 10 year and proud to have my children in the neighborhood schools but have become apprehensive with sending my child to Laurel with possible construction, noise, increased congestion, and higher risk of crime. As Gaslight is so near laurel elementary school, I really hope to maintain the safety and quality of the school.

I implore you to think of the health and safety of our children / neighborhoods over the interest of a small group who have great sway in Brea politics versus the majority who are at stake.

Thank you for your time,
Gloria Chen
Brea Resident

From: JON SINKO
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Subject: Keeping Laurel Safe
Date: Friday, July 15, 2022 5:52:05 PM

To whom this may concern,

I am not in favor of putting in a drive-thru restaurant near Laurel Elementary School. It's not safe and will create unnecessary traffic.

Please know I may be one person emailing but many many more are also against the potential of this drive-thru.

Sincerely
JON SINKO

From: Kari Windes
To: Madrigal-Gonzalez, Cecilia
Subject: Letter for EIR
Date: Wednesday, July 20, 2022 1:06:06 PM

To Ms. Madrigal-Gonzalez,

Good afternoon. I would like to state my opposition to the proposed change of zoning for the Gaslight Square. I believe that there are many alternative options under the current zoning which would be better suited to the proximity of the are to seniors, private homes, and Laurel Magnet Elementary. Without any further information from the studies available, I am concerned about a number of issues: that the traffic numbers will increase to a level unsuited to residential side streets; there will be additional pollutants from idling cars; the number of pedestrians will be underestimated for the morning, lunch and pick up timeframes (the count only accounted for those who use the crosswalk on Imperial and Flower, which is legal, but many people consider more dangerous than jaywalking across Flower.), as well as many others.

I recommend continuing with the current zoning standard of Commercial/Professional, instead of changing to MU III with a CUP, with the understanding that Brea has an obligation to look after the wellbeing of its citizens. If a drive thru franchisee is interested in Brea, the current developer has plenty of options with other properties, or the drive thru has other locations with other owners to cater to the needs of Brea citizenry. We welcome other more appropriate locations for businesses of this nature, and believe there are suitable, profitable developments for this site, as well. Please include this letter with the EIR for this project. Thank you.

Sincerely,

Kari Windes

From: Km R
To: Madrigal-Gonzalez, Cecilia; Planning; City ClerksGroup
Subject: Zoning complaint
Date: Thursday, July 14, 2022 12:26:41 PM

Dear Sir or Ma'am,

As a resident of Brea and an employee of The gaslight square, I urge you to please keep the current General Plan and zoning to keep our children safe. Having a drive through will cause an increase in traffic, this square is already small and parking is not adequate as it is. We need to keep the area safe for our children, and patients at the dental office. Please advise

Kate Romeyn

From: Mandy Burdy
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Subject: Please oppose the drive-thru in Gaslight Square
Date: Tuesday, July 19, 2022 8:14:00 PM

Dear City of Brea guardians,

My children attend Laurel and my family and I are absolutely against a drive-thru going across the street from Laurel Magnet School (and so is everyone else I talk to!). Laurel is already in such a high traffic area, we do not need to add more cars to the problem. At school pickup, the line wraps around the corner and onto Imperial. This already is dangerous as cars crowd the unmanned crosswalk (while children are crossing!) at Flower and Imperial. If you have ever waited in this line you know the constant fear of being rear ended, all the honking that occurs and the semi trucks trying to maneuver around the line. Even if the drop off/pick up line is improved, we do not need to add the additional traffic a Drive Thru would bring, plus distracted drivers trying to check their order and eat while driving. This is a tragedy waiting to happen. Please protect the children of Brea, you do not want an avoidable death or injury on your conscience. I know I still remember the child who was killed crossing Birch street near Laurel Elementary years ago - there is a plaque in his honor in the circular rose garden on campus.

I participated in a study at the Civic Center to improve the walkability of Brea in the summer of 2019. The city spent a lot of money and also had multiple pop-ups getting input from people to increase walkability and pedestrian safety. It really seemed Brea was trying to encourage people to get out and walk after the huge investment of The Tracks. Why would you make Brea less walkable, especially for children, by adding in this high volume drive thru next to an elementary school?

I urge you to keep the 1988 Conditional Use Permit at Gaslight Square (there is a reason it was created) and oppose the proposal to build a drive-thru next to Laurel Elementary. It’s a safety hazard and not a good fit for that location.

Thank you,

Mandy Burdett
714-875-1133

From:	Margie Mcmillan
To:	Hupp, Cecilia; Parker, Glenn; Marick, Christine; Simonoff, Marty; Vargas, Steven; Madrigal-Gonzalez, Cecilia; Planning; City ClerksGroup
Subject:	Please keep Laurel Elementary Safe and current zoning protections in place
Date:	Tuesday, July 12, 2022 11:46:59 AM

Dear Representatives of Brea Citizens,

I was surprised to learn there is a new application to **change** the General Plan and Zoning to allow a drive-thru restaurant in Gaslight Square. Not only that, this new application is larger than the original project and will be even more disruptive to traffic and the neighborhood. And to add insult to injury, there is not a specific tenant for this new request.

Due to earlier community support, the City of Brea was required to rescind approval of the original project on 2/15/2022. It is imperative that the safety of Laurel Elementary School students and the neighborhood in general be protected.

As a concerned citizen, I am demanding that the **current** General Plan and Zoning protections for this area be retained to keep the community safe. General Plans and Zoning regulations are the will of the people. Nothing has changed in that area except for the continuing development of our small town and the desire for more tax revenue. No changes or exceptions should be approved for this new project and no mitigations should be allowed under any circumstances.

Respectfully submitted by a concerned citizen,

Margaret (Margie) and James McMillan
263 Pine Avenue
Brea, CA 92821

From: Mary Martinez
To: Madrigal-Gonzalez, Cecilia
Subject: Gaslight square
Date: Tuesday, July 19, 2022 3:25:31 PM

Cecilia,

The NOP for the Gaslight Square does not contain enough information for an adequate review. Without knowing the numbers for generated traffic, the amount of ingress/egress flow onto Flower Ave./Orange St., the hours of operation for said businesses and the types of businesses; one cannot accurately discuss the environmental impacts to the surrounding neighbors which include an elementary school, senior housing as well as multi family dwellings. We do know from the previously filed traffic study done for Raising Canes, of the two residential streets that are used to access Gaslight Square, only one intersection is a controlled intersection,(Birch St./Flower Ave.), meaning it is the only one with a light. Two of the intersections only allow right turns (Orange Ave./Imperial Hwy and Orange St./Birch St.). The remaining intersection allows right and left turns but it is not controlled and exits onto a 6 lane, divided highway.(Flower Ave./Imperial Hwy.)

Regardless of how these intersections will be utilized by the unknown increase in traffic, MU 3 will not be conducive with the existing elementary school, senior housing, and multi family dwellings of the neighborhood. Changes in zoning should only happen if there is not a negative impact, there is nothing positive about an increase in traffic on residential streets in front of an elementary school, senior housing, and multi family dwellings. These residential streets will not be adequate to handle the MU 3 traffic without major impacts to the traffic that already exists. Commercial/Professional with the restrictive CUP was the correct zoning choice in 1988, when this parcel was rezoned from residential single family dwellings, and is still the correct zoning choice for 2022. Deny this proposal and please work with the landowner to find compatible uses for the zoned C-P that would improve the blight that is currently very visible to any and all that travel Imperial Highway.
Sincerely,
Mary Martinez

From: max stites
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Subject: Gas Light Square Environmental Review
Date: Wednesday, July 20, 2022 10:26:25 AM

Thanks for the opportunity to express considerations and concerns to potential environmental impacts to proposed General Plan and Zoning changes for Gas Light Square.

Specific issues and concerns regarding the proposed project are noted below.

Personal experience, citizen complaints, and the Laurel Traffic Study jointly sponsored by the city and BOUSD acknowledge safety and congestion problems on and near Flower Avenue. Approval of a drive thru restaurant in Gaslight can only compound existing problems and safety risks by adding more traffic. Until priorities and funding for proposed mitigations are actualized to improve safety for students, their families and residents, analysis of environmental impacts would be suspect. How will an accurate and complete environmental impact analysis be made when solutions to currently identified safety issues are still to be determined?

Since differing solutions to the currently identified traffic and safety issues are possible, shouldn't any proposal be required to demonstrate impacts against a set of differing environments? For example require impact analysis as if 1) no changes are made to mitigate the currently identified issues 2) specified a, b, and c changes are made within 2 years, and 3) specified x,y,and z changes are made in addition to a,b, and c within 4 years.

The impacts from the proposed project are not confined to the footprint of Gaslight Square. Will the environmental impacts study insist upon analysis of increased traffic flow coming to and from the proposed new businesses on the current minor streets shared with the school and residents? The more traffic a drive thru generates the more profitable it becomes. More traffic equals more pedestrian/vehicle encounters. What steps will the city take to ensure the environmental impact study requires any proposal to fully analyze pedestrian/vehicle encounter levels?

Since I can't believe, if starting from scratch, any responsible city growth and development plan would consider having an elementary school and a drive thru restaurant share ingress/egress directly across a minor street from each other. How can this obviously common sense reality be ignored? How can the city have the proposal address why it is a benefit for the overall community to have a drive thru restaurant that increases traffic and pedestrian risk share a minor street with an elementary school at the proposed location?

I am hopeful the environmental review process leads to opportunity to improve safety conditions for children and residents in the immediate Laurel School vicinity. Safety concerns have been acknowledged by the city and school district. Proposed improvements have been suggested to make the existing congestion better. Intentionally adding more traffic to these streets can only make things worse. Will this development proposal be required to specifically answer how its impact will not contribute to increased pedestrian risk?

Thanks for including my comments in the draft EIR. Please keep me posted on any community forums, city generated informational communications, planning commission meetings, and City Council meetings where the General Plan and Zoning changes proposed for Gaslight Square are being discussed.

Max Stites
Laurel Volunteer/Supporter

From: Michelle Fox
To: Madrigal-Gonzalez, Cecilia
Subject: Keep Laurel Safe
Date: Thursday, July 14, 2022 3:49:49 PM

To whom it may concern,

Please do not put a drive-thru restaurant by Laurel school. This is a disaster waiting to happen as is swamped with little kids running back-and-forth crossing the street. It's an accident waiting to happen.

Michelle Fox

Sent from my Verizon, Samsung Galaxy smartphone

From:	Nicole Dunn-Higashi
To:	Madrigal-Gonzalez, Cecilia
Subject:	Please keep already-standing General Plan and City Zoning in place at Gaslight Square
Date:	Thursday, July 14, 2022 12:26:01 PM

Dear Ms. Madrigal-Gonzalez,

I was hoping to connect with you regarding my concerns about the new proposed project at Gaslight Square: 207-235 W Imperial Hwy. I must admit that I am terribly disheartened that we are once again having to reach out and request your support in maintaining city planning that was put in place decades ago (before our city's tremendous growth). Having any type of Drive-thru AND now a restaurant on top of a medical building, at this location would most definitely pose a threat to the safety of the students, faculty, staff (& families walking children to and from school & even just the parking lot at the church across the street from Birch St.) and general welfare of the kids and neighbors.

We chose to send our daughter to Laurel Magnet School because of its incredible program and staff. Everything has been beyond AMAZING at school, but the lack of caution from drivers on Flower St on top of the scary backup and near-collision-misses at our drop off & pick up line (from Imperial Hwy) is already frightening. To add to these already overwhelmed streets is incredibly irresponsible. Recently, I have seen posts on Brea Buzz that are trying to compare the new Coffee Bean & Tea Leaf that was built on Lambert, across the street from Brea Junior High, and I must admit that this attempt at an argument is befuddling to me. We are comparing a 6-lane (and in some places 8) major highway with a center median, major light, and crossing guard to a barely 2 lane side street that is completely overwhelmed throughout the day.

I've also seen the argument that Jr. high kiddos are more reckless than elementary aged children and while this may be true in some ways, I personally have seen multiple near-misses when a younger sibling or kindergartner has bolted from their parent, right into the street during drop off and pick up hours.

And finally, sadly, our nation has witnessed too much senseless violence at elementary/secondary schools in the last several years and it occurs to me that having businesses (that were never intended to be placed there) that will draw so many more people to them at various hours of the day, also increases the visibility of our open campus, just 30 feet away... who will keep the children, staff, classrooms and grounds safe from patrons of all hours?

Please, please, please keep the already-standing General Plan and City Zoning in place at Gaslight Square. I definitely acknowledge & appreciate all that the owners of this property have done for our city and I am confident that their vision & prowess can be used in ways that will beyond support the success of this beautiful location WHILE remaining within the limits set by city planning so long ago.

I truly, truly appreciate your time and dedication to our city and the kids and families that reside here.

Please do not hesitate to let me know if you have any questions or concerns.

Many thanks and best wishes always,
Nicole Dunn-Higashi
Brea Resident

From:	Richard M. Curtis, DDS, MS
To:	Madrigal-Gonzalez, Cecilia
Cc:	City ClerksGroup; Killebrew, Jason
Subject:	Re: Gaslight Square EIR
Date:	Tuesday, July 19, 2022 3:16:50 PM

To whom it may concern:

As both a business-owner and building-owner in Gaslight Square, I will be directly impacted by this project and the following are items that I would like considered as this project moves forward:

- Consider safety of Laurel Elementary students to be of utmost importance
- Adequate number of parking spots for all businesses
- Improved parking lot lighting
- Improved parking lot surface
- Beautification of landscaping
- Monument sign on Imperial Hwy to include Curtis Orthodontics, as well as Dr. Brooks Larson
- Consider 1 hour parking only on Orange Avenue/Flower Avenue in front of Gaslight Square
- Consider opening the city-owned lot to the north of Gaslight Square for parking (entry from Gaslight?)
- Consider tearing down existing garage on north side of property for more parking
- Pay careful attention to the location of trash bins for restaurants since food trash may have significant odor (keep them as far from businesses as possible)
- Well-designed traffic flow pattern through parking lot
- Drive through queue should accommodate as many cars as possible and not block access to the parking lot or other businesses

Thank you for considering and addressing these issues. I look forward to a project that will benefit the neighboring school, surrounding homeowners, and established businesses.

Sincerely,

Dr. Curtis

Richard M. Curtis, DDS, MS
Diplomate of the American Board of Orthodontics

230 South Orange Avenue
Brea, California 92821
714-990-5414
714-990-9489 [fax]
contact@breasmiles.com
www.breasmiles.com

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On Mon, Jul 18, 2022 at 2:11 PM Madrigal-Gonzalez, Cecilia <ceciliamg@ci.brea.ca.us> wrote:

> Hello Dr. Curtis,
>
> Thank you for your email. As of today, your name and contact information has been recorded as an interested party. Please keep in mind that the project is not scheduled, nor would be scheduled before any decision makers in the near future. Staff will evaluate the project, feedback received, and technical analysis as the project moves through the California Environmental Quality Act (CEQA) EIR process and project processing.
>
> In the meantime, please do not hesitate to reach out with your questions and/or concerns regarding the project scope and the preparation of the Environmental Impact Report.
>
> Respectfully,
>
> **CECILIA MADRIGAL-GONZALEZ**
>
> **Assistant Planner**
> Community Development Department | Planning Division
>
> **P:** 714.990.7674 | **E:** ceciliamg@cityofbrea.net | **W:** www.cityofbrea.net
> **City of Brea** | 1 Civic Center Circle | Brea, California 92821

City of Brea

From: Richard M. Curtis, DDS, MS <rcurtis@breasmiles.com>
Sent: Monday, July 18, 2022 1:43 PM
To: Madrigal-Gonzalez, Cecilia <ceciliamg@ci.brea.ca.us>; City ClerksGroup <CityClerksGroup@ci.brea.ca.us>; Planning <Planning@ci.brea.ca.us>
Subject: Gaslight Square EIR

To whom it may concern:

I am writing to ask to be a part of the EIR (Environmental Impact Report) for the proposed project in Gaslight square. As both a business-owner and building-owner in this development, I will be directly impacted by this project and I would like to be kept up to date on the progress of this proposal. Thanks for your prompt response to this matter.

Thanks,

Dr. Curtis

Richard M. Curtis, DDS, MS

Diplomate of the American Board of Orthodontics

Image removed by sender.

230 South Orange Avenue

Brea, California 92821

714-990-5414

714-990-9489 [fax]

contact@breasmiles.com

www.breasmiles.com

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From: Roderick Conwi
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Subject: Gaslight Square and Zoning
Date: Wednesday, July 20, 2022 11:27:33 AM

To Whom It May Concern,

I am a community member, and I would like to voice my concern about any intent to change the zoning for Gaslight Square. It has been protected by a CUP for a reason, to keep it professional. My kids go to Laurel Elementary and changing the zoning to allow drive-thrus there would be catastrophic and dangerous!

--

Roderick Conwi
Owner / Executive Editor
Nourishment Notes

(714) 257-5814
rod@nourishmentnotes.com
www.nourishmentnotes.com

From: Tae Eung Kim, M.D.
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup
Subject: In opposition to the proposed development of Gaslight Square
Date: Thursday, July 14, 2022 7:22:28 AM

Dear Brea City Council,
I write in reference to the proposed development of the Gaslight Square center in Brea.

I am an ER doctor, I am also a parent of a Laurel Elementary student and am appalled by the proposed changes across the street from an elementary school.

As an emergency physician in practice for over twenty years I've seen plenty of auto versus pedestrian accidents during my career; placing businesses with that much automotive traffic so close to an elementary school is a tragedy waiting to happen.

We Breans would love to see more businesses in our town, but there are plenty of other more attractive and ultimately much safer locations available for these drive-thru establishments. We hope the business people, owners, and developers will see our city through our eyes and build their new business as though their own children were also students in our town.

--
Tae Eung Kim, M.D., FACEP

From: terese andres
To: Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Subject: Gaslight Sq Proposal
Date: Tuesday, July 19, 2022 2:03:11 PM

Good afternoon Members of the City Council!

Please look more into the new proposal that concerns the Gaslight Square across the street from Laurel Magnet Elementary School.

I have worked many years on campus & I am always thinking & concern for the safety of all the students on campus. Every year Laurel School has increased in Students as well as Staff.
It has grown & continues to grow every year. So that in mind, traffic flow is a major factor by our school. More parents are dropping off their students & picking them up! The majority of our students have their parents or family members picking them up & dropping them off.

Please consider this being a priority as you make important decisions considering the planning of Gaslight Square Proposal.
Please remember to keep in mind Chapter 20.224 C-P Commercial, Administrative, & Professional Office Zone, on What's Permitted and What's Not Permitted. Also keep In mind of 20.258.010 Mixed-Used Zoning Districts which includes Birch Street Corridor.

Think of the elderly & young residents on Flower Ave. Putting a drive thru next to or across the street an Elementary is a big hazard & major headache not only to the residents but to the School, students, parents, staff as well as the everyday drivers that use Imperial Hwy, Brea Blvd, & Birch St as well as using Flower Ave & other residential nearby streets. This should never happen in the city of Brea.

I have seen parents & drivers parked on Flower Ave (across the street) & parked there or have students crossing the street in order to get picked up. That's even a small danger as well as people tend to take shortcuts through that street.

Please keep in mind, That kids safety should be more important than potential revenue. That the NOP is not complete because it does not state what type of drive thru would be permitted, hours of operation or ingress/egress onto streets designed to handle the traffic.

I understand business should be put across the street in the Gaslight Square & we should consider having small businesses there, like Dental offices, Doctor's offices, other business that's included as mentioned above in Chapter 20.224. That Chapter was created for a reason & purpose & shouldn't be overlooked or ignored.

Thank You for your time!

Terese Andres

From:	Terry Christensen
To:	saferavenuesforeveryone@gmail.com
Cc:	Madrigal-Gonzalez, Cecilia; Planning; City ClerksGroup
Subject:	Keeping Laurel students SAFE
Date:	Monday, July 4, 2022 3:03:58 PM

I wholeheartedly agree... we must protect the students, parents, grandparents and all others involved with Laurel Elementary.

However, whether the Gaslight Square is allowed to develop or not, **the CURRENT SITUATION must be changed**!!!

If you so-called "concerned folks" would just spend 30 minutes in the morning as well as the afternoon... OBSERVING the carelessness by which guardians of these young Laurel school children hurry them across mid-street Flower without crosswalks nor safety officers as well as the "pick up time" row of cars spilling onto Imperial... I think you will realize that the **immediate solution is in the hands of the Brea School District**. It starts with no parking in the Gaslight, nor walking children thru that parking lot as a shortcut.

Before I can support your efforts, I insist on seeing **what plans the School District is proposing**. Like I said, whether or not the Gaslight redevelopment proceeds or not.

From: Terry Christensen
To: saferavenuesforeveryone@gmail.com; Madrigal-Gonzalez, Cecilia; City ClerksGroup; Planning
Subject: Re: Comments Gaslight Sq Proposal
Date: Thursday, July 21, 2022 9:11:41 AM

Good morning everyone.

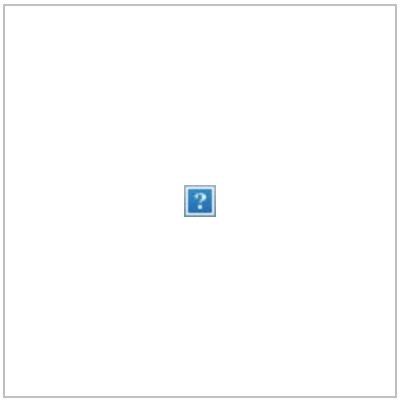
What drive thru is being planned?

I passed a donut shop drive thru this morning and thought to myself... I'd much rather see something like that than a vape shop, gun shop, addiction clinic, abortion clinic etc.

Having been a small business owner myself I do empathize with its many challenges. Within reason of course, I do not feel that we can completely tie the hands of the property owner in what they may choose to put in that space.
Perhaps the better use of Orange Ave for ingress/egress or 1-way street traffic might also be considered. Leave that to the experts.

Also, the remodel of the Imperial buildings will certainly have a much more desired look than what is currently there.

View this email in your browser



The City of Brea wants to hear from the Public About Gaslight Proposal Scope, Focus & Content - Respond by Wednesday July 20 @5:00pm

For this proposed project, the property owner has submitted an application to the City of Brea, with a General Plan & Zoning change request. The City of Brea is in the process of evaluating that application.

What do you think the City of Brea should look at in regards to the current proposal for Gaslight Square?
Yes, they want to hear from you.

They want to hear about scope, focus and content of the project proposal's environmental impacts.

If you haven't had a chance, could you email them today.
Send your Email to:
ceciliamg@cityofbrea.net
cityclerksgroup@cityofbrea.net
planning@cityofbrea.net

What are the differences in these two zoning designations and how will they impact the neighbors, specifically Laurel Elementary School, residential and Senior Citizen housing abutting the Gas Light Sq. property? How about traffic? Safety risks? Want to know? Ask the City.

Want more information:
If this application were to be accepted, the City of Brea would change the zoning designation of Gaslight Square.

While the details of this project are not known, zoning designation definitions are in the City of Brea's code. See details of the types of uses allowed.

Commercial professional zone
link https://codelibrary.amlegal.com/codes/brea/latest/brea_ca/0-0-0-72123

Mixed Use III
link https://codelibrary.amlegal.com/codes/brea/latest/brea_ca/0-0-0-73184

The zoning change will allow business that require more land use, especially drive-thrus that by their very nature need lots and lots of cars to make their business successful. We want successful businesses but not at the expense of community and kid's safety.

Drive-thrus by definition are incompatible uses with elementary schools.

Help your community by sharing your question, concerns and priorities with

the City.

Please fee free to share with friends and neighbors; they can be added to our list. This is the beginning of the process. You are helping shape your community - for the better.

Thanks for supporting our community and keeping it SAFE!

Please contact us at saferavenuesforeveryone@gmail.com

Diane Stites, Volunteer
SAFE, Safer Avenues For Everyone
https://saferavenuesforeveryone.weebly.com

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Brea Gaslight Square

AIR QUALITY IMPACT ANALYSIS

CITY OF BREA

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com

Ali Dadabhoy
adadabhoy@urbanxroads.com

JANUARY 24, 2023

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**
APPENDICES ..... **II**
LIST OF EXHIBITS ..... **II**
LIST OF TABLES ..... **II**
LIST OF ABBREVIATED TERMS ..... **III**
EXECUTIVE SUMMARY **5**
ES.1 Summary of Findings 5
ES.2 Standard Regulatory Requirements/Best Available Control Measures 5
ES.3 Construction-Source Mitigation 6
ES.4 Operational-Source Mitigation Measures 6
1 INTRODUCTION **1**
1.1 Site Location 1
1.2 Project Description 1
2 AIR QUALITY SETTING **5**
2.1 South Coast Air Basin 5
2.2 Regional Climate 5
2.3 Wind Patterns and Project Location 6
2.4 Criteria Pollutants 7
2.5 Existing Air Quality 14
2.6 Regional Air Quality 17
2.7 Local Air Quality 17
2.8 Regulatory Background 18
3 PROJECT AIR QUALITY IMPACT **24**
3.1 Introduction 24
3.2 Standards of Significance 24
3.3 California Emissions Estimator Model™ Employed To Analyze Air Quality 25
3.4 Construction Emissions 25
3.5 Operational Emissions 28
3.6 Localized Emissions 31
3.7 CO "Hot Spot" Analysis 37
3.8 Air Quality Management Planning 39
3.9 Potential Impacts to Sensitive Receptors 42
3.10 Odors 42
3.11 Cumulative Impacts 43
4 REFERENCES **46**
5 CERTIFICATIONS **50**

APPENDICES

APPENDIX 2.1: STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS
APPENDIX 3.1: PROPOSED PROJECT CALEEMOD EMISSIONS MODEL OUTPUTS
APPENDIX 3.2: EXISTING CALEEMOD EMISSIONS MODEL OUTPUTS

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP 2
EXHIBIT 1-B: SITE PLAN 3
EXHIBIT 3-A: SENSITIVE RECEPTOR LOCATIONS 35

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS 5
TABLE 2-1: CRITERIA POLLUTANTS 7
TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (1 OF 2) 15
TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (2 OF 2) 16
TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB 17
TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2019-2021 18
TABLE 3-1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS 24
TABLE 3-2: CONSTRUCTION DURATION 27
TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS 27
TABLE 3-4: OVERALL CONSTRUCTION EMISSIONS SUMMARY 28
TABLE 3-5: EMISSIONS FROM EXISTING DEVELOPMENT 30
TABLE 3-6: OPERATIONAL EMISSIONS SUMMARY 31
TABLE 3-7: MAXIMUM DAILY DISTURBED-ACREAGE 33
TABLE 3-8: MAXIMUM DAILY LOCALIZED EMISSIONS THRESHOLDS 36
TABLE 3-9: LOCALIZED SIGNIFICANCE SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION) 36
TABLE 3-10: CO MODEL RESULTS 38
TABLE 3-11: TRAFFIC VOLUMES 38
TABLE 3-12: PROJECT TRAFFIC VOLUMES ..... ERROR! BOOKMARK NOT DEFINED.

LIST OF ABBREVIATED TERMS

%	Percent
°F	degrees Fahrenheit
µg/m^3	Microgram per Cubic Meter
1992 CO Plan	1992 Federal Attainment Plan for Carbon Monoxide
AB 2595	California Clean Air Act
AQIA	air quality impact analysis
AQP	Air Quality Plans
BAAQMD	Bay Area Air Quality Management District
BACM	Best Available Control Measure
C_2H_3Cl	vinyl chloride
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California EPA
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	carbon monoxide
COHb	carboxyhemoglobin
EIR	Environmental Impact Report
EMFAC	EMissions FACtor model
EPA	Environmental Protection Agency
g/L	gram/liter
GHG	greenhouse gas
H_2S	hydrogen sulfide
LST	Localized Significance Thresholds
LST Methodology	Final Localized Significance Threshold Methodology
MM	Mitigation Measures
Mph	miles per hour
MWELO	Model Water Efficient Landscape Ordinance
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
NO_2	nitrogen dioxide

NO_X	nitrogen oxides
O_2	oxygen
O_2 deficiency	chronic hypoxemia
O_3	ozone
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate matter 10 microns or less
$PM_{2.5}$	Particulate matter 2.5 microns or less
ppm	parts per million
Project	Wildomar Meadows Project
RECLAIM	Regional Clean Air Incentives Market
ROG	reactive organic gases
RTP	Regional Transportation Plan
Rule 1113	SCAQMD Rule 1113 - Architectural Coatings
Rule 403	SCAQMD Rule 403 - Fugitive Dust
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_4	sulfates
SOX	sulfur oxides
SRA	Source Receptor Area
TAC	toxic air contaminant
Title I	Non-Attainment Provisions
Title II	Mobile Source Provisions
VOC	Volatile Organic Compounds
vph	vehicles per hour

EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Brea Gaslight Square Air Quality Impact Analysis* are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for each potential air quality impact under CEQA before and after any required mitigation measures (MM) described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	*Less Than Significant*	*n/a*
Regional Operational Emissions	3.5	*Less Than Significant*	*n/a*
Localized Construction Emissions	3.6	*Less Than Significant*	*n/a*
Localized Operation Emissions	3.6	*Less Than Significant*	*n/a*
CO "Hot Spot" Analysis	3.7	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.8	*Less Than Significant*	*n/a*
Sensitive Receptors	3.9	*Less Than Significant*	*n/a*
Odors	3.10	*Less Than Significant*	*n/a*
Cumulative Impacts	3.11	*Less Than Significant*	*n/a*

ES.2 STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES

Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the City of Brea will ensure such language is incorporated prior to issuance of any development permits. South Coast Air Quality Management District (SCAQMD) Rules that are currently applicable during construction activity for this Project include but are not limited to Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings) (2) (3) (4). It should be noted that these Rules represent Best Available Control Measures (BACMs)

and are not mitigation since they are regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken.

RULE 403

The contractor shall adhere to applicable measures contained in Table 1 of Rule 403 including, but not limited to (2):

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 miles per hour (mph) per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- All access points to the Project site shall have track out devices installed.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are limited to 15 mph or less.

RULE 1113

The following measures shall be incorporated into Project plans and specifications as implementation of SCAQMD Rule 1113 (4):

- Only "Low-Volatile Organic Compounds (VOC)" paints consistent with SCAQMD Rule 1113 shall be used.

ES.3 CONSTRUCTION-SOURCE MITIGATION

Project construction emissions would not exceed applicable SCAQMD regional thresholds of significance. Therefore, Project construction-source emissions would be considered less than significant on a project-specific and cumulative basis.

ES.4 OPERATIONAL-SOURCE MITIGATION MEASURES

Project operational emissions would not exceed applicable SCAQMD regional of local thresholds of significance. Therefore, Project operational-source emissions would be considered less than significant on a project-specific and cumulative basis.

1 INTRODUCTION

This report presents the results of the Air Quality Impact Analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed Brea Gaslight Square (Project). The purpose of this AQIA is to evaluate the potential air quality impacts associated with construction and operation of the proposed Project and identify measures, as necessary, to reduce emissions in comparison to thresholds established by the SCAQMD.

1.1 SITE LOCATION

The proposed Project is located between located between Orange Avenue and Flower Avenue and north of Imperial Highway (State Route or SR-90) at 255 Imperial Highway (SR-90) in the City of Brea, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project involves the redevelopment of approximately 0.95-acre of a 1.88-acre Project site. The site is currently occupied with six commercial/office buildings. The southern 0.95-acre portion of the Project site is proposed to be redeveloped with two proposed commercial buildings. As part of the Project, four of the existing commercial/office buildings would be demolished, including two 2,799 square foot (s.f.) office buildings, a 3,166 s.f. office building, and a two-story office/commercial building that contains 10,109 s.f. of floor space. Two new commercial buildings would be constructed on-site. A 6,000 s.f. commercial building is proposed at the northeast corner of South Orange Avenue and Imperial Highway, which would include a 2,400 s.f. sit-down restaurant and 3,600 s.f. of retail or medical office uses as shown on Exhibit 1-B. In addition, an approximate 2,000 s.f. drive-through restaurant is proposed at the northwest corner of South Flower Avenue and Imperial Highway. Future tenants of the new, proposed buildings are unknown at this time.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



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2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (5). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As previously stated, the Project site is located within the SCAB, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bounded by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to mid 60s, as measured in degrees Fahrenheit (°F). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide (SO_2) to sulfates (SO_4) is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71% along the coast and 59% inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90% of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los

Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as nitrogen oxides (NO_X) and carbon monoxide (CO) from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The SCAB is located in a coastal plain with connecting broad valleys and

low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

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

2.4 CRITERIA POLLUTANTS

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (6):

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
CO	CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone (O_3), motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen (O_2) supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with O_2 transport and competing with O_2 to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for O_2 supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (O_2 deficiency) as seen at high altitudes.

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
SO_2	SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms SO_4. Collectively, these pollutants are referred to as sulfur oxides (SO_X).	Coal or oil burning power plants and industries, refineries, diesel engines	A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
NO_X	NO_X consist of nitric oxide (NO) and nitrogen dioxide (NO_2) and five other compounds, which are formed when nitrogen (N) combines with oxygen. Their lifespan in the atmosphere ranges from one to seven days for NO and NO_2. NO_X is typically created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.
O_3	O_3 is a highly reactive and unstable gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the	Formed when reactive organic gases (ROG) and NO_X react in the presence of	Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
	presence of sunlight. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	the most susceptible sub-groups for O_3 effects. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated O_3 levels are associated with increased school absences. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple outdoor sports and live in communities with high O_3 levels. O_3 exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes O_3 may be more toxic than exposure to O_3 alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
Particulate Matter (PM)	PM_{10}: A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. PM pollution is a major cause of reduce visibility (haze) which is caused by the scattering of light and consequently the significant reduction air clarity. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$: A similar air pollutant to PM_{10} consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include SO_4 formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.	Sources of PM_{10} include road dust, windblown dust and construction. Also formed from other pollutants (acid rain, NO_X, SO_X, organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	A consistent correlation between elevated ambient fine PM (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to PM. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.
VOC	VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms)	Organic chemicals are widely used as ingredients in household	Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
	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 CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. 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) interchangeably.	products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products. Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored.	the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health effects, though many have several.
ROG	Similar to VOC, 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 NO_X 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 (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Pb is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of Pb in the air was	Metal smelters, resource recovery, leaded gasoline,	Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
	emissions from vehicles burning leaded gasoline. The major sources of Pb emissions are ore and metals processing, particularly Pb smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the Project does not include operational activities such as metal processing or Pb acid battery manufacturing. As such, the Project is not anticipated to generate a quantifiable amount of Pb emissions.	deterioration of Pb paint.	affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure. Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerves (7).	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
			odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.5 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-2 (8).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards. At the time of this AQIA, the most recent state and federal standards are presented in Table 2-2. The air quality in a region is considered to be in attainment if the measured ambient air pollutant levels for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how attainment status is determined. Attainment status for a pollutant means that the SCAB meets the standards set by the U.S. Environmental Protection Agency (EPA) or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored air quality that does not meet the NAAQS or CAAQS. A State Implementation Plan (SIP) is required by the federal Clean Air Act (CAA) for area that are designated non-attainment under the NAAQS. A SIP outlines the measures that a state will take to improve air quality in the area designated nonattainment. Once a nonattainment area meet the standards and additional redesignation requirements, the EPA designates the area as a maintenance area (9).

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			
See footnotes on next page …						

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TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, 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 PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, 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. Contact the U.S. EPA for further clarification and current national policies.
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. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. 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.
11. 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 parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB 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.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ 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.
14. In 1989, the ARB 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.

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2.6 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: CO, Pb, O_3, particulate matter (PM_{10} and $PM_{2.5}$), NO_2, and SO_2 which are known as criteria pollutants. The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Pb air monitoring sites throughout the air district (10). On December 28, 2021, CARB posted the proposed 2021 amendments to the state and national area designations. See Table 2-3 for attainment designations for the SCAB (11). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Attainment	Unclassifiable/Attainment
Pb[1]	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the SCAB
"-" = The national 1-hour O_3 standard was revoked effective June 15, 2005.

2.7 LOCAL AIR QUALITY

The Project site is located within the Source Receptor Area (SRA) 16. Within SRA 16, the SCAQMD North Orange County monitoring station, located 3.17 miles west of the Project site, is the nearest long-term air quality monitoring station for O_3. The North Orange County monitoring station does not include data for PM_{10} and $PM_{2.5}$. The Central Orange County monitoring station is located in SRA 17 and is the nearest monitoring station for PM_{10} and $PM_{2.5}$. Central Orange County is located approximately 6.35 miles southwest of the Project site. It should be noted that the Central Orange County monitoring stations was utilized in lieu of the North Orange County monitoring station only in instances where data was not available.

The most recent three (3) years of data available is shown on Table 2-4 and is considered to be representative of the local air quality at the Project site (12). Please note, data for SO_2 has been omitted as attainment is regularly met in the SCAB and few monitoring stations measure SO_2 concentrations.

[1] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2019-2021

Pollutant	Standard	Year		
		2019	2020	2021
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.107	0.171	0.103
Maximum Federal 8-Hour Concentration (ppm)		0.094	0.113	0.075
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	2	15	2
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.070 ppm	6	23	3
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	2.6	2.1	2.3
Maximum Federal 8-Hour Concentration	> 20 ppm	1.2	1.2	1.3
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.059	0.057	0.064
Annual Federal Standard Design Value		0.012	0.013	0.013
PM_{10}				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 150 µg/m^3	127	120	115
Annual Federal Arithmetic Mean (µg/m^3)		21.9	23.9	22.9
Number of Days Exceeding Federal 24-Hour Standard	> 150 µg/m^3	0	0	0
Number of Days Exceeding State 24-Hour Standard	> 50 µg/m^3	13	13	12
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 35 µg/m^3	36.10	41.40	54.6
Annual Federal Arithmetic Mean (µg/m^3)	> 12 µg/m^3	9.32	11.27	11.44
Number of Days Exceeding Federal 24-Hour Standard	> 35 µg/m^3	3	1	9

ppm= Parts Per Million
Source: SCAQMD Historical Air Quality Data By Year, Air Quality Data Tables.

2.8 REGULATORY BACKGROUND

2.8.1 FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and Pb (13). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of CARB.

The federal CAA was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The federal CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (14). The federal CAA also mandates that states submit and implement SIPs for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (15) (16). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 2-3 (previously presented) provides the NAAQS.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of NO_X which are emitted as byproducts of the combustion process.

2.8.2 CALIFORNIA REGULATIONS

CALIFORNIA AIR RESOURCES BOARD

CARB, which became part of the CalEPA in 1991, is responsible for ensuring implementation of the California CAA (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (17) (13).

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Under the California CAA non-attainment areas are required to prepare Air Quality Plans (AQP) that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;

- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a 5% or more annual reduction in emissions or 15% or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than 5% per year under certain circumstances.

TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that will be effective on January 1, 2023. The Project would be required to comply with the applicable standards in place at the time plan check submittals are made (18). These require, among other items (19):

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3). Additionally, Table 5.106.5.4.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty electric vehicle supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section

5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).

- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reuse or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.8.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMPs to meet the NAAQS and CAAQs (20). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.10.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard, contribute to an existing or projected air quality violation, or determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable NAAQS and CAAQS. Additionally, the Project has been evaluated to determine consistency with the applicable AQMP, exposure of sensitive receptors to substantial pollutant concentrations, and the impacts of odors. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (1):

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. affecting a substantial number of people.

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 3-1 (21). The SCAQMD's CEQA Air Quality Significance Thresholds (April 2019) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 3-1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Construction	Operations
NO_X	100 lbs./day	55 lbs./day
VOC	75 lbs./day	55 lbs./day
PM_{10}	150 lbs./day	150 lbs./day
$PM_{2.5}$	55 lbs./day	55 lbs./day
SO_X	150 lbs./day	150 lbs./day
CO	550 lbs./day	550 lbs./day
Pb	3 lbs./day	3 lbs./day

lbs./day = Pounds Per Day
Source: Regional Thresholds presented in this table are based on the SCAQMD Air Quality Significance Thresholds, April 2019

3.3 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ANALYZE AIR QUALITY

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

In May 2022 California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released the latest version of the CalEEMod Version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation (22). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions. CalEEMod output for both construction and operational scenarios is provided in Appendix 3.1.

3.3.1 EMISSION FACTORS MODEL

EMISSION FACTORS MODEL

The EMissions FACtor model (EMFAC) web database is used for State Implementation Plan and transportation conformity analyses. EMFAC2021 is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (23). CalEEMod, version 2022.1, incorporates EMFAC2021. Additionally, the EMFAC emission factors used in this analysis include adjustment factors for the SAFE Rule (24) (25).

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Demolition/Crushing
- Site Preparation
- Grading
- Building Construction
- Architectural Coating
- Paving

DEMOLITION

The site is currently developed with existing buildings which total approximately 18,900 sf or 1,080 tons of debris that will be demolished. Demolished material associated with demolition will be hauled off-site.

SITE PREPARATION AND GRADING ACTIVITIES

Dust, in the form of PM10 and PM2.5, is typically a major concern during site preparation and grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was utilized to calculate fugitive dust emissions resulting from these activities, which includes compliance with SCAQMD Rule 403. Per client provided data, the Project would require 137 cubic yards of export for earthwork activities. Site preparation and grading activities are modeled as sequential phases.

BUILDING CONSTRUCTION, PAVING, AND ARCHITECTURAL COATING ACTIVITIES

Building construction and paving emissions are primarily associated with exhaust emissions from on-site equipment and vehicular trips to the site by construction workers and vendor trips. Architectural coating emissions include worker trips as well, but the primary pollutant emission of concern during this phase is ROG/VOC. CalEEMod default emission rates include the effects of Rule 1113 to limit ROG/VOC emissions. To present a reasonable worst-case scenario, the building construction, paving, and architectural coating activities are modeled as overlapping phases.

CONSTRUCTION WORKER VEHICLE TRIPS

Emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on information from CalEEMod for all construction phases.

3.4.1 CONSTRUCTION DURATION

Construction is expected to commence in January 2024 and will last through July 2024. The construction schedule utilized in the analysis, shown in Table 3-2, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[2] The Activity and associated equipment represent a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (1).

[2] As shown in the CalEEMod User's Guide Version 2022.1, Section 4.3 "Offroad Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-2: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition/Crushing	1/1/2024	1/31/2024	23
Site Preparation	2/1/2024	2/29/2024	21
Grading	3/1/2024	3/29/2024	21
Building Construction	4/1/2024	5/31/2024	45
Paving	6/3/2024	6/28/2024	20
Architectural Coating	7/1/2024	7/31/2024	23

Source: Appendix 3.1.

3.4.2 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The equipment list is generally based on CalEEMod default parameters and confirmed with the Project Applicant. A detailed summary of construction equipment assumptions by phase is provided at Table 3-3.

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment[1]	Amount	Hours Per Day
Demolition/Crushing	Concrete/Industrial Saws	1	8
	Rubber Tired Dozers	1	8
	Tractors/Loaders/Backhoes	2	8
Site Preparation	Grader	1	8
	Crawler Tractors	1	8
Grading	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	1	8
Building Construction	Cranes	1	8
	Forklifts	2	8
	Tractors/Loaders/Backhoes	2	8
Paving	Cement and Mortar Mixers	4	8
	Pavers	1	8
	Rollers	1	8
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	8

[1] In order to account for fugitive dust emissions, Crawler Tractors were used in lieu of Tractors/Loaders/Backhoes during the site preparation and grading phases.

3.4.1 CONSTRUCTION EMISSIONS SUMMARY

CalEEMod calculates maximum daily emissions for summer and winter periods. The estimated maximum daily construction emissions with fugitive dust control as required by SCAQMD Rule 403 are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction will not exceed criteria pollutant thresholds established by the SCAQMD.

TABLE 3-4: OVERALL CONSTRUCTION EMISSIONS SUMMARY

Year	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Summer (Smog Season)						
2024	2.20	8.05	9.28	0.02	0.48	0.34
Winter						
2024	1.80	16.70	15.10	0.03	2.96	1.73
Maximum Daily Emissions	**2.20**	**16.70**	**15.10**	**0.03**	**2.96**	**1.73**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod construction-source (unmitigated) emissions are presented in Appendix 3.1.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

ARCHITECTURAL COATINGS

Over a period of time the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of Project maintenance. The emissions associated with architectural coatings were calculated using CalEEMod standard assumptions for the Project and the allowed land use.

CONSUMER PRODUCTS

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic

compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on CalEEMod standard assumptions for the Project and the allowed land use.

LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod. for the Project and the allowed land use

3.5.2 ENERGY SOURCE EMISSIONS

COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the Regional Clean Air Incentives Market (RECLAIM), which provides pollution credits for generation within the SCAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered. The emissions associated with natural gas use were calculated using CalEEMod standard assumptions for the Project and the allowed land use.

3.5.3 MOBILE SOURCE EMISSIONS

The Project related operational air quality emissions derive primarily from vehicle trips generated by the Project, including employee trips to and from the site and truck trips associated with the proposed uses. Trip characteristics available from the *Brea Gaslight Square Trip Generation Assessment* were utilized in this analysis (26). Per the *Brea Gaslight Square Trip Generation Assessment* , the proposed Project is expected to generate approximately 872 two-way trips per day. However, a comparison between the existing use and the proposed Project results in 510 total net trips per day.

FUGITIVE DUST RELATED TO VEHICULAR TRAVEL

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of brake and tire wear particulates. The emissions estimates for travel on paved roads were calculated using CalEEMod standard assumptions.

3.5.5 OPERATIONAL EMISSIONS SUMMARY

Operational activities for summer and winter scenarios are presented in Table 3-6. Detailed operational model outputs are presented in Appendix 3.1. Project operational-source emissions will not exceed the SCAQMD thresholds and impacts will be less than significant.

EXISTING USE EMISSIONS

As previously stated, the Project site is currently occupied with existing buildings. The estimated operation-source emissions from the existing development are summarized on Table 3-5. Detailed existing operation model outputs are presented in Appendix 3.2.

TABLE 3-5: EMISSIONS FROM EXISTING DEVELOPMENT

Source	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Summer (Smog Season)						
Mobile Source	1.26	0.82	12.40	0.03	0.93	0.17
Area Source	0.48	0.01	0.70	< 0.005	< 0.005	< 0.005
Energy Source	0.01	0.11	0.09	< 0.005	0.01	0.01
Total Maximum Daily Emissions	**1.75**	**0.94**	**13.19**	**0.03**	**0.94**	**0.18**
Winter						
Mobile Source	1.26	0.92	11.50	0.02	0.93	0.17
Area Source	0.36	0.00	0.00	0.00	0.00	0.00
Energy Source	0.01	0.11	0.09	< 0.005	0.01	0.01
Total Maximum Daily Emissions	**1.63**	**1.03**	**11.59**	**0.02**	**0.94**	**0.18**

Source: CalEEMod operation-source emissions are presented in Appendix 3.2.

PROPOSED PROJECT EMISSIONS

Operational-source emissions are summarized on Table 3-6 and as shown, the proposed Project is anticipated to generate slightly more emissions per day for pollutants of VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ as compared to emissions generated by the existing land uses, additionally; the proposed Project's emissions would still be less than the applicable thresholds without taking into account the existing uses. As such, the Project would not exceed regional thresholds of significance established by the SCAQMD for any criteria pollutant. Detailed operation model outputs are presented in Appendix 3.1.

TABLE 3-6: OPERATIONAL EMISSIONS SUMMARY

Source	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Summer (Smog Season)						
Mobile Source	6.05	4.65	51.60	0.13	4.54	0.86
Area Source	0.24	< 0.005	0.35	< 0.005	< 0.005	< 0.005
Energy Source	0.01	0.14	0.12	< 0.005	0.01	0.01
Project Maximum Daily Emissions	**6.30**	**4.79**	**52.07**	**0.13**	**4.55**	**0.87**
Existing Emissions	1.75	0.94	13.19	0.03	0.94	0.18
Total Maximum Daily Emissions	**4.55**	**3.85**	**38.88**	**0.10**	**3.61**	**0.69**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Winter						
Mobile Source	5.98	5.06	48.00	0.12	4.54	0.86
Area Source	0.19	0.00	0.00	0.00	0.00	0.00
Energy Source	0.01	0.14	0.12	< 0.005	0.01	0.01
Project Maximum Daily Emissions	**6.18**	**5.20**	**48.12**	**0.12**	**4.55**	**0.87**
Existing Emissions	1.63	1.03	11.59	0.02	0.94	0.18
Total Maximum Daily Emissions	**4.55**	**4.17**	**36.53**	**0.10**	**3.61**	**0.69**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod operation-source emissions are presented in Appendix 3.1.

3.6 LOCALIZED EMISSIONS

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology) (27). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the NAAQS and CAAQS. Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address

the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the *LST Methodology* (28).

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate SRA for the LST analysis is the SCAQMD North Orange County (SRA 16). LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

In order to determine the appropriate methodology for determining localized impacts that could occur as a result of Project-related construction, the following process is undertaken:

- Identify the maximum daily on-site emissions that will occur during construction activity:
    - The maximum daily on-site emissions could be based on information provided by the Project Applicant; or
    - The SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* and CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* can be used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod (29) (30).
- If the total acreage disturbed is less than or equal to 5 acres per day, then the SCAQMD's screening look-up tables are utilized to determine if a Project has the potential to result in a significant impact. The look-up tables establish a maximum daily emissions threshold in lbs/day that can be compared to CalEEMod outputs.
- If the total acreage disturbed is greater than 5 acres per day, then LST impacts may still be conservatively evaluated using the LST look-up tables for a 5-acre disturbance area. Use of the 5-acre disturbance area thresholds can be used to show that even if the daily emissions from all construction activity were emitted within a 5-acre area, and therefore concentrated over a smaller area which would result in greater site adjacent concentrations, the impacts would still be less than significant if the applicable 5-acre thresholds are utilized.
- The *LST Methodology* presents mass emission rates for each SRA, project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the values given, or with receptors at distances between the given receptors, the methodology uses linear interpolation to determine the thresholds.

EMISSIONS CONSIDERED

SCAQMD's LST Methodology clearly states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs (27)." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered.

MAXIMUM DAILY DISTURBED-ACREAGE

The "acres disturbed" for analytical purposes are based on specific equipment type for each subcategory of construction activity and the estimated maximum area a given piece of equipment can pass over in an 8-hour workday (as shown on Table 3-7). The equipment-specific

grading rates are summarized in the SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* and CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* (29) (30). It should be noted that the disturbed area per day is representative of a piece of equipment making multiple passes over the same land area. In other words, one Rubber Tired Dozer can make multiple passes over the same land area totaling 0.5 acres in a given 8-hour day.

As shown on Table 3-7, the proposed Project's construction activities could actively disturb approximately 0.5 acres per day for demolition, 1 acre per day during site preparation and 1.5 acres per day for grading activities.

TABLE 3-7: MAXIMUM DAILY DISTURBED-ACREAGE

Construction Activity	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Demolition/Crushing	Rubber Tired Dozers	1	0.5	8	0.5
Total acres disturbed per day during Demolition/Crushing					**0.5**
Site Preparation	Crawler Tractors	1	0.5	8	0.5
	Graders	1	0.5	8	0.5
Total acres disturbed per day during Site Preparation					**1**
Grading	Crawler Tractors	1	0.5	8	0.5
	Graders	1	0.5	8	0.5
	Rubber Tired Dozers	1	0.5	8	0.5
Total acres disturbed per day during Grading					**1.5**

Source: Maximum daily disturbed acreage based on equipment list presented in Appendix 3.1.

SENSITIVE RECEPTORS

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors". These structures typically include residences, hotels, hospitals, etc. as they are also known to be locations where an individual can remain for 24 hours. Consistent with the LST Methodology, the nearest land use where an individual could remain for 24 hours to the Project site (in this case the nearest residential land use) has been used to determine construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$, since PM_{10} and $PM_{2.5}$ thresholds are based on a 24-hour averaging time. The nearest receptor used for evaluation of localized impacts of PM_{10} and $PM_{2.5}$ is represented by location R2, which represents the property line of the existing residence at 229 S Flower Ave, approximately 121 feet/37 meters north of the Project site. As such, for evaluation of localized PM_{10} and $PM_{2.5}$, a 37-meter distance will be used.

Commercial and industrial facilities are not included in the definition of sensitive receptor because employees and patrons do not typically remain onsite for a full 24 hours but are typically onsite for eight hours or less. The LST Methodology explicitly states that "*LSTs based on shorter averaging periods, such as the NO_x and CO LSTs, could also be applied to receptors such as industrial or commercial facilities since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours* (27)." For purposes of analysis, if an industrial/commercial use is located at a closer distance to the Project site than the nearest residential use, the nearest industrial/commercial use will be utilized to determine construction and operational LST air impacts for emissions of NO_x and CO an individual could be present at these sites for periods of one to eight hours. The nearest receptor used for evaluation of localized impacts of NO_X and CO is represented by location R3, which represents the Brea Dentistry at 235 S Flower Ave, approximately 21 feet/6 meters north of the Project site.

It should be noted that the *LST Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters* (27)." As such a 25-meter receptor distance will be used for evaluation of localized NO_X and CO.

Project-related Sensitive Receptors

Receptors in the Project study area are described below and are shown on Exhibit 3-A.

R1: Location R1 represents the Curtis Orthodontics at 230 S Orange Ave, approximately 48 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R1 is placed at the building façade.

R2: Location R2 represents the existing residence at 229 S Flower Ave, approximately 121 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R2 is placed at the building façade.

R3: Location R3 represents the Brea Dentistry at 235 S Flower Ave, approximately 21 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R3 is placed at the building façade.

R4: Location R4 represents the existing residence at 200 S Flower Ave, approximately 314 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R4 is placed at the building façade.

R5: Location R5 represents the Laurel Elementary School at 200 S Flower Ave, approximately 166 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R5 is placed at the building façade.

R6: Location R6 represents the existing residence at 320 S Flower Ave, approximately 240 feet south of the Project site. R6 is placed at the private outdoor living areas (backyard) facing the Project site.

R7: Location R7 represents the existing residence at 309 S Flower Ave, approximately 190 feet south of the Project site. R7 is placed at the private outdoor living areas (backyard) facing the Project site.

R8: Location R8 represents the existing residence at 310 S Orange Ave, approximately 194 feet south of the Project site. R8 is placed at the private outdoor living areas (backyard) facing the Project site.

EXHIBIT 3-A: SENSITIVE RECEPTOR LOCATIONS



CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

Localized Thresholds for Construction Activity

Since the total acreage disturbed is 0.5 acre per day for demolition, 1 acre per day for site preparation and 1.5 acres per day grading activities, SCAQMD's screening look-up tables are utilized in determining impacts. It should be noted that since the look-up tables identifies thresholds at only 1 acre, 2 acres, and 5 acres, linear regression has been utilized to determine localized significance thresholds. Consistent with SCAQMD guidance, the thresholds presented in Table 3-8 were calculated by interpolating the threshold values for the Project's disturbed acreage.

TABLE 3-8: MAXIMUM DAILY LOCALIZED EMISSIONS THRESHOLDS

Construction Activity	Construction Localized Thresholds			
	NO_X	CO	PM_{10}	PM_{10}
Demolition/Crushing	81 lbs/day	402 lbs/day	5 lbs/day	3 lbs/day
Site Preparation	103 lbs/day	522 lbs/day	7 lbs/day	3 lbs/day
Grading	125 lbs/day	642 lbs/day	9 lbs/day	4 lbs/day

Source: Localized Thresholds presented in this table are based on the SCAQMD Final LST Methodology, July 2008

Localized Construction-Source Emissions

Table 3-9 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. As shown in Table 3-9, after compliance with Rule 403, localized construction emissions would exceed the applicable SCAQMD LSTs. Outputs from the model runs for unmitigated construction LSTs are provided in Appendix 3.1.

TABLE 3-9: LOCALIZED SIGNIFICANCE SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION)

Construction Activity	Year	Emissions (lbs/day)			
		NO_X	CO	PM_{10}	$PM_{2.5}$
Demolition/Crushing	2024	14.40	14.10	1.61	0.72
	Maximum Daily Emissions	**14.40**	**14.10**	**1.61**	**0.72**
	SCAQMD Localized Threshold	81	402	5	3
	Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Site Preparation	2024	6.24	6.16	0.68	0.40
	Maximum Daily Emissions	**6.24**	**6.16**	**0.68**	**0.40**
	SCAQMD Localized Threshold	103	522	7	3
	Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Grading	2024	16.60	14.60	2.85	1.71
	Maximum Daily Emissions	**16.60**	**14.60**	**2.85**	**1.71**
	SCAQMD Localized Threshold	125	642	9	4
	Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod unmitigated localized construction-source emissions are presented in Appendix 3.1.

As stated in Section ES.3, Rule 403 requires that feasible dust control measure be implemented, including at a minimum applying water to active construction areas 3 times per day, installing track-out devices at access points or implementing street sweeping, and halting operations during high wind events. Therefore, with consideration of the requirements of Rule 403, LST impacts would be less than significant.

OPERATIONAL-SOURCE EMISSIONS LST ANALYSIS

The development of the proposed Project is located on 0.95 acres. As previously stated, the total development is proposed to consist of a 6,000 square foot building, 2,400 square foot restaurant and 3,600 square foot retail/medical office use. According to SCAQMD LST methodology, LSTs would apply to the operational phase of a proposed project, if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., transfer facilities and warehouse buildings). The proposed project does not include such uses, and thus, due to the lack of significant stationary source emissions, no long-term localized significance threshold analysis is needed.

3.7 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific CO "hot spots" is not needed to reach this conclusion. An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the CAAQS and NAAQS for CO (31).

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment, as previously noted in Table 2-3.

To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-10.

TABLE 3-10: CO MODEL RESULTS

Intersection Location	CO Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire Boulevard/Veteran Avenue	4.6	3.5	4.2
Sunset Boulevard/Highland Avenue	4	4.5	3.9
La Cienega Boulevard/Century Boulevard	3.7	3.1	5.8
Long Beach Boulevard/Imperial Highway	3	3.1	9.3

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak CO concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, a 9.3 ppm 8-hour CO concentration was measured at the Long Beach Boulevard and Imperial Highway intersection, which was the highest CO generating intersection within the "hot spot" analysis. However, the SCAQMD determined that only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 8.6 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (32). In contrast, the ambient 8-hour CO concentration within the Project study area is estimated at 1.1 ppm—1.6 ppm (please refer to previous Table 2-3).

The traffic volumes used in the 2003 AQMP "hot spot" analysis are shown on Table 3-11. The busiest intersection evaluated for AM traffic volumes was at Wilshire Boulevard and Veteran Avenue, which had an AM traffic volume of approximately 8,062 vph (33). The 2003 AQMP calculated that the highest 1-hour concentration for the intersection of Wilshire Boulevard and Veteran Avenue was 4.6 ppm. This indicates that, should the hourly traffic volume increase four times to 32,250 vehicles per hour, CO concentrations (4.6 ppm x 4 = 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[3]

TABLE 3-11: TRAFFIC VOLUMES

Intersection Location	Total (AM/PM)				
Wilshire Boulevard/Veteran Avenue	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset Boulevard/Highland Avenue	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega Boulevard/Century Boulevard	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach Boulevard/Imperial Highway	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District

[3] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

(BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (vph) —or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (34).

The proposed Project considered herein would generate a net 510 trips and would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO "hot spots" are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

3.8 AIR QUALITY MANAGEMENT PLANNING

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the SCAG, county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMPs to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, the SCAQMD released the *Final 2016 AQMP* (*2016 AQMP*). The *2016 AQMP* continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (35). Similar to the 2012 AQMP, the *2016 AQMP* incorporates scientific and technological information and planning assumptions, including the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (*2016-2040 RTP/SCS*), a planning document that supports the integration of land use and transportation to help the region meet the federal CAA requirements (36). The Project's consistency with the AQMP will be determined using the *2016 AQMP* as discussed below.

It should be noted that the draft 2022 AQMP has been prepared by SCAQMD to address the EPA's strengthened ozone standard. The draft 2022 AQMP was released in August 2022 and public comment closed on October 18, 2022. The SCAQMD Governing Board adopted the draft 2022 AQMP at its December 2, 2022, meeting. The draft 2022 AQMP requires CARB's adoption before submittal for U.S. EPA's final approval, which is expected to occur sometime in 2023.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993) (37). These indicators are discussed below:

Consistency Criterion No. 1: The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if regional or localized significance thresholds were exceeded.

Construction Impacts – Consistency Criterion 1

Consistency Criterion No. 1 refers to violations of the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if LSTs or regional significance thresholds were exceeded. Based on the analysis herein, the Project's construction-source emissions would not exceed applicable regional significance thresholds or LSTs. As such, the Project is consistent with the AQMP with regard to regional construction-source air quality.

Operational Impacts – Consistency Criterion 1

As evaluated, the Project's operational-source emissions would not exceed applicable significance thresholds. As such, the Project would not result in a significant impact with respect to this criterion.

On the basis of the preceding discussion, and the lack of thresholds exceedances the Project is determined to be inconsistent with the first criterion.

Consistency Criterion No. 2: The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

The AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the SCAG, which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in City of Brea General Plan is considered to be consistent with the AQMP***.***

Construction Impacts – Consistency Criterion 2

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

Operational Impacts – Consistency Criterion 2

The City of Brea General Plan designates the Project site for "Office/Financial Commercial" uses. The "Office/Financial Commercial" designation allows for a maximum FAR of 1.5 (38).

The Project proposes a General Plan Amendment which would change the designations from "Office/Financial" to "Mixed Use III.", which provides opportunities for the revitalization of deteriorated commercial centers by allowing the development of neighborhood-serving commercial uses and very low intensity offices paired with housing, with a maximum floor-area-ration (FAR) of 1.0 (38).

The Project also proposes a Development Code Amendment to rezone the site from "Administrative and Professional Office (C-P)" with a "Precise Development (P-D)", which provides opportunities for the revitalization of deteriorated commercial corridors and centers located on arterials by allowing the development of neighborhood-serving commercial uses and vary intensity offices paired with residential uses (39).

The proposed Project includes the development of a 6,000 square foot building, 2,400 square foot restaurant and 3,600 square foot retail/medical office use. As previously stated, the Project is inconsistent with the current land use and zoning designation and would require a General Plan and Development Code amendment.

The growth forecasts used in the *AQMP* to calculate future regional emissions levels are based on land use planning data provided by lead agencies via their general plan documentation. Development projects that increase the intensity of use on a specific property beyond the respective general plan's vision may result in increased stationary area source emissions and/or vehicle source emissions when compared to the *AQMP* assumptions. However, if a project does not exceed the growth projections in the applicable local general plan, then the project is considered to be consistent with the growth assumptions in the *AQMP*. The prevailing planning document for the Project Site is the City's General Plan. Under existing conditions, Project Site is designated for "Office/Financial" land use and has a zoning designation of "Administrative and Professional Office (C-P)" with a "Precise Development (P-D)" overlay. The Project Applicant proposes to change the General Plan land use designation to "Mixed Use III" and the zoning designation to "Mixed Use III." Although the Project is not consistent with the current General Plan land use designation for the property, the proposed Project entails redevelopment of 0.95 acres of the Project Site with buildings having a floor area ratio (FAR) that is less than what occurs on the site under existing conditions. The site is currently developed with two 2,799 square foot (s.f.) office buildings, a 3,166 s.f. office building, and a two-story office/commercial building that contains 10,109 s.f. of floor space, which together total 18,873 s.f. The Project Applicant proposes to demolish the four existing buildings and redevelop this portion of the site with a 6,000 s.f. commercial building and an approximate 2,000 s.f. drive-through restaurant, which together total approximately 8,000 s.f. Thus, the Project would result in approximately 10,873 s.f. less building space on the site than occurs under the existing condition. The proposed reduction of building space thus does not result in an exceedance of the AQMP's growth projection. Accordingly, the Project would not conflict with Consistency Criterion No. 2.

AQMP Consistency Conclusion

The Project would not have the potential to result in or cause NAAQS or CAAQS violations. Additionally, Project construction and operational-source emissions would not exceed the

regional or localized significance thresholds. The Project is therefore considered to be consistent with the AQMP.

3.9 POTENTIAL IMPACTS TO SENSITIVE RECEPTORS

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during construction. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during Project construction.

Additionally, the Project will not exceed the SCAQMD localized significance thresholds during operational activity. Further Project traffic would not create or result in a CO "hotspot." Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of Project operations.

3.10 ODORS

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project is commercial and does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City's solid waste regulations. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed Project construction and operations would be less than significant and no mitigation is required (40).

3.11 CUMULATIVE IMPACTS

As previously shown in Table 2-3, the CAAQS designate the Project site as nonattainment for O_3 PM_{10}, and $PM_{2.5}$ while the NAAQS designates the Project site as nonattainment for O_3 and $PM_{2.5}$.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (41). In this report the AQMD clearly states (Page D-3):

> *…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or Environmental Impact Report (EIR). The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.*
>
> *Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.*

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable.

Construction Impacts

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that Project construction-source air pollutant emissions would not result in exceedances of regional or local thresholds. Therefore, Project construction-source emissions would be considered less than significant on a project-specific and cumulative basis.

Operational Impacts

Project operational-source emissions would not exceed applicable SCAQMD regional thresholds of significance. Therefore, Project operational-source emissions would be considered less than significant on a project-specific and cumulative basis.

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5 CERTIFICATIONS

The contents of this energy analysis report represent an accurate depiction of the environmental impacts associated with the proposed Brea Gaslight Square. The information contained in this energy analysis report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com.

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EDUCATION

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

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 2.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

This attachment fulfills the requirement of Health and Safety Code section 40718 for CARB to publish maps that identify areas where one or more violations of any State ambient air quality standard (State standard) or national ambient air quality standard (national standard) have been measured. The national standards are those promulgated under section 109 of the federal Clean Air Act (42 U.S.C. 7409).

This attachment is divided into three parts. The first part comprises a table showing the levels, averaging times, and measurement methods for each of the State and national standards. This is followed by a section containing maps and tables showing the area designations for each pollutant for which there is a State standard in the California Code of Regulations, title 17, section 70200. The last section contains maps and tables showing the most current area designations for the national standards.

Ambient Air Quality Standards

(Updated 5/4/16)

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, 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 PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, 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. Contact the U.S. EPA for further clarification and current national policies.

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. Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. 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.

11. 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 parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The 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.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$)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.

14. In 1989, the 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.

Area Designations for the State Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a State standard set forth in the California Code of Regulations, title 17, section 60200. Each area is identified as attainment, nonattainment, nonattainment-transitional, or unclassified for each pollutant, as shown below:

Attainment	A
Nonattainment	N
Nonattainment-Transitional	NA-T
Unclassified	U

In general, CARB designates areas by air basin for pollutants with a regional impact and by county for pollutants with a more local impact. However, when there are areas within an air basin or county with distinctly different air quality deriving from sources and conditions not affecting the entire air basin or county, CARB may designate a smaller area. Generally, when boundaries of the designated area differ from the air basin or county boundaries, the description of the specific area is referenced at the bottom of the summary table.

FIGURE 1


2020
Area Designations for State
Ambient Air Quality Standards
OZONE
N
0
50
100
150
200
Miles
Del Norte
Siskiyou
Modoc
NORTH COAST
NORTHEAST PLATEAU
Trinity
Shasta
Lassen
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Sutter Buttes
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Yuba
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Kings
Tulare
Inyo
Monterey
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
MOJAVE DESERT
Riverside
Orange
SOUTH COAST
SALTON SEA
San Diego
Imperial
SAN DIEGO
Unclassified
Attainment
Nonattainment-Transitional
Nonattainment
Air Basin
County
Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 1

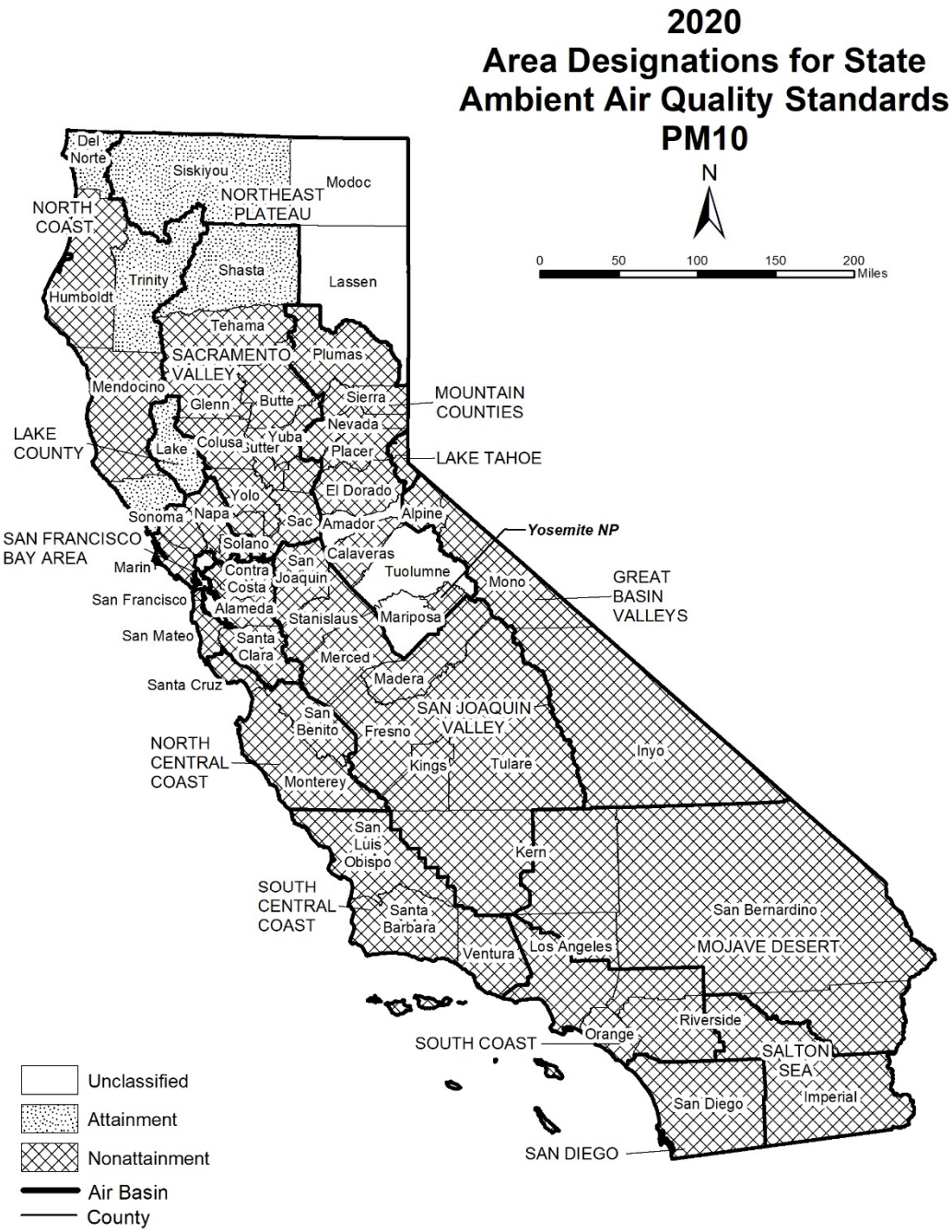
California Ambient Air Quality Standards
Area Designations for Ozone [1]

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN				
Alpine County			X	
Inyo County	X			
Mono County	X			
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN				X
MOJAVE DESERT AIR BASIN	X			
MOUNTAIN COUNTIES AIR BASIN				
Amador County		X		
Calaveras County	X			
El Dorado County (portion)	X			
Mariposa County	X			
Nevada County	X			
Placer County (portion)	X			
Plumas County			X	
Sierra County			X	
Tuolumne County	X			
NORTH CENTRAL COAST AIR BASIN				X
NORTH COAST AIR BASIN				X

	N	NA-T	U	A
NORTHEAST PLATEAU AIR BASIN				X
SACRAMENTO VALLEY AIR BASIN				
Colusa and Glenn Counties				X
Shasta County		X		
Sutter/Yuba Counties				
Sutter Buttes	X			
Remainder of Sutter County	X			
Yuba County	X			
Yolo/Solano Counties		X		
Remainder of Air Basin	X			
SALTON SEA AIR BASIN	X			
SAN DIEGO AIR BASIN	X			
SAN FRANCISCO BAY AREA AIR BASIN	X			
SAN JOAQUIN VALLEY AIR BASIN	X			
SOUTH CENTRAL COAST AIR BASIN				
San Luis Obispo County	X			
Santa Barbara County	X			
Ventura County	X			
SOUTH COAST AIR BASIN	X			

[1] AB 3048 (Olberg) and AB 2525 (Miller) signed into law in 1996, made changes to Health and Safety Code, section 40925.5. One of the changes allows nonattainment districts to become nonattainment-transitional for ozone by operation of law.

FIGURE 2



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 2

California Ambient Air Quality Standards
Area Designation for Suspended Particulate Matter (PM_{10})

	N	U	A
GREAT BASIN VALLEYS AIR BASIN	X		
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN	X		
MOJAVE DESERT AIR BASIN	X		
MOUNTAIN COUNTIES AIR BASIN			
Amador County		X	
Calaveras County	X		
El Dorado County (portion)	X		
Mariposa County			
- Yosemite National Park	X		
- Remainder of County		X	
Nevada County	X		
Placer County (portion)	X		
Plumas County	X		
Sierra County	X		
Tuolumne County		X	

	N	U	A
NORTH CENTRAL COAST AIR BASIN	X		
NORTH COAST AIR BASIN			
Del Norte, Sonoma (portion) and Trinity Counties			X
Remainder of Air Basin	X		
NORTHEAST PLATEAU AIR BASIN			
Siskiyou County			X
Remainder of Air Basin		X	
SACRAMENTO VALLEY AIR BASIN			
Shasta County			X
Remainder of Air Basin	X		
SALTON SEA AIR BASIN	X		
SAN DIEGO AIR BASIN	X		
SAN FRANCISCO BAY AREA AIR BASIN	X		
SAN JOAQUIN VALLEY AIR BASIN	X		
SOUTH CENTRAL COAST AIR BASIN	X		
SOUTH COAST AIR BASIN	X		

FIGURE 3


2020
Area Designations for State
Ambient Air Quality Standards
PM2.5
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehama
Portola Valley
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Sutter
Yuba
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
Inyo
NORTH CENTRAL COAST
Kings
Tulare
Monterey
San Luis Obispo
Kern
County Portion of Federal Ozone AQMA
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
MOJAVE DESERT
Riverside
Orange
SOUTH COAST
SALTON SEA
San Diego
Imperial
SAN DIEGO
Calexico
Unclassified
Attainment
Nonattainment
Air Basin
County
Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 3

California Ambient Air Quality Standards
Area Designations for Fine Particulate Matter ($PM_{2.5}$)

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			
San Bernardino County			
- County portion of federal Southeast Desert Modified AQMA for Ozone[1]			X
Remainder of Air Basin			X
MOUNTAIN COUNTIES AIR BASIN			
Plumas County			
- Portola Valley[2]	X		
Remainder of Air Basin		X	
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X
SACRAMENTO VALLEY AIR BASIN			
Butte County	X		
Colusa County			X
Glenn County			X
Placer County (portion)			X
Sacramento County			X
Shasta County			X
Sutter and Yuba Counties			X
Remainder of Air Basin		X	

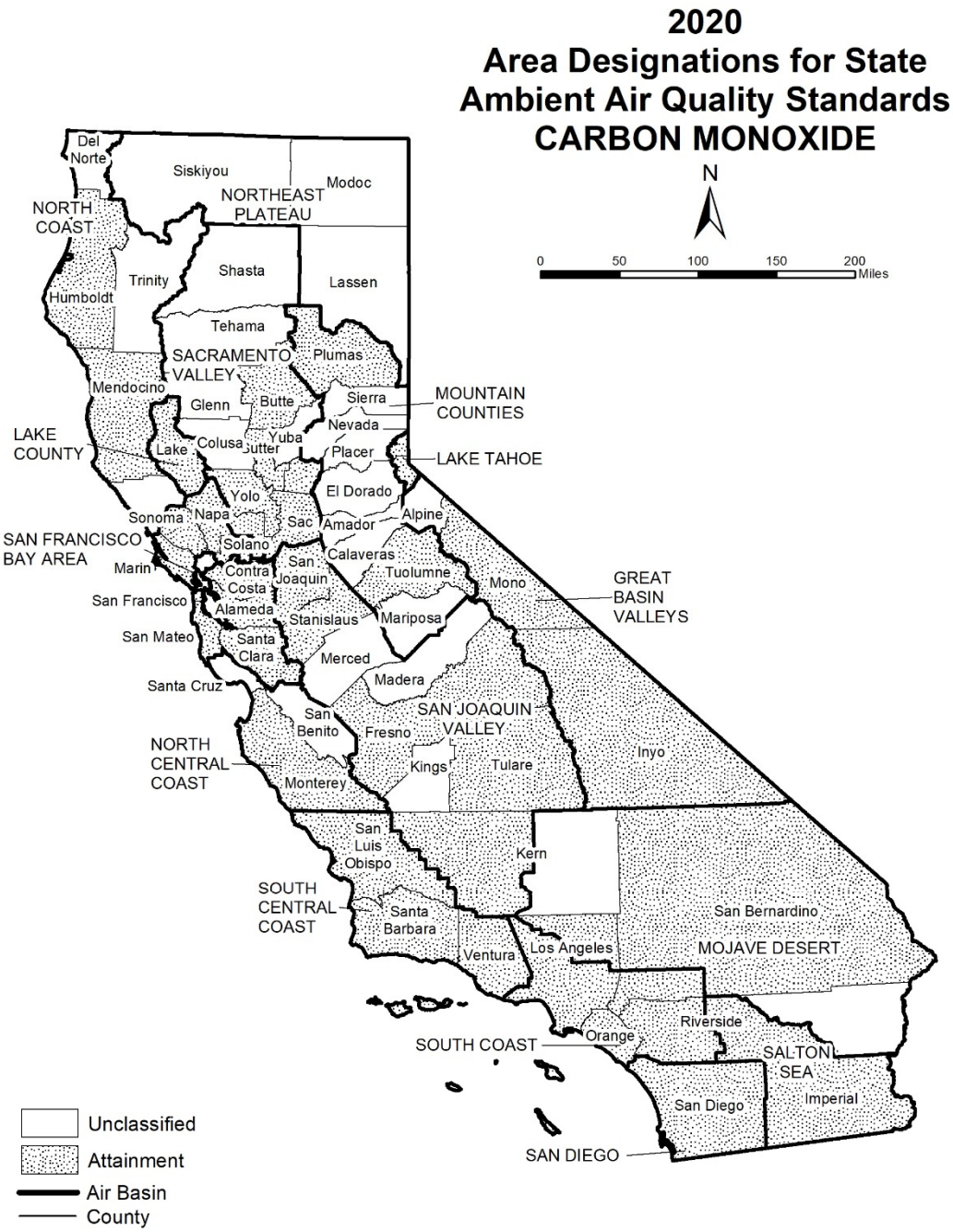
	N	U	A
SALTON SEA AIR BASIN			
Imperial County			
- City of Calexico[3]	X		
Remainder of Air Basin			X
SAN DIEGO AIR BASIN	X		
SAN FRANCISCO BAY AREA AIR BASIN	X		
SAN JOAQUIN VALLEY AIR BASIN	X		
SOUTH CENTRAL COAST AIR BASIN			
San Luis Obispo County			X
Santa Barbara County		X	
Ventura County			X
SOUTH COAST AIR BASIN	X		

[1] California Code of Regulations, title 17, section 60200(b)

[2] California Code of Regulations, title 17, section 60200(c)

[3] California Code of Regulations, title 17, section 60200(a)

FIGURE 4



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 4

California Ambient Air Quality Standards
Area Designation for Carbon Monoxide*

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN				
Alpine County			X	
Inyo County				X
Mono County				X
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN				X
MOJAVE DESERT AIR BASIN				
Kern County (portion)			X	
Los Angeles County (portion)				X
Riverside County (portion)			X	
San Bernardino County (portion)				X
MOUNTAIN COUNTIES AIR BASIN				
Amador County			X	
Calaveras County			X	
El Dorado County (portion)			X	
Mariposa County			X	
Nevada County			X	
Placer County (portion)			X	
Plumas County				X
Sierra County			X	
Tuolumne County				X
NORTH CENTRAL COAST AIR BASIN				
Monterey County				X
San Benito County			X	
Santa Cruz County			X	
NORTH COAST AIR BASIN				
Del Norte County			X	
Humboldt County				X
Mendocino County				X
Sonoma County (portion)			X	
Trinity County			X	
NORTHEAST PLATEAU AIR BASIN			X	

	N	NA-T	U	A
SACRAMENTO VALLEY AIR BASIN				
Butte County				X
Colusa County			X	
Glenn County			X	
Placer County (portion)				X
Sacramento County				X
Shasta County			X	
Solano County (portion)				X
Sutter County				X
Tehama County			X	
Yolo County				X
Yuba County			X	
SALTON SEA AIR BASIN				X
SAN DIEGO AIR BASIN				X
SAN FRANCISCO BAY AREA AIR BASIN				X
SAN JOAQUIN VALLEY AIR BASIN				
Fresno County				X
Kern County (portion)				X
Kings County			X	
Madera County			X	
Merced County			X	
San Joaquin County				X
Stanislaus County				X
Tulare County				X
SOUTH CENTRAL COAST AIR BASIN				X
SOUTH COAST AIR BASIN				X

* The area designated for carbon monoxide is a county or portion of a county

FIGURE 5



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 5

California Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X
SACRAMENTO VALLEY AIR BASIN			X
SALTON SEA AIR BASIN			X
SAN DIEGO AIR BASIN			X
SAN FRANCISCO BAY AREA AIR BASIN			X
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN			X
SOUTH COAST AIR BASIN			
CA 60 Near-road Portion of San Bernardino, Riverside, and Los Angeles Counties	X		
Remainder of Air Basin			X

FIGURE 6



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 6

California Ambient Air Quality Standards
Area Designation for Sulfur Dioxide*

	N	A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOJAVE DESERT AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X

	N	A
SACRAMENTO VALLEY AIR BASIN		X
SALTON SEA AIR BASIN		X
SAN DIEGO AIR BASIN		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		X

* The area designated for sulfur dioxide is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 7



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 7

California Ambient Air Quality Standards
Area Designation for Sulfates

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X

	N	U	A
SACRAMENTO VALLEY AIR BASIN			X
SALTON SEA AIR BASIN			X
SAN DIEGO AIR BASIN			X
SAN FRANCISCO BAY AREA AIR BASIN			X
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN			X
SOUTH COAST AIR BASIN			X

FIGURE 8



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 8

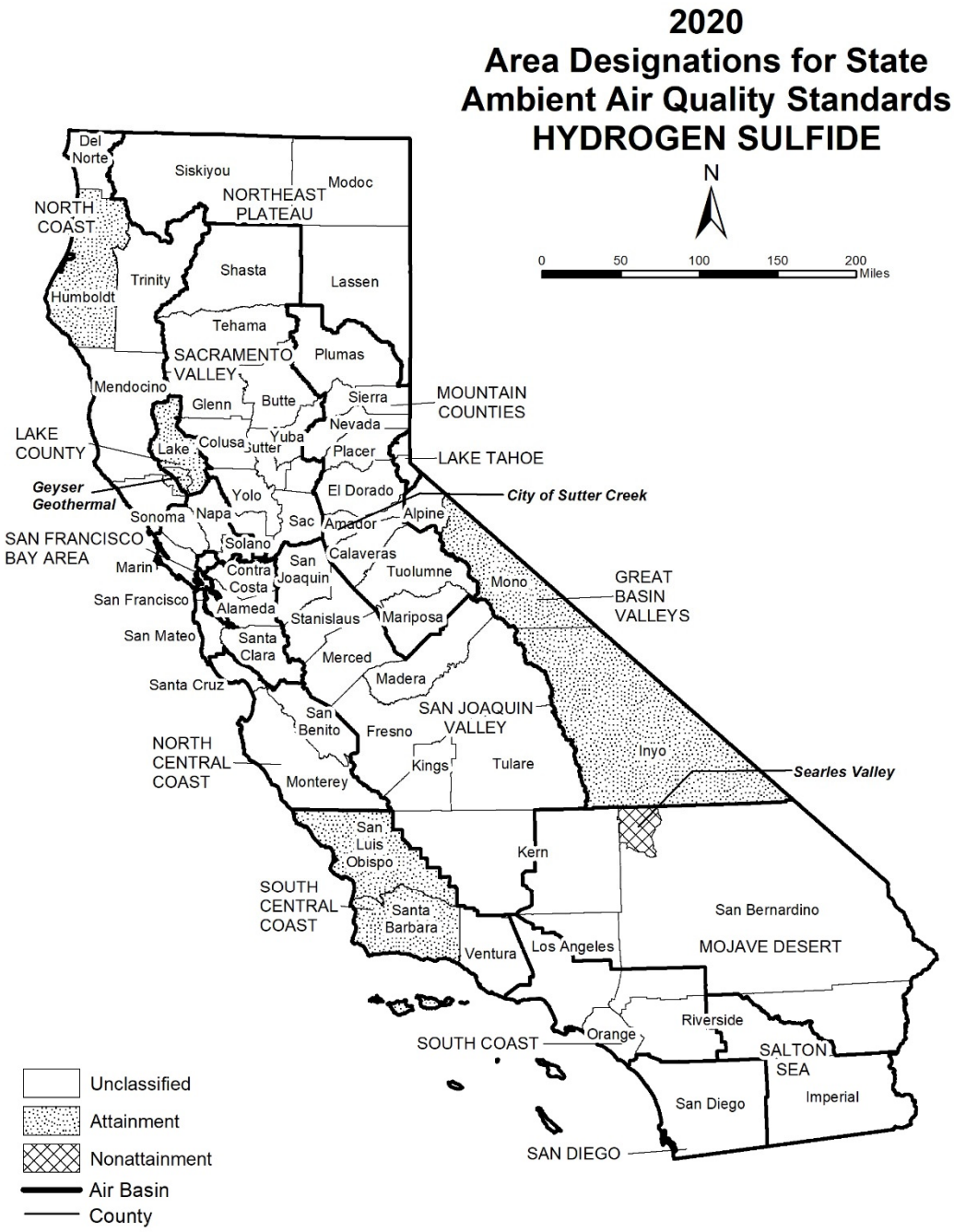
California Ambient Air Quality Standards
Area Designations for Lead (particulate)*

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X
SACRAMENTO VALLEY AIR BASIN			X

	N	U	A
SALTON SEA AIR BASIN			X
SAN DIEGO AIR BASIN			X
SAN FRANCISCO BAY AREA AIR BASIN			X
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN			X
SOUTH COAST AIR BASIN			X

* The area designated for lead is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 9



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 9

California Ambient Air Quality Standards
Area Designation for Hydrogen Sulfide*

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN				
Alpine County			X	
Inyo County				X
Mono County				X
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN			X	
MOJAVE DESERT AIR BASIN				
Kern County (portion)			X	
Los Angeles County (portion)			X	
Riverside County (portion)			X	
San Bernardino County (portion)				
- Searles Valley Planning Area[1]	X			
- Remainder of County			X	
MOUNTAIN COUNTIES AIR BASIN				
Amador County				
- City of Sutter Creek	X			
- Remainder of County			X	
Calaveras County			X	
El Dorado County (portion)			X	
Mariposa County			X	
Nevada County			X	
Placer County (portion)			X	
Plumas County			X	
Sierra County			X	
Tuolumne County			X	

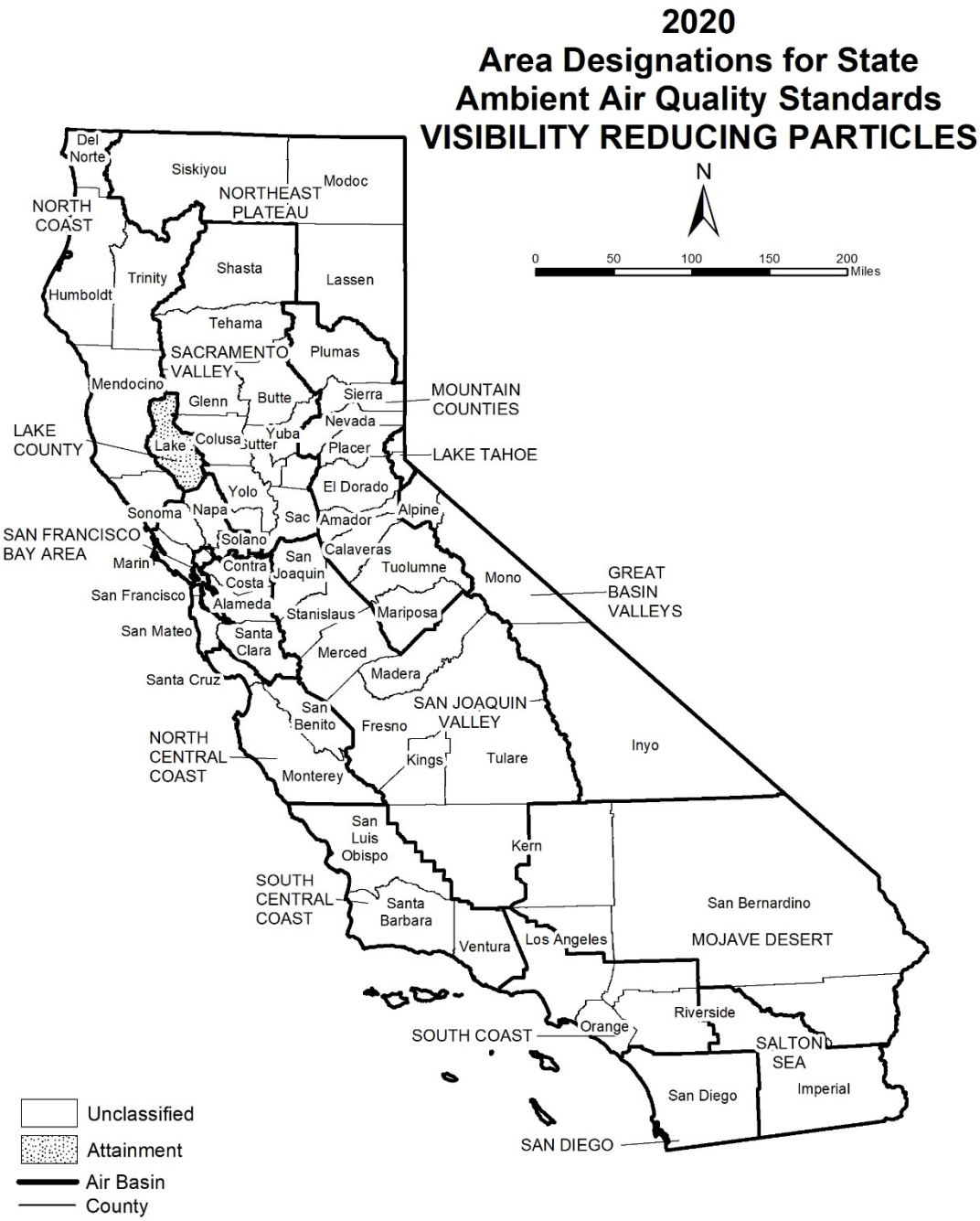
	N	NA-T	U	A
NORTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN				
Del Norte County			X	
Humboldt County				X
Mendocino County			X	
Sonoma County (portion)				
- Geyser Geothermal Area[2]				X
- Remainder of County			X	
Trinity County			X	
NORTHEAST PLATEAU AIR BASIN			X	
SACRAMENTO VALLEY AIR BASIN			X	
SALTON SEA AIR BASIN			X	
SAN DIEGO AIR BASIN			X	
SAN FRANCISCO BAY AREA AIR BASIN			X	
SAN JOAQUIN VALLEY AIR BASIN			X	
SOUTH CENTRAL COAST AIR BASIN				
San Luis Obispo County				X
Santa Barbara County				X
Ventura County			X	
SOUTH COAST AIR BASIN			X	

* The area designated for hydrogen sulfide is a county or portion of a county

[1] 52 Federal Register 29384 (August 7, 1987)

[2] California Code of Regulations, title 17, section 60200(d)

FIGURE 10



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 10

California Ambient Air Quality Standards
Area Designation for Visibility Reducing Particles

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN			X	
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN			X	
MOJAVE DESERT AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN			X	
NORTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN			X	
NORTHEAST PLATEAU AIR BASIN			X	

	N	NA-T	U	A
SACRAMENTO VALLEY AIR BASIN			X	
SALTON SEA AIR BASIN			X	
SAN DIEGO AIR BASIN			X	
SAN FRANCISCO BAY AREA AIR BASIN			X	
SAN JOAQUIN VALLEY AIR BASIN			X	
SOUTH CENTRAL COAST AIR BASIN			X	
SOUTH COAST AIR BASIN			X	

Area Designations for the National Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a national ambient air quality standard. Additional information about the federal area designations is available on the U.S. EPA website:

https://www.epa.gov/green-book

Over the last several years, U.S. EPA has been reviewing the levels of the various national standards. The agency has already promulgated new standard levels for some pollutants and is considering revising the levels for others. Information about the status of these reviews is available on the U.S. EPA website:

https://www.epa.gov/criteria-air-pollutants

Designation Categories

Suspended Particulate Matter (PM_{10}). The U.S. EPA uses three categories to designate areas with respect to PM_{10}:

- Attainment (A)
- Nonattainment (N)
- Unclassifiable (U)

Ozone, Fine Suspended Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2). The U.S. EPA uses two categories to designate areas with respect to these standards:

- Nonattainment (N)
- Unclassifiable/Attainment (U/A)

The national 1-hour ozone standard was revoked effective June 15, 2005, and the area designations map reflects the 2015 national 8-hour ozone standard of 0.070 ppm. Area designations were finalized on August 3, 2018.

On December 14, 2012, the U.S. EPA established a new national annual primary $PM_{2.5}$ standard of 12.0 µg/m^3. Area designations were finalized in December 2014. The current designation map reflects the most recently revised (2012) annual average standard of 12.0 µg/m^3 as well as the 24-hour standard of 35 µg/m^3, revised in 2006.

On January 22, 2010, the U.S. EPA established a new national 1-hour NO_2 standard of 100 parts per billion (ppb) and retained the annual average standard of 53 ppb. Designations for the primary NO_2 standard became effective on February 29, 2012. All areas of California meet this standard.

Sulfur Dioxide (SO_2). The U.S. EPA uses three categories to designate areas with respect to the 24-hour and annual average sulfur dioxide standards. These designation categories are:

- Nonattainment (N),
- Unclassifiable (U), and
- Unclassifiable/Attainment (U/A).

On June 2, 2010, the U.S. EPA established a new primary 1-hour SO_2 standard of 75 parts per billion (ppb). At the same time, U.S. EPA revoked the 24-hour and annual

average standards. Area designations for the 1-hour SO_2 standard were finalized on December 21, 2017 and are reflected in the area designations map.

Lead (particulate). The U.S. EPA promulgated a new rolling 3-month average lead standard in October 2008 of 0.15 µg/m^3. Designations were made for this standard in November 2010.

Designation Areas

From time to time, the boundaries of the California air basins have been changed to facilitate the planning process. CARB generally initiates these changes, and they are not always reflected in the U.S. EPA's area designations. For purposes of consistency, the maps in this attachment reflect area designation boundaries and nomenclature as promulgated by the U.S. EPA. In some cases, these may not be the same as those adopted by CARB. For example, the national area designations reflect the former Southeast Desert Air Basin. In accordance with Health and Safety Code section 39606.1, CARB redefined this area in 1996 to be the Mojave Desert Air Basin and Salton Sea Air Basin. The definitions and boundaries for all areas designated for the national standards can be found in Title 40, Code of Federal Regulations (CFR), Chapter I, Subchapter C, Part 81.305. They are available on the web at:

https://ecfr.io/Title-40/se40.20.81_1305

FIGURE 11



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 11

National Ambient Air Quality Standards
Area Designations for 8-Hour Ozone*

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		
Amador County	X	
Calaveras County	X	
El Dorado County (portion)[1]	X	
Mariposa County	X	
Nevada County		
- Western Nevada County	X	
- Remainder of County		X
Placer County (portion)[1]	X	
Plumas County		X
Sierra County		X
Tuolumne County	X	
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		
Butte County	X	
Colusa County		X
Glenn County		X
Sacramento Metro Area[1]	X	
Shasta County		X
Sutter County		
- Sutter Buttes	X	
- Southern portion of Sutter County[1]	X	
- Remainder of Sutter County		X
Tehama County		
- Tuscan Buttes	X	
- Remainder of Tehama County		X

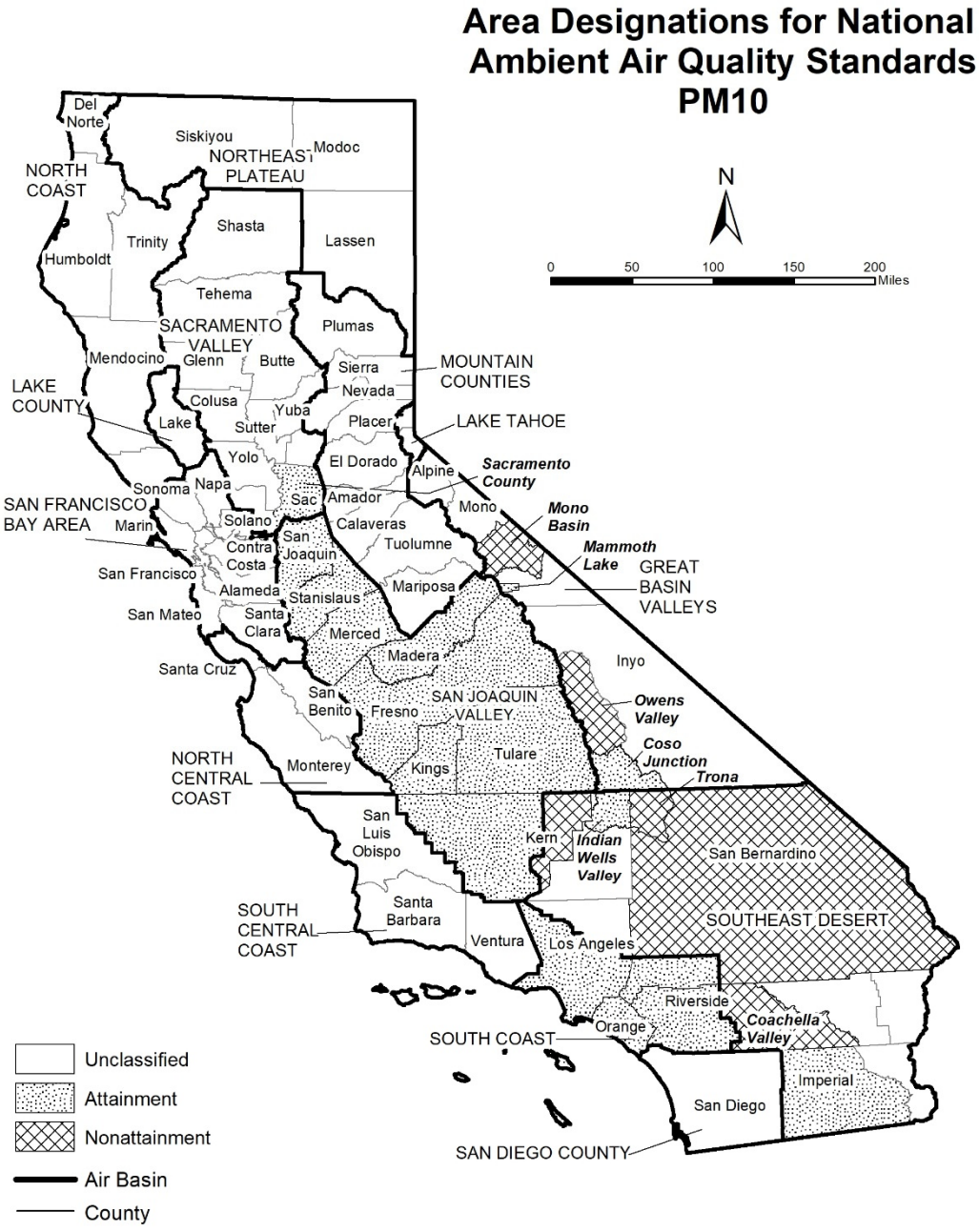
	N	U/A
SACRAMENTO VALLEY AIR BASIN (cont.)		
Yolo County[1]	X	
Yuba County		X
SAN DIEGO COUNTY	X	
SAN FRANCISCO BAY AREA AIR BASIN	X	
SAN JOAQUIN VALLEY AIR BASIN	X	
SOUTH CENTRAL COAST AIR BASIN[2]		
San Luis Obispo County		
- Eastern San Luis Obispo County	X	
- Remainder of County		X
Santa Barbara County		X
Ventura County		
- Area excluding Anacapa and San Nicolas Islands	X	
- Channel Islands[2]		X
SOUTH COAST AIR BASIN[2]	X	
SOUTHEAST DESERT AIR BASIN		
Kern County (portion)	X	
- Indian Wells Valley		X
Imperial County	X	
Los Angeles County (portion)	X	
Riverside County (portion)		
- Coachella Valley	X	
- Non-AQMA portion		X
San Bernardino County		
- Western portion (AQMA)	X	
- Eastern portion (non-AQMA)		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
NOTE: This map and table reflect the 2015 8-hour ozone standard of 0.070 ppm.

[1] For this purpose, the Sacramento Metro Area comprises all of Sacramento and Yolo Counties, the Sacramento Valley Air Basin portion of Solano County, the southern portion of Sutter County, and the Sacramento Valley and Mountain Counties Air Basins portions of Placer and El Dorado counties.

[2] South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.
South Coast Air Basin:
Los Angeles County includes San Clemente and Santa Catalina Islands.

FIGURE 12



Source Date:
October 2020
Air Quality Planning and Science Division

TABLE 12

National Ambient Air Quality Standards
Area Designations for Suspended Particulate Matter (PM_{10})*

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			
Alpine County		X	
Inyo County			
- Owens Valley Planning Area	X		
- Coso Junction			X
- Remainder of County		X	
Mono County			
- Mammoth Lake Planning Area			X
- Mono Lake Basin	X		
- Remainder of County		X	
LAKE COUNTY AIR BASIN		X	
LAKE TAHOE AIR BASIN		X	
MOUNTAIN COUNTIES AIR BASIN			
Placer County (portion)[1]		X	
Remainder of Air Basin		X	
NORTH CENTRAL COAST AIR BASIN		X	
NORTH COAST AIR BASIN		X	
NORTHEAST PLATEAU AIR BASIN		X	
SACRAMENTO VALLEY AIR BASIN			
Butte County		X	
Colusa County		X	
Glenn County		X	
Placer County (portion)[1]		X	
Sacramento County[2]			X
Shasta County		X	
Solano County (portion)		X	
Sutter County		X	
Tehama County		X	
Yolo County		X	
Yuba County		X	

	N	U	A
SAN DIEGO COUNTY		X	
SAN FRANCISCO BAY AREA AIR BASIN		X	
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN		X	
SOUTH COAST AIR BASIN			X
SOUTHEAST DESERT AIR BASIN			
Eastern Kern County			
- Indian Wells Valley			X
- Portion within San Joaquin Valley Planning Area	X		
- Remainder of County		X	
Imperial County			
- Imperial Valley Planning Area[3]			X
- Remainder of County		X	
Los Angeles County (portion)		X	
Riverside County (portion)			
- Coachella Valley[4]	X		
- Non-AQMA portion		X	
San Bernardino County			
- Trona	X		
- Remainder of County	X		

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

[1] U.S. EPA designation puts the Sacramento Valley Air Basin portion of Placer County in the Mountain Counties Air Basin.

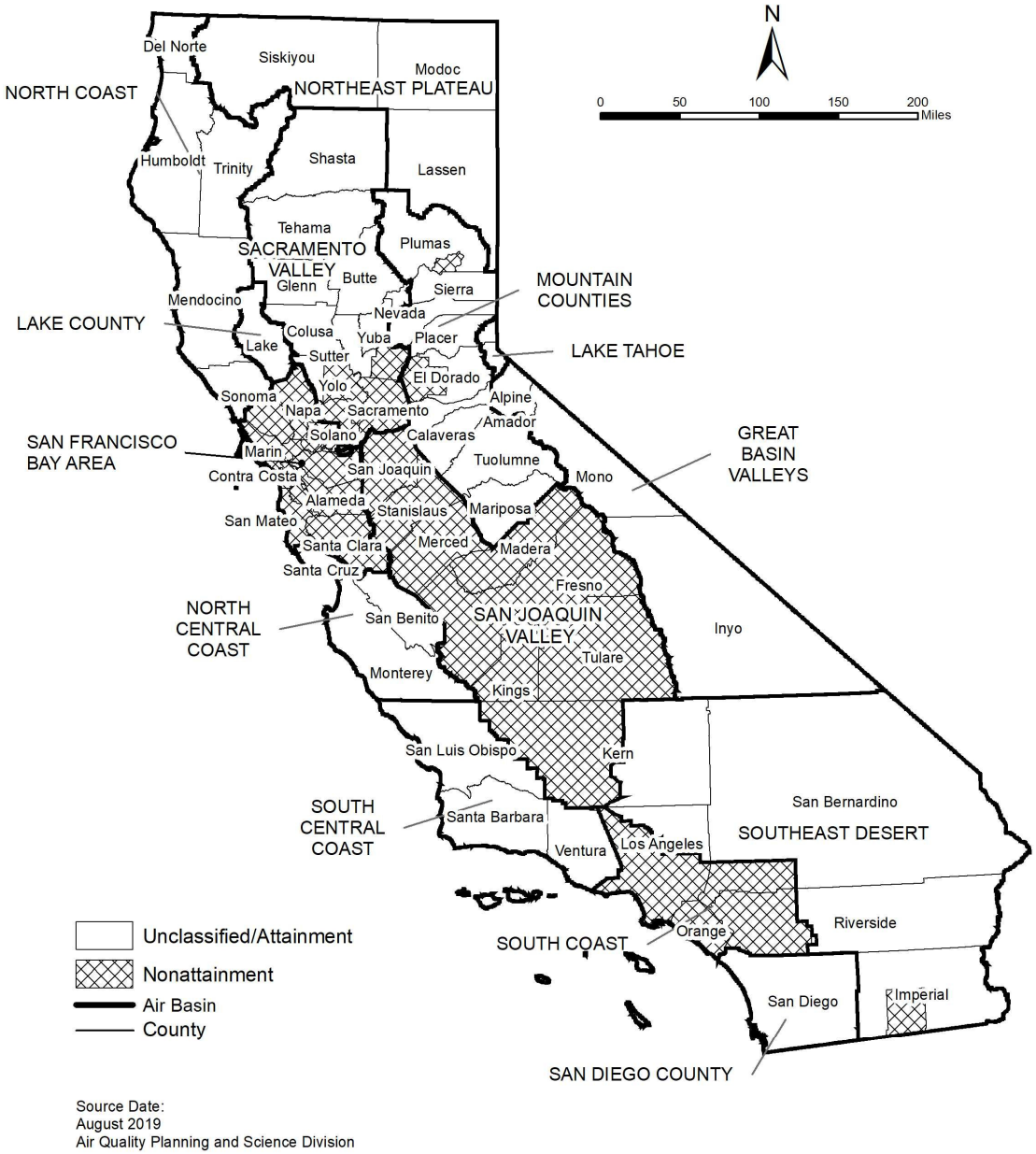
[2] Air quality in Sacramento County meets the national PM_{10} standards. The request for redesignation to attainment was approved by U.S. EPA in September 2013.

[3] The request for redesignation to attainment for the Imperial Valley Planning Area was approved by U.S. EPA and in September 2020, effective October 2020.

[4] Air quality in Coachella Valley meets the national PM_{10} standards. A request for redesignation to attainment has been submitted to U.S. EPA.

FIGURE 13

Area Designations for National Ambient Air Quality Standards PM2.5



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 13

National Ambient Air Quality Standards
Area Designations for Fine Particulate Matter ($PM_{2.5}$)

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		
Plumas County		
- Portola Valley Portion of Plumas	X	
- Remainder of Plumas County		X
Remainder of Air Basin		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		
Sacramento Metro Area[1]	X	
Sutter County		X
Yuba County (portion)		X
Remainder of Air Basin		X

	N	U/A
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN[2]	X	
SAN JOAQUIN VALLEY AIR BASIN	X	
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN[3]	X	
SOUTHEAST DESERT AIR BASIN		
Imperial County (portion)[4]	X	
Remainder of Air Basin		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305. This map reflects the 2006 24-hour $PM_{2.5}$ standard as well as the 1997 and 2012 $PM_{2.5}$ annual standards.

[1] For this purpose, Sacramento Metro Area comprises all of Sacramento and portions of El Dorado, Placer, Solano, and Yolo Counties. Air quality in this area meets the national $PM_{2.5}$ standards. A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by U.S. EPA in June 2017.

[2] Air quality in this area meets the national $PM_{2.5}$ standards. A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by U.S. EPA in June 2017.

[3] Those lands of the Santa Rosa Band of Cahulla Mission Indians in Riverside County are designated Unclassifiable/Attainment.

[4] That portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland. Air quality in this area meets the national $PM_{2.5}$ standards. A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by U.S. EPA in June 2017.

FIGURE 14



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 14

National Ambient Air Quality Standards
Area Designations for Carbon Monoxide*

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X

	N	U/A
SACRAMENTO VALLEY AIR BASIN		X
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		X
SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 15



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 15

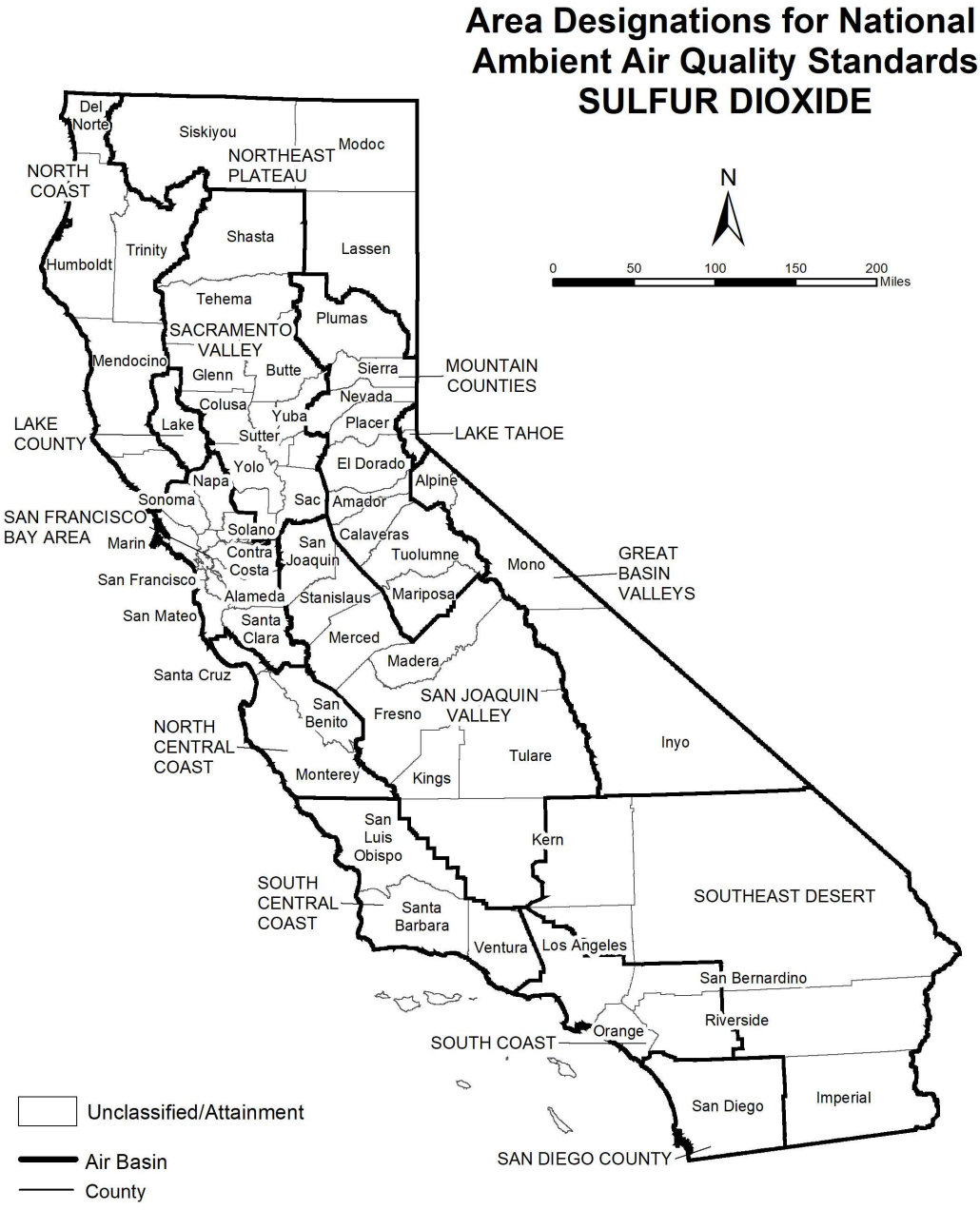
National Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide*

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X

	N	U/A
SACRAMENTO VALLEY AIR BASIN		X
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		X
SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 16



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 16

National Ambient Air Quality Standards
Area Designations for Sulfur Dioxide*

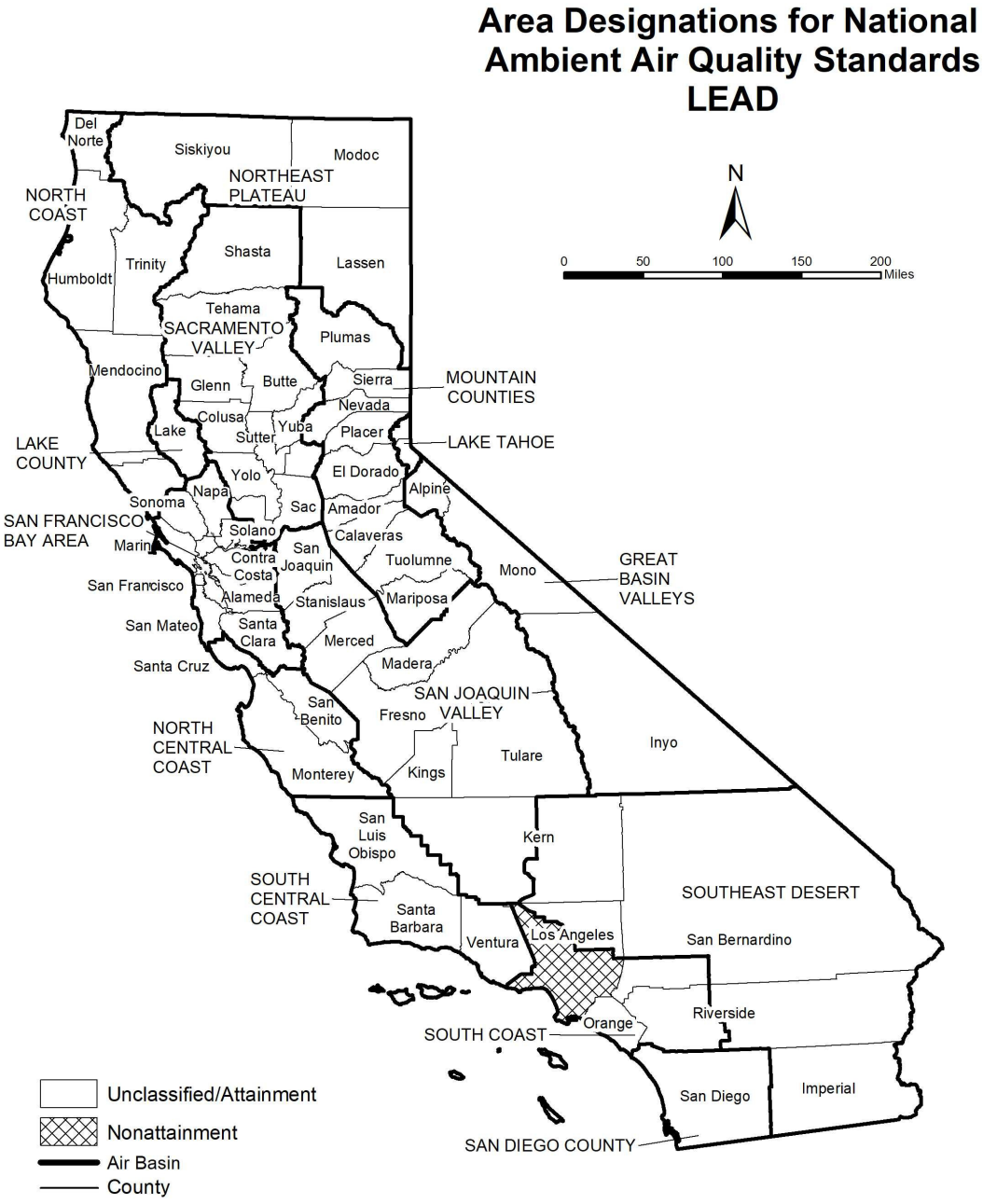
	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		X
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		
Fresno County		X
Kern County (portion)		X
Kings County		X
Madera County		X
Merced County		X
San Joaquin County		X
Stanislaus County		X
Tulare County		X

	N	U/A
SOUTH CENTRAL COAST AIR BASIN		
San Luis Obispo County		X
Santa Barbara County		X
Ventura County		X
Channel Islands[1]		X
SOUTH COAST AIR BASIN		X
SOUTHEAST DESERT AIR BASIN		
Imperial County		X
Remainder of Air Basin		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
NOTE: This map and table reflect the 2010 1-hour SO_2 standard of 75 ppb.

[1] South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.
Note that the San Clemente and Santa Catalina Islands are considered part of Los Angeles County, and therefore, are included as part of the South Coast Air Basin.

FIGURE 17



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 17

National Ambient Air Quality Standards
Area Designations for Lead (particulate)

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		X

	N	U/A
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		
Los Angeles County (portion)[1]	X	
Remainder of Air Basin		X
SOUTHEAST DESERT AIR BASIN		X

[1] Portion of County in Air Basin, not including Channel Islands

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APPENDIX 3.1:

PROPOSED PROJECT CALEEMOD EMISSIONS MODEL OUTPUTS

14783-Brea Gaslight 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

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

3.3. Site Preparation (2024) - Unmitigated

3.5. Grading (2024) - Unmitigated

3.7. Building Construction (2024) - Unmitigated

3.9. Paving (2024) - Unmitigated

3.11. Architectural Coating (2024) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14783-Brea Gaslight
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	21.2
Location	33.91618627251319, -117.89859599419326
County	Orange
City	Brea
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5752
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
High Turnover (Sit Down Restaurant)	2.40	1000sqft	0.06	2,400	9,929	—	—	—
Fast Food Restaurant with Drive Thru	2.00	1000sqft	0.05	2,000	0.00	—	—	—

Strip Mall	3.60	1000sqft	0.08	3,600	0.00	—	—	—
Parking Lot	112	Space	0.44	0.00	0.00	—	—	—
Other Asphalt Surfaces	14.4	1000sqft	0.33	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	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.	0.97	2.20	8.05	9.28	0.02	0.36	0.23	0.48	0.33	0.05	0.34	—	1,959	1,959	0.08	0.02	0.97	1,968
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	1.80	16.7	15.1	0.03	0.87	2.09	2.96	0.80	0.93	1.73	—	3,165	3,165	0.16	0.16	0.06	3,216
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.47	0.53	3.67	3.82	0.01	0.17	0.24	0.42	0.16	0.08	0.24	—	716	716	0.03	0.02	0.12	722
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	0.10	0.67	0.70	< 0.005	0.03	0.04	0.08	0.03	0.01	0.04	—	119	119	0.01	< 0.005	0.02	119

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.97	2.20	8.05	9.28	0.02	0.36	0.23	0.48	0.33	0.05	0.34	—	1,959	1,959	0.08	0.02	0.97	1,968
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.15	1.80	16.7	15.1	0.03	0.87	2.09	2.96	0.80	0.93	1.73	—	3,165	3,165	0.16	0.16	0.06	3,216
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.47	0.53	3.67	3.82	0.01	0.17	0.24	0.42	0.16	0.08	0.24	—	716	716	0.03	0.02	0.12	722
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.10	0.67	0.70	< 0.005	0.03	0.04	0.08	0.03	0.01	0.04	—	119	119	0.01	< 0.005	0.02	119

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.	6.71	6.30	4.79	52.1	0.13	0.09	4.46	4.55	0.08	0.79	0.87	32.9	13,170	13,203	3.92	0.50	59.3	13,510
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.58	6.17	5.20	48.1	0.12	0.09	4.46	4.55	0.08	0.79	0.87	32.9	12,671	12,704	3.95	0.53	8.25	12,968
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.24	5.03	3.60	33.5	0.08	0.06	2.73	2.79	0.06	0.48	0.54	32.9	8,073	8,106	3.78	0.36	20.8	8,328

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.96	0.92	0.66	6.11	0.01	0.01	0.50	0.51	0.01	0.09	0.10	5.45	1,337	1,342	0.63	0.06	3.44	1,379

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	6.63	6.05	4.65	51.6	0.13	0.08	4.46	4.54	0.07	0.79	0.86	—	12,793	12,793	0.59	0.49	52.4	13,006
Area	0.06	0.24	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	6.71	6.30	4.79	52.1	0.13	0.09	4.46	4.55	0.08	0.79	0.87	32.9	13,170	13,203	3.92	0.50	59.3	13,510
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.57	5.98	5.06	48.0	0.12	0.08	4.46	4.54	0.07	0.79	0.86	—	12,296	12,296	0.62	0.52	1.36	12,466
Area	—	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	6.58	6.17	5.20	48.1	0.12	0.09	4.46	4.55	0.08	0.79	0.87	32.9	12,671	12,704	3.95	0.53	8.25	12,968
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	5.19	4.79	3.46	33.1	0.08	0.05	2.73	2.78	0.05	0.48	0.53	—	7,697	7,697	0.45	0.35	13.9	7,825
Area	0.04	0.23	< 0.005	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.98	0.98	< 0.005	< 0.005	—	0.98
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	5.24	5.03	3.60	33.5	0.08	0.06	2.73	2.79	0.06	0.48	0.54	32.9	8,073	8,106	3.78	0.36	20.8	8,328
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.95	0.87	0.63	6.04	0.01	0.01	0.50	0.51	0.01	0.09	0.10	—	1,274	1,274	0.07	0.06	2.30	1,296
Area	0.01	0.04	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Energy	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	60.4	60.4	0.01	< 0.005	—	60.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.51	1.83	2.34	0.05	< 0.005	—	4.02
Waste	—	—	—	—	—	—	—	—	—	—	—	4.94	0.00	4.94	0.49	0.00	—	17.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	1.14
Total	0.96	0.92	0.66	6.11	0.01	0.01	0.50	0.51	0.01	0.09	0.10	5.45	1,337	1,342	0.63	0.06	3.44	1,379

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

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

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

Off-Road Equipment	1.78	1.49	14.4	14.1	0.02	0.62	—	0.62	0.57	—	0.57	—	2,203	2,203	0.09	0.02	—	2,211
Demolition	—	—	—	—	—	—	0.99	0.99	—	0.15	0.15	—	—	—	—	—	—	—
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	0.11	0.09	0.91	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	139	139	0.01	< 0.005	—	139
Demolition	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.0	23.0	< 0.005	< 0.005	—	23.1
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.52	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	129	129	< 0.005	< 0.005	0.01	130
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	0.08	0.02	1.07	0.45	0.01	0.01	0.06	0.07	0.01	0.02	0.03	—	833	833	0.07	0.13	0.05	874
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	8.24	8.24	< 0.005	< 0.005	0.02	8.35
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	< 0.005	0.07	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	52.5	52.5	< 0.005	0.01	0.05	55.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.36	1.36	< 0.005	< 0.005	< 0.005	1.38
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	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.69	8.69	< 0.005	< 0.005	0.01	9.13

3.3. Site Preparation (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.72	6.24	6.16	0.01	0.40	—	0.40	0.37	—	0.37	—	916	916	0.04	0.01	—	919
Dust From Material Movement	—	—	—	—	—	—	0.28	0.28	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.36	0.35	< 0.005	0.02	—	0.02	0.02	—	0.02	—	52.7	52.7	< 0.005	< 0.005	—	52.9

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.73	8.73	< 0.005	< 0.005	—	8.76
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	64.5	64.5	< 0.005	< 0.005	0.01	65.2
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	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	3.76	3.76	< 0.005	< 0.005	0.01	3.81
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.63
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

3.5. Grading (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.11	1.77	16.6	14.6	0.02	0.87	—	0.87	0.80	—	0.80	—	2,294	2,294	0.09	0.02	—	2,302
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.91	0.91	—	—	—	—	—	—	—
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	0.12	0.10	0.96	0.84	< 0.005	0.05	—	0.05	0.05	—	0.05	—	132	132	0.01	< 0.005	—	132
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.9	21.9	< 0.005	< 0.005	—	21.9

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.39	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	96.7	96.7	< 0.005	< 0.005	0.01	97.9
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	< 0.005	0.08	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	60.8	60.8	< 0.005	0.01	< 0.005	63.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	5.64	5.64	< 0.005	< 0.005	0.01	5.72
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.50	3.50	< 0.005	< 0.005	< 0.005	3.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61

3.7. Building Construction (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.99	9.08	0.02	0.36	—	0.36	0.33	—	0.33	—	1,876	1,876	0.08	0.02	—	1,883
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.99	1.12	< 0.005	0.04	—	0.04	0.04	—	0.04	—	231	231	0.01	< 0.005	—	232
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	0.02	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	38.3	38.3	< 0.005	< 0.005	—	38.4
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	0.01	0.01	0.01	0.18	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	40.7	40.7	< 0.005	< 0.005	0.17	41.3
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	42.5	42.5	< 0.005	0.01	0.11	44.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	4.84	4.84	< 0.005	< 0.005	0.01	4.90
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.24	5.24	< 0.005	< 0.005	0.01	5.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.80	0.80	< 0.005	< 0.005	< 0.005	0.81
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.90
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.63	5.41	6.27	0.01	0.25	—	0.25	0.23	—	0.23	—	973	973	0.04	0.01	—	976
Paving	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.3	53.3	< 0.005	< 0.005	—	53.5
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.83	8.83	< 0.005	< 0.005	—	8.86
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	1.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	237	237	< 0.005	0.01	0.97	241
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.10
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 (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.21	1.53	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	2.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.2	11.2	< 0.005	< 0.005	—	11.3
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.86	1.86	< 0.005	< 0.005	—	1.86
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	8.13	8.13	< 0.005	< 0.005	0.03	8.25

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.50
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	1.29	1.18	0.92	10.2	0.02	0.02	0.89	0.90	0.01	0.16	0.17	—	2,541	2,541	0.12	0.10	10.4	2,584

Fast Food Restaurant with Drive Thru	4.65	4.23	3.30	36.7	0.09	0.06	3.19	3.25	0.05	0.57	0.62	—	9,148	9,148	0.42	0.35	37.5	9,300
Strip Mall	0.69	0.64	0.43	4.68	0.01	0.01	0.38	0.39	0.01	0.07	0.07	—	1,104	1,104	0.06	0.05	4.49	1,123
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.63	6.05	4.65	51.6	0.13	0.08	4.46	4.54	0.07	0.79	0.86	—	12,793	12,793	0.59	0.49	52.4	13,006
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	1.28	1.16	1.00	9.48	0.02	0.02	0.89	0.90	0.01	0.16	0.17	—	2,443	2,443	0.12	0.10	0.27	2,476
Fast Food Restaurant with Drive Thru	4.61	4.19	3.59	34.1	0.09	0.06	3.19	3.25	0.05	0.57	0.62	—	8,792	8,792	0.44	0.37	0.97	8,913
Strip Mall	0.68	0.63	0.47	4.42	0.01	0.01	0.38	0.39	0.01	0.07	0.07	—	1,061	1,061	0.06	0.05	0.12	1,077
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.57	5.98	5.06	48.0	0.12	0.08	4.46	4.54	0.07	0.79	0.86	—	12,296	12,296	0.62	0.52	1.36	12,466
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.18	0.16	0.13	1.25	< 0.005	< 0.005	0.11	0.11	< 0.005	0.02	0.02	—	275	275	0.01	0.01	0.50	280

Fast Food Restaurant with Drive Thru	0.66	0.61	0.43	4.08	0.01	0.01	0.33	0.34	0.01	0.06	0.06	—	843	843	0.05	0.04	1.52	857
Strip Mall	0.11	0.10	0.08	0.72	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	156	156	0.01	0.01	0.28	159
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.95	0.87	0.63	6.04	0.01	0.01	0.50	0.51	0.01	0.09	0.10	—	1,274	1,274	0.07	0.06	2.30	1,296

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4	0.01	< 0.005	—	79.8
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	66.2	66.2	0.01	< 0.005	—	66.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8	< 0.005	< 0.005	—	34.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.1

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.02	< 0.005	—	196
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4	0.01	< 0.005	—	79.8
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	66.2	66.2	0.01	< 0.005	—	66.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8	< 0.005	< 0.005	—	34.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.02	< 0.005	—	196
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1	< 0.005	< 0.005	—	13.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	11.0	11.0	< 0.005	< 0.005	—	11.0
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	5.59	5.59	< 0.005	< 0.005	—	5.62
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66	< 0.005	< 0.005	—	2.67

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	32.3	32.3	< 0.005	< 0.005	—	32.5

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	88.6	88.6	0.01	< 0.005	—	88.8
Fast Food Restaurant with Drive Thru	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	73.8	73.8	0.01	< 0.005	—	74.0
Strip Mall	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.91	6.91	< 0.005	< 0.005	—	6.93
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	88.6	88.6	0.01	< 0.005	—	88.8

Fast Food Restaurant with Drive Thru	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	73.8	73.8	0.01	< 0.005	—	74.0
Strip Mall	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.91	6.91	< 0.005	< 0.005	—	6.93
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.7	14.7	< 0.005	< 0.005	—	14.7
Fast Food Restaurant with Drive Thru	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.2	12.2	< 0.005	< 0.005	—	12.3
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.14	1.14	< 0.005	< 0.005	—	1.15
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.0	28.0	< 0.005	< 0.005	—	28.1

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Total	0.06	0.24	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16

Total	0.01	0.04	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.40	5.39	6.78	0.14	< 0.005	—	11.4
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.16	3.95	5.11	0.12	< 0.005	—	8.96
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.51	1.73	2.24	0.05	< 0.005	—	3.94
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.40	5.39	6.78	0.14	< 0.005	—	11.4

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.16	3.95	5.11	0.12	< 0.005	—	8.96
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.51	1.73	2.24	0.05	< 0.005	—	3.94
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.23	0.89	1.12	0.02	< 0.005	—	1.89
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.19	0.65	0.85	0.02	< 0.005	—	1.48
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.08	0.29	0.37	0.01	< 0.005	—	0.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.51	1.83	2.34	0.05	< 0.005	—	4.02

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	15.4	0.00	15.4	1.54	0.00	—	53.9
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.4	0.00	12.4	1.24	0.00	—	43.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.04	0.00	2.04	0.20	0.00	—	7.13
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	15.4	0.00	15.4	1.54	0.00	—	53.9
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.4	0.00	12.4	1.24	0.00	—	43.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.04	0.00	2.04	0.20	0.00	—	7.13
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	2.55	0.00	2.55	0.25	0.00	—	8.92
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	2.06	0.00	2.06	0.21	0.00	—	7.19
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.34	0.00	0.34	0.03	0.00	—	1.18
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.94	0.00	4.94	0.49	0.00	—	17.3

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.75	3.75
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12	3.12
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.75	3.75
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12	3.12
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62	0.62
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	1.14

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/31/2024	5.00	23.0	—
Site Preparation	Site Preparation	2/1/2024	2/29/2024	5.00	21.0	—
Grading	Grading	3/1/2024	3/29/2024	5.00	21.0	—
Building Construction	Building Construction	4/1/2024	5/31/2024	5.00	45.0	—
Paving	Paving	6/3/2024	6/28/2024	5.00	20.0	—
Architectural Coating	Architectural Coating	7/1/2024	7/31/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
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	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	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
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	11.7	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT

Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.86	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	3.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	1.31	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	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	0.60	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	0.00	0.00	12,000	4,000	2,015

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,080	—
Site Preparation	—	—	21.0	0.00	—
Grading	—	137	31.5	0.00	—
Paving	0.00	0.00	0.00	0.00	0.77

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High Turnover (Sit Down Restaurant)	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Strip Mall	0.00	0%
Parking Lot	0.44	100%
Other Asphalt Surfaces	0.33	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	349	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
High Turnover (Sit Down Restaurant)	258	294	342	100,432	1,815	2,746	3,200	783,399
Fast Food Restaurant with Drive Thru	1,068	1,232	945	391,979	5,046	11,520	8,836	2,376,923
Strip Mall	196	151	73.5	62,826	1,379	1,065	518	442,087
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	12,000	4,000	2,015

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

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)
High Turnover (Sit Down Restaurant)	83,113	349	0.0330	0.0040	276,316
Fast Food Restaurant with Drive Thru	69,261	349	0.0330	0.0040	230,263
Strip Mall	35,357	349	0.0330	0.0040	21,553
Parking Lot	16,790	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	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)
High Turnover (Sit Down Restaurant)	728,481	128,684
Fast Food Restaurant with Drive Thru	607,067	0.00
Strip Mall	266,661	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High Turnover (Sit Down Restaurant)	28.6	0.00
Fast Food Restaurant with Drive Thru	23.0	0.00
Strip Mall	3.78	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
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	User Defined	150	< 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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	12.3	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.59	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

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	55.4
AQ-PM	83.0
AQ-DPM	86.8
Drinking Water	78.3
Lead Risk Housing	61.7
Pesticides	0.00
Toxic Releases	92.4
Traffic	92.4
Effect Indicators	—
CleanUp Sites	64.9
Groundwater	10.6
Haz Waste Facilities/Generators	94.8
Impaired Water Bodies	0.00
Solid Waste	81.2

Sensitive Population	—
Asthma	33.0
Cardio-vascular	52.6
Low Birth Weights	29.0
Socioeconomic Factor Indicators	—
Education	61.7
Housing	38.8
Linguistic	47.1
Poverty	32.0
Unemployment	65.6

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	74.90055178
Employed	92.3649429
Median HI	68.29205697
Education	—
Bachelor's or higher	59.54061337
High school enrollment	100
Preschool enrollment	57.19235211
Transportation	—
Auto Access	82.44578468
Active commuting	63.55703837
Social	—
2-parent households	71.91068908

Voting	45.3997177
Neighborhood	—
Alcohol availability	16.30950853
Park access	48.36391634
Retail density	98.38316438
Supermarket access	79.84088284
Tree canopy	24.93263185
Housing	—
Homeownership	33.20929039
Housing habitability	35.94251251
Low-inc homeowner severe housing cost burden	90.99191582
Low-inc renter severe housing cost burden	54.20248941
Uncrowded housing	49.60862312
Health Outcomes	—
Insured adults	60.5800077
Arthritis	0.0
Asthma ER Admissions	68.0
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	72.0
Cognitively Disabled	84.2
Physically Disabled	55.6
Heart Attack ER Admissions	53.4

Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
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	27.6
Elderly	67.6
English Speaking	54.0
Foreign-born	38.1
Outdoor Workers	64.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	84.0
Traffic Access	87.4
Other Indices	—
Hardship	24.9
Other Decision Support	—
2016 Voting	73.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	67.0
Healthy Places Index Score for Project Location (b)	74.0
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	Taken from Site plan.
Construction: Construction Phases	Taken from Project Input File
Construction: Off-Road Equipment	T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work days
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis Pass-by trips accounted for
Operations: Architectural Coatings	SCAQMD Rule 1113

Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.

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APPENDIX 3.2:

EXISTING CALEEMOD EMISSIONS MODEL OUTPUTS

14783-Brea Gaslight (Existing) 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

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14783-Brea Gaslight (Existing)
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	21.2
Location	33.916158526558334, -117.89852806293251
County	Orange
City	Brea
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5752
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
General Office Building	16.1	1000sqft	0.37	16,074	0.00	—	—	—
User Defined Commercial	16.1	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

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.	1.51	1.75	0.94	13.2	0.03	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,992	3,005	1.52	0.09	12.5	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.39	1.63	1.03	11.6	0.02	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,873	2,887	1.53	0.10	0.36	2,955
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.10	1.37	0.79	9.19	0.02	0.02	0.67	0.69	0.02	0.12	0.14	13.5	2,243	2,257	1.49	0.08	3.99	2,322
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	0.25	0.14	1.68	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	2.24	371	374	0.25	0.01	0.66	384

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	1.38	1.26	0.82	12.4	0.03	0.01	0.92	0.93	0.01	0.16	0.17	—	2,566	2,566	0.12	0.08	12.5	2,605
Area	0.12	0.48	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.51	1.75	0.94	13.2	0.03	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,992	3,005	1.52	0.09	12.5	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.38	1.26	0.92	11.5	0.02	0.01	0.92	0.93	0.01	0.16	0.17	—	2,451	2,451	0.12	0.08	0.32	2,479
Area	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.39	1.63	1.03	11.6	0.02	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,873	2,887	1.53	0.10	0.36	2,955
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.00	0.92	0.68	8.62	0.02	0.01	0.67	0.68	0.01	0.12	0.13	—	1,819	1,819	0.09	0.06	3.95	1,843
Area	0.09	0.44	< 0.005	0.48	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.97	1.97	< 0.005	< 0.005	—	2.03
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.10	1.37	0.79	9.19	0.02	0.02	0.67	0.69	0.02	0.12	0.14	13.5	2,243	2,257	1.49	0.08	3.99	2,322
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	0.17	0.12	1.57	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	301	301	0.01	0.01	0.65	305
Area	0.02	0.08	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34

Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	66.9	66.9	0.01	< 0.005	—	67.2
Water	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98
Waste	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.20	0.25	0.14	1.68	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	2.24	371	374	0.25	0.01	0.66	384

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.36	1.25	0.74	12.3	0.02	0.01	0.89	0.91	0.01	0.15	0.17	—	2,492	2,492	0.11	0.07	11.8	2,528
User Defined Commercial	0.01	0.01	0.08	0.11	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	74.4	74.4	< 0.005	0.01	0.69	76.7
Total	1.38	1.26	0.82	12.4	0.03	0.01	0.92	0.93	0.01	0.16	0.17	—	2,566	2,566	0.12	0.08	12.5	2,605
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.37	1.25	0.83	11.3	0.02	0.01	0.89	0.91	0.01	0.15	0.17	—	2,376	2,376	0.12	0.08	0.31	2,403

User Defined Commercial	0.01	0.01	0.09	0.11	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	74.4	74.4	< 0.005	0.01	0.02	76.0
Total	1.38	1.26	0.92	11.5	0.02	0.01	0.92	0.93	0.01	0.16	0.17	—	2,451	2,451	0.12	0.08	0.32	2,479
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.18	0.17	0.11	1.56	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	292	292	0.01	0.01	0.62	296
User Defined Commercial	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.03	9.03	< 0.005	< 0.005	0.04	9.26
Total	0.18	0.17	0.12	1.57	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	301	301	0.01	0.01	0.65	305

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	45.3	45.3	< 0.005	< 0.005	—	45.6
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	45.3	45.3	< 0.005	< 0.005	—	45.6

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.11	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96

Total	0.12	0.48	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.01	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34
Total	0.02	0.08	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

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

General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

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

General Office Building	356	34.9	11.1	95,214	3,328	327	103	890,146
User Defined Commercial	6.00	0.59	0.19	1,604	56.1	5.56	1.80	14,998

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	24,111	8,037	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

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)
General Office Building	286,443	349	0.0330	0.0040	407,419
User Defined Commercial	0.00	349	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)
General Office Building	2,856,892	0.00
User Defined Commercial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	14.9	0.00
User Defined Commercial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	12.3	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.59	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	55.4
AQ-PM	83.0
AQ-DPM	86.8
Drinking Water	78.3
Lead Risk Housing	61.7
Pesticides	0.00
Toxic Releases	92.4
Traffic	92.4
Effect Indicators	—
CleanUp Sites	64.9
Groundwater	10.6
Haz Waste Facilities/Generators	94.8
Impaired Water Bodies	0.00
Solid Waste	81.2
Sensitive Population	—
Asthma	33.0
Cardio-vascular	52.6
Low Birth Weights	29.0
Socioeconomic Factor Indicators	—
Education	61.7
Housing	38.8
Linguistic	47.1
Poverty	32.0

Unemployment	65.6

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	74.90055178
Employed	92.3649429
Median HI	68.29205697
Education	—
Bachelor's or higher	59.54061337
High school enrollment	100
Preschool enrollment	57.19235211
Transportation	—
Auto Access	82.44578468
Active commuting	63.55703837
Social	—
2-parent households	71.91068908
Voting	45.3997177
Neighborhood	—
Alcohol availability	16.30950853
Park access	48.36391634
Retail density	98.38316438
Supermarket access	79.84088284
Tree canopy	24.93263185
Housing	—
Homeownership	33.20929039

Housing habitability	35.94251251
Low-inc homeowner severe housing cost burden	90.99191582
Low-inc renter severe housing cost burden	54.20248941
Uncrowded housing	49.60862312
Health Outcomes	—
Insured adults	60.5800077
Arthritis	0.0
Asthma ER Admissions	68.0
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	72.0
Cognitively Disabled	84.2
Physically Disabled	55.6
Heart Attack ER Admissions	53.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
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	27.6
Elderly	67.6
English Speaking	54.0
Foreign-born	38.1
Outdoor Workers	64.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	84.0
Traffic Access	87.4
Other Indices	—
Hardship	24.9
Other Decision Support	—
2016 Voting	73.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	67.0
Healthy Places Index Score for Project Location (b)	74.0
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
Operations: Vehicle Data	Trips taken from traffic analysis
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle. (Only 2 axle trucks were identified in the traffic analysis)

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Brea Gaslight Square

ENERGY ANALYSIS

CITY OF BREA

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JANUARY 13, 2023

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**
APPENDICES ..... **II**
LIST OF EXHIBITS ..... **II**
LIST OF TABLES ..... **II**
LIST OF ABBREVIATED TERMS ..... **III**
EXECUTIVE SUMMARY **1**
ES.1 Summary of Findings 1
ES.2 Project Requirements 1
1 INTRODUCTION **3**
1.1 Site Location 3
1.2 Project Description 3
2 EXISTING CONDITIONS **7**
2.1 Overview 7
2.2 Electricity 9
2.3 Natural Gas 11
2.4 Transportation Energy Resources 14
3 REGULATORY BACKGROUND **17**
3.1 Federal Regulations 17
3.2 California Regulations 17
4 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES **23**
4.1 Evaluation Criteria 23
4.2 Methodology 23
4.3 Construction Energy Demands 25
4.4 Operational Energy Demands 32
4.5 Summary 35
5 CONCLUSIONS **38**
6 REFERENCES **41**
7 CERTIFICATIONS **44**

APPENDICES

APPENDIX 4.1: PROPOSED PROJECT CALEEMOD EMISSIONS MODEL OUTPUTS
APPENDIX 4.2: EXISTING CALEEMOD EMISSIONS MODEL OUTPUTS
APPENDIX 4.3: EMFAC2021

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP 4
EXHIBIT 1-B: SITE PLAN..... 5

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS..... 1
TABLE 2-1: TOTAL ELECRICITY SYSTEM POWER (CALIFORNIA 2021) 8
TABLE 2-2: SCE 2021 POWER CONTENT MIX 11
TABLE 4-1: CONSTRUCTION DURATION 24
TABLE 4-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS..... 24
TABLE 4-3: CONSTRUCTION POWER COST 26
TABLE 4-4: CONSTRUCTION ELECTRICITY USAGE 26
TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES..... 28
TABLE 4-6: CONSTRUCTION TRIPS AND VMT 29
TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDA)..... 30
TABLE 4-8: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES..... 31
TABLE 4-9: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)..... 32
TABLE 4-10: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION 33
TABLE 4-11: EXISTING ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY 33
TABLE 4-12: PROJECT ANNUAL OPERATIONAL NATURAL GAS DEMAND SUMMARY 34

LIST OF ABBREVIATED TERMS

%	Percent
(1)	Reference
AQIA	*Brea Gaslight Square Air Quality Impact Analysis*
BACM	Best Available Control Measures
BTU	British Thermal Units
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
County	City of Brea
CPEP	Clean Power and Electrification Pathway
CPUC	California Public Utilities Commission
DMV	Department of Motor Vehicles
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EMFAC	EMissions FACtor
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
GWh	Gigawatt Hour
HHDT	Heavy-Heavy Duty Trucks
hp-hr-gal	Horsepower Hours Per Gallon
IEPR	Integrated Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
kBTU	Thousand-British Thermal Units
kWh	Kilowatt Hour
LDA	Light Duty Auto
LDT1/LDT2	Light-Duty Trucks
LHDT1/LHDT2	Light-Heavy Duty Trucks
MARB/IPA	March Air Reserve Base/Inland Port Airport
MDV	Medium Duty Trucks
MHDT	Medium-Heavy Duty Trucks
MMcfd	Million Cubic Feet Per Day

mpg	Miles Per Gallon
MPO	Metropolitan Planning Organization
PG&E	Pacific Gas and Electric
Project	Brea Gaslight Square
PV	Photovoltaic
SCAB	South Coast Air Basin
SCE	Southern California Edison
SDAB	San Diego Air Basin
sf	Square Feet
SoCalGas	Southern California Gas
TEA-21	Transportation Equity Act for the 21st Century
U.S.	United States
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Brea Gaslight Square Energy Analysis* is summarized below based on the significance criteria in Section 5 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Statute and Guidelines (*CEQA Guidelines*) (1). Table ES-1 shows the findings of significance for potential energy impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Energy Impact #1: Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	5.0	*Less Than Significant*	*n/a*
Energy Impact #2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	5.0	*Less Than Significant*	*n/a*

ES.2 PROJECT REQUIREMENTS

The Project would be required to comply with regulations imposed by the federal and state agencies that regulate energy use and consumption through various means and programs. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of energy usage include:

- Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
- The Transportation Equity Act for the 21st Century (TEA-21
- Integrated Energy Policy Report (IEPR)
- State of California Energy Plan
- California Code Title 24, Part 6, Energy Efficiency Standards
- California Code Title 24, Part 11, California Green Building Standards Code (CALGreen)
- AB 1493 Pavley Regulations and Fuel Efficiency Standards
- California's Renewable Portfolio Standard (RPS)
- Clean Energy and Pollution Reduction Act of 2015 (SB 350)

Consistency with the above regulations is discussed in detail in section 5 of this report.

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1 INTRODUCTION

This report presents the results of the energy analysis prepared by Urban Crossroads, Inc., for the proposed Brea Gaslight Square Project (Project). The purpose of this report is to ensure that energy implication is considered by the City of Brea (Lead Agency), as the lead agency, and to quantify anticipated energy usage associated with construction and operation of the proposed Project, determine if the usage amounts are efficient, typical, or wasteful for the land use type, and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

1.1 SITE LOCATION

The proposed Project is located between located between Orange Avenue and Flower Avenue and north of Imperial Highway (State Route or SR-90) at 255 Imperial Highway (SR-90) in the City of Brea, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project involves the redevelopment of approximately 0.95-acre of a 1.88-acre Project site. The site is currently occupied with six commercial/office buildings. The southern 0.95-acre portion of the Project site is proposed to be redeveloped with two proposed commercial buildings. As part of the Project, four of the existing commercial/office buildings would be demolished, including two 2,799 square foot (s.f.) office buildings, a 3,166 s.f. office building, and a two-story office/commercial building that contains 10,109 s.f. of floor space. Two new commercial buildings would be constructed on-site. A 6,000 s.f. commercial building is proposed at the northeast corner of South Orange Avenue and Imperial Highway, which would include a 2,400 s.f. sit-down restaurant and 3,600 s.f. of retail or medical office uses as shown on Exhibit 1-B. In addition, an approximate 2,000 s.f. drive-through restaurant is proposed at the northwest corner of South Flower Avenue and Imperial Highway. Future tenants of the new, proposed buildings are unknown at this time.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



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2 EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the Project region.

2.1 OVERVIEW

The most recent data for California's estimated total energy consumption and natural gas consumption is from 2020, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates in 2021 and included (2):

- As of 2020, approximately 6,923 trillion British Thermal Unit (BTU) of energy was consumed
- As of 2020, approximately 524 million barrels of petroleum
- As of 2020, approximately 2,075 billion cubic feet of natural gas
- As of 2020, approximately 1 million short tons of coal

The California Energy Commission's (CEC) Transportation Energy Demand Forecast 2018-2030 was released in order to support the 2017 Integrated Energy Policy Report. The Transportation energy Demand Forecast 2018-2030 lays out graphs and data supporting their projections of California's future transportation energy demand. The projected inputs consider expected variable changes in fuel prices, income, population, and other variables. Predictions regarding fuel demand included:

- Gasoline demand in the transportation sector is expected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030 (3)
- Diesel demand in the transportation sector is expected to rise, increasing from approximately 3.7 billion diesel gallons in 2015 to approximately 4.7 billion in 2030 (3)
- Data from the Department of Energy states that approximately 3.9 billion gallons of diesel fuel were consumed in 2019 (4)

The most recent data provided by the EIA for energy use in California by demand sector is from 2020 and is reported as follows:

- Approximately 34.0% transportation
- Approximately 24.6% industrial
- Approximately 21.8% residential
- Approximately 19.6% commercial (5)

In 2021, total system electric generation for California was 277,764 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 194,127 GWh which accounted for approximately 70% of the electricity it uses; the rest was imported from the Pacific Northwest (12%) and the U.S. Southwest (18%) (6). Natural gas is the main source for electricity generation at 50.19% of the total in-state electric generation system power as shown in Table 2-1.

TABLE 2-1: TOTAL ELECRICITY SYSTEM POWER (CALIFORNIA 2021)

Fuel Type	California In-State Generation (GWh)	% of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	% of Imports	Total California Energy Mix	Total California Power Mix
Coal	303	0.2%	181	7,788	7,969	9.5%	8,272	3.0%
Natural Gas	97,431	50.2%	45	7,880	7,925	9.5%	105,356	379.0%
Oil	37	0.0%	-	-	-	0.0%	37	0.0%
Other (Waste Heat/Petroleum Coke)	382	0.2%	68	15	83	0.1%	465	0.2%
Nuclear	16,477	8.5%	524	8,756	9,281	11.1%	25,758	9.3%
Large Hydro	12,036	6.2%	12,042	1,578	13,620	16.3%	25,656	9.2%
Unspecified	-	0.0%	8,156	10,731	18,887	22.6%	18,887	6.8%
Total Thermal and Non-Renewables	**126,666**	**65.2%**	**21,017**	**36,748**	**57,764**	**6910.0%**	**184,431**	**66.4%**
Biomass	5,381	2.8%	864	26	890	1.1%	6,271	2.3%
Geothermal	11,116	5.7%	192	1,906	2,098	2.5%	13,214	4.8%
Small Hydro	2,531	1.3%	304	1	304	0.4%	2,835	1.0%
Solar	33,260	17.1%	220	5,979	6,199	7.4%	39,458	14.2%
Wind	15,173	7.8%	9,976	6,405	16,381	19.6%	31,555	11.4%
Total Renewables	**67,461**	**34.8%**	**11,555**	**14,317**	**25,872**	**3090.0%**	**93,333**	**33.6%**
SYSTEM TOTALS	***194,127***	***100.0%***	***32,572***	***51,064***	***83,636***	***100.0%***	***277,764***	***100.0%***

Source: CECs 2021 Total System Electric Generation

An updated summary of, and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below (7):

- In 2021, California was the seventh-largest producer of crude oil among the 50 states, and, as of January 2021, it ranked third in crude oil refining capacity.
- California is the largest consumer of jet fuel and second-largest consumer of motor gasoline among the 50 states and, the state accounted for 15% of the nation's jet fuel consumption and 10% of motor gasoline consumption in 2020.
- In 2019, California was the second-largest total energy consumer among the states, but its per capita energy consumption was less than in all other states except Rhode Island, due in part to its mild climate and its energy efficiency programs.
- In 2021, California was the nation's top producer of electricity from solar, geothermal, and biomass energy. The state was fourth in the nation in conventional hydroelectric power generation, down from second in 2019, in part because of drought and increased water demand.
- In 2021, California was the fourth-largest electricity producer in the nation, but the state was also the nation's second-largest consumer of electricity, and in 2020, it received about 30% of its electricity supply from generating facilities outside of California, including imports from Mexico.

As indicated above, California is one of the nation's leading energy-producing states, and California's per capita energy use is among the nation's most efficient. Given the nature of the Project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the Project—namely, electricity, natural gas, and transportation fuel for vehicle trips associated with the uses planned for the Project.

2.2 ELECTRICITY

The usage associated with electricity use were calculated using the California Emissions Estimator Model (CalEEMod) Version 2022.1. The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station (San Onofre). While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California ISO studies revealed the extent to which the South California Air Basin (SCAB) and the San Diego Air Basin (SDAB) region were vulnerable to low-voltage and post-transient voltage instability concerns. A preliminary plan to address these issues was detailed in the 2013 Integrative Energy Policy Report (IEPR) after a collaborative process with other energy agencies, utilities, and air districts (8). Similarly, the subsequent 2021 IEPR provides information and policy recommendations on advancing a clean, reliable, and affordable energy system.

Electricity is currently provided to the Project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. Based on SCE's 2020

Power Content Label Mix, SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers (9).

California's electricity industry is an organization of traditional utilities, private generating companies, and state agencies, each with a variety of roles and responsibilities to ensure that electrical power is provided to consumers. The California Independent Service Operator (ISO) is a nonprofit public benefit corporation and is the impartial operator of the State's wholesale power grid and is charged with maintaining grid reliability, and to direct uninterrupted electrical energy supplies to California's homes and communities. While utilities still own transmission assets, the ISO routes electrical power along these assets, maximizing the use of the transmission system and its power generation resources. The ISO matches buyers and sellers of electricity to ensure that enough power is available to meet demand. To these ends, every five minutes the ISO forecasts electrical demands, accounts for operating reserves, and assigns the lowest cost power plant unit to meet demands while ensuring adequate system transmission capacities and capabilities (10).

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, utilities file annual transmission expansion/modification plans to accommodate the State's growing electrical needs. The ISO reviews and either approves or denies the proposed additions. In addition, and perhaps most importantly, the ISO works with other areas in the western United States electrical grid to ensure that adequate power supplies are available to the State. In this manner, continuing reliable and affordable electrical power is assured to existing and new consumers throughout the State.

Tables 2-2 identifies SCE's specific proportional shares of electricity sources in 2021. As indicated in Table 2-2, the 2021 SCE Power Mix has renewable energy at 31.4% of the overall energy resources. Geothermal resources are at 5.7%, wind power is at 10.2%, large hydroelectric sources are at 2.3%, solar energy is at 14.9%, and coal is at 0% (11).

TABLE 2-2: SCE 2021 POWER CONTENT MIX

Energy Resources	2021 SCE Power Mix
Eligible Renewable	**31.4%**
Biomass & Waste	0.1%
Geothermal	5.7%
Eligible Hydroelectric	0.5%
Solar	14.9%
Wind	10.2%
Coal	**0.0%**
Large Hydroelectric	**2.3%**
Natural Gas	**22.3%**
Nuclear	**9.2%**
Other	**0.2%**
Unspecified Sources of power*	34.6%
Total	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources

2.3 NATURAL GAS

The following summary of natural gas customers and volumes, supplies, delivery of supplies, storage, service options, and operations is excerpted from information provided by the California Public Utilities Commission (CPUC).

> *"The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller natural gas utilities. The CPUC also regulates independent storage operators: Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.*
>
> *California's natural gas utilities provide service to over 11 million gas meters. SoCalGas and PG&E provide service to about 5.9 million and 4.3 million customers, respectively, while SDG&E provides service to over 800, 000 customers. In 2018, California gas utilities forecasted that they would deliver about 4740 million cubic feet per day (MMcfd) of gas to their customers, on average, under normal weather conditions.*
>
> *The overwhelming majority of natural gas utility customers in California are residential and small commercials customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.*

A significant amount of gas (about 19%, or 1131 MMcfd, of the total forecasted California consumption in 2018) is also directly delivered to some California large volume consumers, without being transported over the regulated utility pipeline system. Those customers, referred to as "bypass" customers, take service directly from interstate pipelines or directly from California producers.

SDG&E and Southwest Gas' southern division are wholesale customers of SoCalGas, i.e., they receive deliveries of gas from SoCalGas and in turn deliver that gas to their own customers. (Southwest Gas also provides natural gas distribution service in the Lake Tahoe area.) Similarly, West Coast Gas, a small gas utility, is a wholesale customer of PG&E. Some other wholesale customers are municipalities like the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California gas utilities are Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Mojave Pipeline, and Tuscarora. Another pipeline, the North Baja - Baja Norte Pipeline takes gas off the El Paso Pipeline at the California/Arizona border and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission (FERC) regulates the transportation of natural gas on the interstate pipelines, and authorizes rates for that service, the California Public Utilities Commission may participate in FERC regulatory proceedings to represent the interests of California natural gas consumers.

The gas transported to California gas utilities via the interstate pipelines, as well as some of the California-produced gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipelines systems (commonly referred to as California's "backbone" pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered to the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large volume noncore customers take natural gas delivery directly off the high-pressure backbone and local transmission pipeline systems, while core customers and other noncore customers take delivery off the utilities' distribution pipeline systems. The state's natural gas utilities operate over 100,000 miles of transmission and distribution pipelines, and thousands more miles of service lines.

Bypass customers take most of their deliveries directly off the Kern/Mojave pipeline system, but they also take a significant amount of gas from California production.

PG&E and SoCalGas own and operate several natural gas storage fields that are located within their service territories in northern and southern California, respectively. These storage fields, and four independently owned storage utilities - Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage - help meet peak seasonal and daily natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently. PG&E is a 25% owner of the Gill Ranch Storage field. These storage fields provide a significant amount of infrastructure capacity to help meet

California's natural gas requirements, and without these storage fields, California would need much more pipeline capacity in order to meet peak gas requirements.

Prior to the late 1980s, California regulated utilities provided virtually all natural gas services to all their customers. Since then, the Commission has gradually restructured the California gas industry in order to give customers more options while assuring regulatory protections for those customers that wish to, or are required to, continue receiving utility-provided services.

The option to purchase natural gas from independent suppliers is one of the results of this restructuring process. Although the regulated utilities procure natural gas supplies for most core customers, core customers have the option to purchase natural gas from independent natural gas marketers, called "core transport agents" (CTA). Contact information for core transport agents can be found on the utilities' web sites. Noncore customers, on the other hand, make natural gas supply arrangements directly with producers or with marketers.

Another option resulting from the restructuring process occurred in 1993, when the Commission removed the utilities' storage service responsibility for noncore customers, along with the cost of this service from noncore customers' transportation rates. The Commission also encouraged the development of independent storage fields, and in subsequent years, all the independent storage fields in California were established. Noncore customers and marketers may now take storage service from the utility or from an independent storage provider (if available), and pay for that service, or may opt to take no storage service at all. For core customers, the Commission assures that the utility has adequate storage capacity set aside to meet core requirements, and core customers pay for that service.

In a 1997 decision, the Commission adopted PG&E's "Gas Accord", which unbundled PG&E's backbone transmission costs from noncore transportation rates. This decision gave customers and marketers the opportunity to obtain pipeline capacity rights on PG&E's backbone transmission pipeline system, if desired, and pay for that service at rates authorized by the Commission. The Gas Accord also required PG&E to set aside a certain amount of backbone transmission capacity in order to deliver gas to its core customers. Subsequent Commission decisions modified and extended the initial terms of the Gas Accord. The "Gas Accord" framework is still in place today for PG&E's backbone and storage rates and services and is now simply referred to as PG&E Gas Transmission and Storage (GT&S).

In a 2006 decision, the Commission adopted a similar gas transmission framework for Southern California, called the "firm access rights" system. SoCalGas and SDG&E implemented the firm access rights (FAR) system in 2008, and it is now referred to as the backbone transmission system (BTS) framework. As under the PG&E backbone transmission system, SoCalGas backbone transmission costs are unbundled from noncore transportation rates. Noncore customers and marketers may obtain, and pay for, firm backbone transmission capacity at various receipt points on the SoCalGas system. A

certain amount of backbone transmission capacity is obtained for core customers to assure meeting their requirements.

Many if not most noncore customers now use a marketer to provide for several of the services formerly provided by the utility. That is, a noncore customer may simply arrange for a marketer to procure its supplies, and obtain any needed storage and backbone transmission capacity, in order to assure that it will receive its needed deliveries of natural gas supplies. Core customers still mainly rely on the utilities for procurement service, but they have the option to take procurement service from a CTA. Backbone transmission and storage capacity is either set aside or obtained for core customers in amounts to assure very high levels of service.

In order properly operate their natural gas transmission pipeline and storage systems, PG&E and SoCalGas must balance the amount of gas received into the pipeline system and delivered to customers or to storage fields. Some of these utilities' storage capacity is dedicated to this service, and under most circumstances, customers do not need to precisely match their deliveries with their consumption. However, when too much or too little gas is expected to be delivered into the utilities' systems, relative to the amount being consumed, the utilities require customers to more precisely match up their deliveries with their consumption. And, if customers do not meet certain delivery requirements, they could face financial penalties. The utilities do not profit from these financial penalties - the amounts are then returned to customers as a whole. If the utilities find that they are unable to deliver all the gas that is expected to be consumed, they may even call for a curtailment of some gas deliveries. These curtailments are typically required for just the largest, noncore customers. It has been many years since there has been a significant curtailment of core customers in California." (12)

As indicated in the preceding discussions, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total. The CPUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the State.

2.4 TRANSPORTATION ENERGY RESOURCES

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. The Department of Motor Vehicles (DMV) identified 36.2 million registered vehicles in California (13), and those vehicles consume an estimated 17.2 billion gallons of fuel each year[1]. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

[1] Fuel consumptions estimated utilizing information from EMFAC2021.

California's on-road transportation system includes 396,616 lane miles, more than 26.6 million passenger vehicles and light trucks, and almost 9.0 million medium- and heavy-duty vehicles (13). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. California is the second-largest consumer of petroleum products, after Texas, and accounts for 10% of the nation's total consumption. The state is the largest U.S. consumer of motor gasoline and jet fuel, and 85% of the petroleum consumed in California is used in the transportation sector (14).

California accounts for less than 1% of total U.S. natural gas reserves and production. As with crude oil, California's natural gas production has experienced a gradual decline since 1985. In 2019, about 37% of the natural gas delivered to consumers went to the state's industrial sector, and about 28% was delivered to the electric power sector. Natural gas fueled more than two-fifths of the state's utility-scale electricity generation in 2019. The residential sector, where two-thirds of California households use natural gas for home heating, accounted for 22% of natural gas deliveries. The commercial sector received 12% of the deliveries to end users and the transportation sector consumed the remaining 1% (14).

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3 REGULATORY BACKGROUND

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency (EPA) are three federal agencies with substantial influence over energy policies and programs. On the state level, the CPUC and the CEC are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

3.1 FEDERAL REGULATIONS

3.1.1 INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991 (ISTEA)

The ISTEA promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

3.1.2 THE TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

The TEA-21 was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

3.2 CALIFORNIA REGULATIONS

3.2.1 INTEGRATED ENERGY POLICY REPORT (IEPR)

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code § 25301[a]). The CEC prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2021 IEPR was adopted February 22, 2022, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2021 IEPR identifies

actions the state and others can take to ensure a clean, affordable, and reliable energy system. California's innovative energy policies strengthen energy resiliency, reduce greenhouse gas (GHG) emissions that cause climate change, improve air quality, and contribute to a more equitable future (15).

3.2.2 STATE OF CALIFORNIA ENERGY PLAN

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies several strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

3.2.3 CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2022 version of Title 24 was adopted by the CEC and will be effective on January 1, 2023. The 2022 Title 24 standards require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting standards for nonresidential buildings.

The CEC anticipates that the 2022 energy code will provide $1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (16). The Project would be required to comply with the applicable standards in place at the time building permit document submittals are made. These require, among other items (17):

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).

- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided is contained in Table 5.106. 5.3.3 (5.106.5.3). Additionally, Table 5.106.5.4.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty electric vehicle supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reuse or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).

- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

3.2.4 AB 1493 PAVLEY REGULATIONS AND FUEL EFFICIENCY STANDARDS

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks). Although aimed at reducing GHG emissions, specifically, a co-benefit of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption.

3.2.5 CALIFORNIA'S RENEWABLE PORTFOLIO STANDARD (RPS)

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable resources to 33% of total retail sales by 2020 (18).

3.2.6 CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015 (SB 350)

In October 2015, the legislature approved, and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 25% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

3.2.7 100 Percent Clean Energy Act of 2018 (SB 100)

In September 2018, the legislature approved, and the Governor signed SB 100, which builds on the targets established in SB 1078 and SB 350. Most notably, SB 100 sets a goal of powering all retail electricity sold in California with renewable and zero-carbon resources. Additionally, SB 100 updates the interim renewables target from 50% to 60% by 2030.

3.2.8 Executive Order N-79-20 and Advanced Clean Cars II

On August 25, 2022 CARB approved the Advanced Clean Cars II rule, which codifies the goals set out in Executive Order N-79-20 and establishes a year-by-year roadmap such that by 2035, 100% of new cars and light trucks sold in California will be zero-emission vehicles. Under this regulation, automakers are required to accelerate deliveries of zero-emission light-duty vehicles, beginning with model year 2026. CARB estimates that between 2026 and 2040, the regulation would reduce GHG emissions by a cumulative 395 million metric tons, equivalent to reducing petroleum use by 915 million barrels.

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4 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

4.1 EVALUATION CRITERIA

Per Appendix F of the *State CEQA Guidelines* (19), states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas, and oil; and
- Increasing reliance on renewable energy sources.

In compliance with Appendix G of the *State CEQA Guidelines* (20), this report analyzes the project's anticipated energy use during construction and operations to determine if the Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

4.2 METHODOLOGY

Information from the CalEEMod Version 2022.1 outputs for the *Brea Gaslight Square Air Quality Impact Analysis* (AQIA) (21) was utilized in this analysis, detailing Project related construction equipment, transportation energy demands, and facility energy demands.

CONSTRUCTION DURATION

Construction is anticipated to begin in January 2024 and will last through July 2024 (21). The construction schedule utilized in the analysis, shown in Table 4-1, represents a "worst-case" analysis scenario. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (22).

CONSTRUCTION EQUIPMENT

Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 4-2 will operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed pursuant to the code. The equipment list is generally based on CalEEMod default parameters and confirmed with the Project Applicant.

TABLE 4-1: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition/Crushing	1/1/2024	1/31/2024	23
Site Preparation	2/1/2024	2/29/2024	21
Grading	3/1/2024	3/29/2024	21
Building Construction	4/1/2024	5/31/2024	45
Paving	6/3/2024	6/28/2024	20
Architectural Coating	7/1/2024	7/31/2024	23

Source: Appendix 4.1.

TABLE 4-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment[1]	Amount	Hours Per Day
Demolition/Crushing	Concrete/Industrial Saws	1	8
	Rubber Tired Dozers	1	8
	Tractors/Loaders/Backhoes	2	8
Site Preparation	Grader	1	8
	Crawler Tractors	1	8
Grading	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	1	8
Building Construction	Cranes	1	8
	Forklifts	2	8
	Tractors/Loaders/Backhoes	2	8
Paving	Cement and Mortar Mixers	4	8
	Pavers	1	8
	Rollers	1	8
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	8

[1] In order to account for fugitive dust emissions, Crawler Tractors were used in lieu of Tractors/Loaders/Backhoes during the site preparation and grading phases.

4.2.1 CALEEMOD

In May 2022 the California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including the SCAQMD, released the latest version of CalEEMod, version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources as well as energy usage (23). Accordingly, the latest version of CalEEMod has been used to determine the proposed

Project's anticipated transportation and facility energy demands. Outputs from the annual model runs are provided in Appendices 4.1.

4.2.2 EMISSION FACTORS MODEL

On May 2, 2022, the EPA approved the 2021 version of the EMissions FACtor model (EMFAC) web database for use in State Implementation Plan and transportation conformity analyses. EMFAC2021 is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (24). This energy study utilizes the different fuel types for each vehicle class from the annual EMFAC2021 emission inventory in order to derive the average vehicle fuel economy which is then used to determine the estimated annual fuel consumption associated with vehicle usage during Project construction and operational activities. For purposes of the analysis, the 2024 analysis years were utilized to determine the average vehicle fuel economy used throughout the duration of the Project. Output from the EMFAC2021 model runs are provided in Appendix 4.3.

4.3 CONSTRUCTION ENERGY DEMANDS

The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed Project.

4.3.1 CONSTRUCTION POWER COST

The total Project construction power costs is the summation of the products of the area (sf) by the construction duration and the typical power cost.

PROJECT CONSTRUCTION POWER COST

The *2022 National Construction Estimator* identifies a typical power cost per 1,000 sf of construction per month of $2.41, which was used to calculate the Project's total construction power cost (25).

As shown on Table 4-3, the total power cost of the on-site electricity usage during the construction of the Project is estimated to be approximately $601.19.

TABLE 4-3: CONSTRUCTION POWER COST

Land Use	Power Cost (per 1,000 SF)	Size (1,000 SF)	Construction Duration (months)	Project Construction Power Cost
High Turnover (Sit Down Restaurant)	$2.41	2.40	6	$34.70
Fast Food Restaurant with Drive Thru	$2.41	2.00	6	$28.92
Strip Mall	$2.41	3.60	6	$52.06
Parking Lot	$2.41	19.15	6	$276.94
Other Asphalt Surfaces	$2.41	14.42	6	$208.57
CONSTRUCTION POWER COST				***$601.19***

4.3.2 CONSTRUCTION ELECTRICITY USAGE

The total Project construction electricity usage is the summation of the products of the power cost (estimated in Table 4-3) by the utility provider cost per kilowatt hour (kWh) of electricity.

PROJECT CONSTRUCTION ELECTRICITY USAGE

The SCE's general service rate schedule was used to determine the Project's electrical usage. As of January 1, 2022, SCE's general service rate is $0.13 per kilowatt hours (kWh) of electricity for industrial services (26). As shown on Table 4-4, the total electricity usage from on-site Project construction related activities is estimated to be approximately 4,564 kWh.

TABLE 4-4: CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Project Construction Electricity Usage (kWh)
High Turnover (Sit Down Restaurant)	$0.13	263
Fast Food Restaurant with Drive Thru	$0.13	220
Strip Mall	$0.13	395
Parking Lot	$0.13	2,102
Other Asphalt Surfaces	$0.13	1,583
CONSTRUCTION ELECTRICITY USAGE		***4,564***

4.3.3 CONSTRUCTION EQUIPMENT FUEL ESTIMATES

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction.

PROJECT CONSTRUCTION EQUIPMENT FUEL CONSUMPTION

Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 4-

5. The aggregate fuel consumption rate for all equipment is estimated at 18.5 horsepower hour per gallon (hp-hr-gal.), obtained from CARB 2018 Emissions Factors Tables and cited fuel consumption rate factors presented in Table D-24 of the Moyer guidelines (27). For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered which is consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the Project area and region[2]. As presented in Table 4-5, Project construction activities would consume an estimated 10,403 gallons of diesel fuel. Project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

[2] Based on Appendix A of the CalEEMod User's Guide, Construction consists of several types of off-road equipment. Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod assumes all of the equipment operates on diesel fuel.

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Activity/Duration	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Demolition	23	Tractors/Loaders/Backhoes	2	8	84	0.37	497	618
		Rubber Tired Dozers	1	8	367	0.4	1,174	1,460
		Concrete/Industrial Saws	1	8	33	0.73	193	240
Site Preparation	21	Graders	1	8	148	0.41	485	551
		Crawler Tractors	1	8	87	0.43	299	340
Grading	21	Graders	1	8	148	0.41	485	551
		Rubber Tired Dozers	1	8	367	0.4	1,174	1,333
		Crawler Tractors	1	8	87	0.43	299	340
Building Construction	45	Cranes	1	8	367	0.29	851	2,071
		Forklifts	2	8	82	0.2	262	638
		Tractors/Loaders/Backhoes	2	8	84	0.37	497	1,210
Paving	20	Tractors/Loaders/Backhoes	1	8	84	0.37	249	269
		Cement and Mortar Mixers	4	8	10	0.56	179	194
		Pavers	1	8	81	0.42	272	294
		Rollers	1	8	36	0.38	109	118
Architectural Coating	23	Air Compressors	1	8	37	0.48	142	177
CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)								***10,403***

4.3.3 CONSTRUCTION TRIPS AND VMT

Construction generates on-road vehicle emissions from vehicle usage for workers, hauling, and vendors commuting to and from the site. The number of workers, hauling, and vendor trips are presented below in Table 4-6.

TABLE 4-6: CONSTRUCTION TRIPS AND VMT

Phase Name	Worker Trips / Day	Vendor Trips / Day	Hauling Trips / Day	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Demolition	10	0	276	18.5	10.2	20
Site Preparation	5	0	0	18.5	10.2	20
Grading	8	0	18.06	18.5	10.2	20
Building Construction	3	1	0	18.5	10.2	20
Paving	18	0	0	18.5	10.2	20
Architectural Coating	1	0	0	18.5	10.2	20

4.3.4 CONSTRUCTION WORKER FUEL ESTIMATES

With respect to estimated VMT for the Project, the construction worker trips would generate an estimated 22,145 VMT during the 6 months of construction (21). Based on CalEEMod methodology, it is assumed that 50% of all worker trips are from light-duty-auto vehicles (LDA), 25% are from light-duty-trucks (LDT1[3]), and 25% are from light-duty-trucks (LDT2[4]). Data regarding Project related construction worker trips were based on CalEEMod defaults utilized within the AQIA.

Vehicle fuel efficiencies for LDA, LDT1, and LDT2 were estimated using information generated within the 2021 version of the EMFAC developed by CARB. EMFAC2021 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (24). EMFAC2021 was run for the LDA, LDT1, and LDT2 vehicle class within the Orange South Coast sub-area for the 2024 calendar years. Data from EMFAC2021 is shown in Appendix 4.3.

Table 4-7 provides an estimated annual fuel consumption resulting from Project construction worker trips. Based on Table 4-7, it is estimated that 789 gallons of fuel will be consumed related to construction worker trips during full construction of the Project.

[3] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[4] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDA)

Construction Activity	Duration (Days)	Worker LDA Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
LDA						
2024						
Demolition	23	5	18.5	2,128	32.75	65
Site Preparation	21	3	18.5	1,166	32.75	36
Grading	21	4	18.5	1,554	32.75	47
Building Construction	45	2	18.5	1,665	32.75	51
Paving	20	9	18.5	3,330	32.75	102
Architectural Coating	23	1	18.5	426	32.75	13
LDT1						
2024						
Demolition	23	3	18.5	1,277	25.26	51
Site Preparation	21	2	18.5	777	25.26	31
Grading	21	2	18.5	777	25.26	31
Building Construction	45	1	18.5	833	25.26	33
Paving	20	5	18.5	1,850	25.26	73
Architectural Coating	23	1	18.5	426	25.26	17
LDT2						
2024						
Demolition	23	3	18.5	1,277	24.73	52
Site Preparation	21	2	18.5	777	24.73	31
Grading	21	2	18.5	777	24.73	31
Building Construction	45	1	18.5	833	24.73	34
Paving	20	5	18.5	1,850	24.73	75
Architectural Coating	23	1	18.5	426	24.73	17
TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION						***789***

It should be noted that construction worker trips would represent a "single-event" gasoline fuel demand and would not require on-going or permanent commitment of fuel resources for this purpose.

4.3.5 CONSTRUCTION VENDOR/HAULING FUEL ESTIMATES

With respect to estimated VMT, the construction vendor trips (vehicles that deliver materials to the site during construction) would generate an estimated 7,278 VMT along area roadways for the Project over the duration of construction activity (21). It is assumed that 50% of all vendor trips are from medium-heavy duty trucks (MHDT), 50% of vendor trips are from heavy-heavy duty trucks (HHDT), and 100% of all hauling trips are from HHDTs. These assumptions are consistent

with the CalEEMod defaults utilized within the within the AQIA (21). Vehicle fuel efficiencies for MHDTs and HHDTs were estimated using information generated within EMFAC2021. EMFAC2021 was run for the MHDT and HHDT vehicle classes within the Riverside South Coast sub-area for the 2024 calendar years. Data from EMFAC2021 is shown in Appendix 4.2.

Based on Table 4-8, it is estimated that 1,198 gallons of fuel will be consumed related to construction vendor trips during full construction of the Project.

TABLE 4-8: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES

Construction Activity	Duration (Days)	Worker LDA Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
MHDT						
2024						
Building Construction	45	1	10.2	459	7.56	61
Vendor HHDT						
2024						
Building Construction	45	1	10.2	459	6.00	77
Hauling HHDT						
2024						
Demolition	23	12	20	5,520	6.00	920
Grading	21	2	20	840	6.00	140
TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION						***1,198***

It should be noted that Project construction vendor trips would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

4.3.6 CONSTRUCTION ENERGY EFFICIENCY/CONSERVATION MEASURES

Starting in 2014, CARB adopted the nation's first regulation aimed at cleaning up off-road construction equipment such as bulldozers, graders, and backhoes. These requirements ensure fleets gradually turnover the oldest and dirtiest equipment to newer, cleaner models and prevent fleets from adding older, dirtier equipment. As such, the equipment used for Project construction would conform to CARB regulations and California emissions standards. It should also be noted that there are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the Project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

Construction contractors would be required to comply with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle

idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additional construction-source energy efficiencies would occur due to required California regulations and best available control measures (BACM). For example, CCR Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Section 2449(d)(3) requires that grading plans shall reference the requirement that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling." In this manner, construction equipment operators are required to be informed that engines are to be turned off at or prior to five minutes of idling. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

4.4 OPERATIONAL ENERGY DEMANDS

Energy consumption in support of or related to Project operations would include transportation energy demands (energy consumed by passenger car and truck vehicles accessing the Project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

4.4.1 TRANSPORTATION ENERGY DEMANDS

EXISTING TRANSPORTATION ENERGY DEMANDS

The Project site is currently occupied with existing buildings. The estimated transportation energy demands from the existing buildings are summarized on Table 3-9.

TABLE 4-9: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)

Vehicle Type	Annual VMT	Estimated Annual Fuel Consumption (gallons)
EXISTING (ALL VEHICLES)	***905,144***	***34,940***

PROPOSED PROJECT TRANSPORTATION ENERGY DEMANDS

Energy that would be consumed by Project-generated traffic is a function of total VMT and estimated vehicle fuel economies of vehicles accessing the Project site. The VMT per vehicle class can be determined by evaluated in the vehicle fleet mix and the total VMT.

As with worker and vendors trips, operational vehicle fuel efficiencies were estimated using information generated within EMFAC2021 developed by CARB (24). EMFAC2021 was run for the Orange South Coast sub-area for calendar year 2024. Data from EMFAC2021 is shown in Appendix 4.3.

The estimated transportation energy demands are summarized on Tables 4-10. It should be noted that the existing development demands were subtracted from the Project demands to determine the net transportation energy demands from the proposed Project. As summarized on Table 4-10 the Project will result in a net increase of 2,697,265 annual VMT and an estimated annual fuel consumption of 109,066 gallons of fuel.

TABLE 4-10: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION

Vehicle Type	Annual Miles Traveled[1]	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
LDA	1,809,794	32.75	55,260
LDT1	152,190	25.26	6,026
LDT2	825,601	24.73	33,387
MDV	519,617	20.23	25,681
LHDT1	97,783	15.94	6,134
LHDT2	24,699	15.05	1,641
MHDT	54,628	7.56	7,229
HHDT	19,313	6.00	3,220
OBUS	2,196	6.16	356
UBUS	1,296	3.75	346
MCY	77,872	42.19	1,846
SBUS	3,479	6.56	530
MH	13,939	5.93	2,352
TOTAL (ALL VEHICLES)	***3,602,409***		***144,006***
EXISTING (ALL VEHICLES)	*905,144*		*34,940*
NET (PROPOSED – EXISTING)	***2,697,265***		***109,066***

[1] Total VMT may not match CalEEMod output due to rounding.

4.4.2 ENERGY DEMANDS

EXISTING ENERGY DEMANDS

The estimated energy demands from the existing buildings are summarized on Table 4-11 and based on CalEEMod defaults.

TABLE 4-11: EXISTING ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Land Use	Natural Gas Demand (kBTU/year)	Electricity Demand (kWh/year)
TOTAL EXISTING ENERGY DEMAND	***3,894,805***	***193,196***

kBTU – kilo-British Thermal Units

PROPOSED PROJECT FACILITY ENERGY DEMANDS

Project building operations activities would result in the consumption of natural gas and electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied to the Project by SCE. It should be noted that the existing development demands were subtracted from the Project demands to determine the net energy demands from the proposed Project. As previously stated, the analysis herein assumes compliance with the 2022 Title 24 and CALGreen standards. Annual natural gas and electricity demands of the Project are summarized in Table 4-12 and provided in Appendix 4.1.

TABLE 4-12: PROJECT ANNUAL OPERATIONAL NATURAL GAS DEMAND SUMMARY

Land Use	Natural Gas Demand (kBTU/year)	Electricity Demand (kWh/year)
High Turnover (Sit Down Restaurant)	276,316	83,113
Fast Food Restaurant with Drive Thru	230,263	69,261
Strip Mall	21,553	35,357
Parking Lot	0	16,790
TOTAL PROJECT ENERGY DEMAND	***528,132***	***204,521***
EXISTING ENERGY DEMAND	*407,419*	*286,443*
NET PROJECT ENERGY DEMAND	***120,713***	***-81,922***

kBTU – kilo-British Thermal Units

4.4.3 OPERATIONAL ENERGY EFFICIENCY/CONSERVATION MEASURES

Energy efficiency/energy conservation attributes of the Project would be complemented by increasingly stringent state and federal regulatory actions addressing vehicle fuel economies and vehicle emissions standards; and enhanced building/utilities energy efficiencies mandated under California building codes (e.g., Title24, California Green Building Standards Code).

ENHANCED VEHICLE FUEL EFFICIENCIES

Project annual fuel consumption estimates presented previously in Table 4-9 represent likely potential maximums that would occur for the Project. Under subsequent future conditions, average fuel economies of vehicles accessing the Project site can be expected to improve as older, less fuel-efficient vehicles are removed from circulation, and in response to fuel economy and emissions standards imposed on newer vehicles entering the circulation system.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. Location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands.

4.5 SUMMARY

4.5.1 CONSTRUCTION ENERGY DEMANDS

The estimated power cost of on-site electricity usage during the construction of the Project is assumed to be approximately $601.19. Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction, after full Project build-out, is calculated to be approximately 4,564 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 10,403 gallons of diesel fuel. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. BACMs inform construction equipment operators of this requirement. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Construction worker trips for full construction of the Project would result in the estimated fuel consumption of 789 gallons of fuel. Additionally, fuel consumption from construction hauling and vendor trips (MHDTs and HHDTs) will total approximately 1,198 gallons. Diesel fuel would be supplied by City and regional commercial vendors. Indirectly, construction energy efficiency and energy conservation would be achieved using bulk purchases, transport and use of construction materials. The 2021 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements (15). As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

4.5.2 OPERATIONAL ENERGY DEMANDS

TRANSPORTATION ENERGY DEMANDS

Annual vehicular trips and related VMT generated by the operation of the Project would result in a net fuel demand of 109,066 gallons of fuel.

Fuel would be provided by current and future commercial vendors. Trip generation and VMT generated by the Project are consistent with other commercial uses of similar scale and configuration, as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Ed., 2021); and CalEEMod. As such, Project operations would not result in excessive and wasteful vehicle trips and VMT, nor excess and wasteful vehicle energy consumption compared to similar uses.

It should be noted that the state strategy for the transportation sector for medium and heavy-duty trucks is focused on making trucks more efficient and expediting truck turnover rather than reducing VMT from trucks. This is in contrast to the passenger vehicle component of the transportation sector where both per-capita VMT reductions and an increase in vehicle efficiency are forecasted to be needed to achieve the overall state emissions reductions goals.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. The location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands. The Project would implement sidewalks, facilitating and encouraging pedestrian access. Facilitating pedestrian and bicycle access would reduce VMT and associated energy consumption. As supported by the preceding discussions, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

FACILITY ENERGY DEMANDS

Project facility operational energy demands are estimated to increase by 120,713 kBTU/year for natural gas and decrease by 81,922 kWh/year for electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied by SCE. The Project proposes conventional commercial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. The Project does not propose uses that are inherently energy intensive and the energy demands in total would be comparable to other commercial uses of similar scale and configuration.

Lastly, the Project will comply with the applicable Title 24 standards. Compliance itself with applicable Title 24 standards will ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary.

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5 CONCLUSIONS

5.1 ENERGY IMPACT 1

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

As supported by the preceding analyses, Project construction and operations would not result in the inefficient, wasteful, or unnecessary consumption of energy. The Project would therefore not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

5.2 ENERGY IMPACT 2

Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The Project's consistency with the applicable state and local plans is discussed below.

CONSISTENCY WITH ISTEA

Transportation and access to the Project site is provided by the local and regional roadway systems. The Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be realized pursuant to the ISTEA because SCAG is not planning for intermodal facilities on or through the Project site.

CONSISTENCY WITH TEA-21

The Project site is located in an area with proximate access to the Interstate freeway system. The site selected for the Project facilitates access, acts to reduce vehicle miles traveled, takes advantage of existing infrastructure systems, and promotes land use compatibilities through collocation of similar uses. The Project supports the strong planning processes emphasized under TEA-21. The Project is therefore consistent with, and would not otherwise interfere with, nor obstruct implementation of TEA-21.

CONSISTENCY WITH IEPR

Electricity would be provided to the Project by SCE. SCE's *Clean Power and Electrification Pathway* (CPEP) white paper builds on existing state programs and policies. As such, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation of the goals presented in the 2021 IEPR.

Additionally, the Project will comply with the applicable Title 24 standards which would ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary. As such, development of the proposed Project would support the goals presented in the 2021 IEPR.

CONSISTENCY WITH STATE OF CALIFORNIA ENERGY PLAN

The Project site is located in an area with proximate access to the Interstate freeway system. The site selected for the Project facilitates access and takes advantage of existing infrastructure systems. The Project therefore supports urban design and planning processes identified under the State of California Energy Plan, is consistent with, and would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.

CONSISTENCY WITH CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

The 2022 version of Title 24 was adopted by the CEC and was effective on January 1, 2023. As the Project building construction is anticipated in 2024, the Project would be required to comply with the Title 24 standards in place at that time. Therefore, the Project would not result in a significant impact on energy resources (28). The proposed Project would be subject to Title 24 standards.

CONSISTENCY WITH CALIFORNIA CODE TITLE 24, PART 11, CALGREEN

As previously stated, CCR, Title 24, Part 11: CALGreen is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2009, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that were published on July 1, 2022 and will become effective on January 1, 2023. The Project would be required to comply with the applicable standards in place at the time plan check submittals are made.

CONSISTENCY WITH AB 1493

AB 1493 is not applicable to the Project as it is a statewide measure establishing vehicle emissions standards. No feature of the Project would interfere with implementation of the requirements under AB 1493.

CONSISTENCY WITH RPS

California's RPS is not applicable to the Project as it is a statewide measure that establishes a renewable energy mix. No feature of the Project would interfere with implementation of the requirements under RPS.

CONSISTENCY WITH SB 350 AND SB 100

The proposed Project would use energy from SCE, which have committed to diversify their portfolio of energy sources by increasing energy from wind and solar sources. No feature of the Project would interfere with implementation of SB 350 and SB 100. Additionally, the Project would be designed and constructed to implement the energy efficiency measures for new commercial developments and would include several measures designed to reduce energy consumption in accordance with Title 24.

As shown above, the Project would not conflict with any of the state or local plans. As such, a less than significant impact is expected.

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7 CERTIFICATIONS

The contents of this energy analysis report represent an accurate depiction of the environmental impacts associated with the proposed Brea Gaslight Square. The information contained in this energy analysis report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com.

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EDUCATION

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

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 4.1:

PROPOSED PROJECT CALEEMOD EMISSIONS MODEL OUTPUTS

14783-Brea Gaslight 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

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

3.3. Site Preparation (2024) - Unmitigated

3.5. Grading (2024) - Unmitigated

3.7. Building Construction (2024) - Unmitigated

3.9. Paving (2024) - Unmitigated

3.11. Architectural Coating (2024) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14783-Brea Gaslight
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	21.2
Location	33.91618627251319, -117.89859599419326
County	Orange
City	Brea
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5752
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
High Turnover (Sit Down Restaurant)	2.40	1000sqft	0.06	2,400	9,929	—	—	—
Fast Food Restaurant with Drive Thru	2.00	1000sqft	0.05	2,000	0.00	—	—	—

Strip Mall	3.60	1000sqft	0.08	3,600	0.00	—	—	—
Parking Lot	112	Space	0.44	0.00	0.00	—	—	—
Other Asphalt Surfaces	14.4	1000sqft	0.33	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	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.	0.97	2.20	8.05	9.28	0.02	0.36	0.23	0.48	0.33	0.05	0.34	—	1,959	1,959	0.08	0.02	0.97	1,968
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	1.80	16.7	15.1	0.03	0.87	2.09	2.96	0.80	0.93	1.73	—	3,165	3,165	0.16	0.16	0.06	3,216
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.47	0.53	3.67	3.82	0.01	0.17	0.24	0.42	0.16	0.08	0.24	—	716	716	0.03	0.02	0.12	722
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	0.10	0.67	0.70	< 0.005	0.03	0.04	0.08	0.03	0.01	0.04	—	119	119	0.01	< 0.005	0.02	119

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.97	2.20	8.05	9.28	0.02	0.36	0.23	0.48	0.33	0.05	0.34	—	1,959	1,959	0.08	0.02	0.97	1,968
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.15	1.80	16.7	15.1	0.03	0.87	2.09	2.96	0.80	0.93	1.73	—	3,165	3,165	0.16	0.16	0.06	3,216
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.47	0.53	3.67	3.82	0.01	0.17	0.24	0.42	0.16	0.08	0.24	—	716	716	0.03	0.02	0.12	722
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.10	0.67	0.70	< 0.005	0.03	0.04	0.08	0.03	0.01	0.04	—	119	119	0.01	< 0.005	0.02	119

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.	6.71	6.30	4.79	52.1	0.13	0.09	4.46	4.55	0.08	0.79	0.87	32.9	13,170	13,203	3.92	0.50	59.3	13,510
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.58	6.17	5.20	48.1	0.12	0.09	4.46	4.55	0.08	0.79	0.87	32.9	12,671	12,704	3.95	0.53	8.25	12,968
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.24	5.03	3.60	33.5	0.08	0.06	2.73	2.79	0.06	0.48	0.54	32.9	8,073	8,106	3.78	0.36	20.8	8,328

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.96	0.92	0.66	6.11	0.01	0.01	0.50	0.51	0.01	0.09	0.10	5.45	1,337	1,342	0.63	0.06	3.44	1,379

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	6.63	6.05	4.65	51.6	0.13	0.08	4.46	4.54	0.07	0.79	0.86	—	12,793	12,793	0.59	0.49	52.4	13,006
Area	0.06	0.24	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	6.71	6.30	4.79	52.1	0.13	0.09	4.46	4.55	0.08	0.79	0.87	32.9	13,170	13,203	3.92	0.50	59.3	13,510
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.57	5.98	5.06	48.0	0.12	0.08	4.46	4.54	0.07	0.79	0.86	—	12,296	12,296	0.62	0.52	1.36	12,466
Area	—	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	6.58	6.17	5.20	48.1	0.12	0.09	4.46	4.55	0.08	0.79	0.87	32.9	12,671	12,704	3.95	0.53	8.25	12,968
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	5.19	4.79	3.46	33.1	0.08	0.05	2.73	2.78	0.05	0.48	0.53	—	7,697	7,697	0.45	0.35	13.9	7,825
Area	0.04	0.23	< 0.005	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.98	0.98	< 0.005	< 0.005	—	0.98
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	5.24	5.03	3.60	33.5	0.08	0.06	2.73	2.79	0.06	0.48	0.54	32.9	8,073	8,106	3.78	0.36	20.8	8,328
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.95	0.87	0.63	6.04	0.01	0.01	0.50	0.51	0.01	0.09	0.10	—	1,274	1,274	0.07	0.06	2.30	1,296
Area	0.01	0.04	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Energy	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	60.4	60.4	0.01	< 0.005	—	60.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.51	1.83	2.34	0.05	< 0.005	—	4.02
Waste	—	—	—	—	—	—	—	—	—	—	—	4.94	0.00	4.94	0.49	0.00	—	17.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	1.14
Total	0.96	0.92	0.66	6.11	0.01	0.01	0.50	0.51	0.01	0.09	0.10	5.45	1,337	1,342	0.63	0.06	3.44	1,379

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

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

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

Off-Road Equipment	1.78	1.49	14.4	14.1	0.02	0.62	—	0.62	0.57	—	0.57	—	2,203	2,203	0.09	0.02	—	2,211
Demolition	—	—	—	—	—	—	0.99	0.99	—	0.15	0.15	—	—	—	—	—	—	—
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	0.11	0.09	0.91	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	139	139	0.01	< 0.005	—	139
Demolition	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.0	23.0	< 0.005	< 0.005	—	23.1
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.52	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	129	129	< 0.005	< 0.005	0.01	130
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	0.08	0.02	1.07	0.45	0.01	0.01	0.06	0.07	0.01	0.02	0.03	—	833	833	0.07	0.13	0.05	874
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	8.24	8.24	< 0.005	< 0.005	0.02	8.35
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	< 0.005	0.07	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	52.5	52.5	< 0.005	0.01	0.05	55.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.36	1.36	< 0.005	< 0.005	< 0.005	1.38
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	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.69	8.69	< 0.005	< 0.005	0.01	9.13

3.3. Site Preparation (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.72	6.24	6.16	0.01	0.40	—	0.40	0.37	—	0.37	—	916	916	0.04	0.01	—	919
Dust From Material Movement	—	—	—	—	—	—	0.28	0.28	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.36	0.35	< 0.005	0.02	—	0.02	0.02	—	0.02	—	52.7	52.7	< 0.005	< 0.005	—	52.9

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.73	8.73	< 0.005	< 0.005	—	8.76
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	64.5	64.5	< 0.005	< 0.005	0.01	65.2
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	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	3.76	3.76	< 0.005	< 0.005	0.01	3.81
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.63
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

3.5. Grading (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.11	1.77	16.6	14.6	0.02	0.87	—	0.87	0.80	—	0.80	—	2,294	2,294	0.09	0.02	—	2,302
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.91	0.91	—	—	—	—	—	—	—
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	0.12	0.10	0.96	0.84	< 0.005	0.05	—	0.05	0.05	—	0.05	—	132	132	0.01	< 0.005	—	132
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.9	21.9	< 0.005	< 0.005	—	21.9

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.39	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	96.7	96.7	< 0.005	< 0.005	0.01	97.9
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	< 0.005	0.08	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	60.8	60.8	< 0.005	0.01	< 0.005	63.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	5.64	5.64	< 0.005	< 0.005	0.01	5.72
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.50	3.50	< 0.005	< 0.005	< 0.005	3.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61

3.7. Building Construction (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.99	9.08	0.02	0.36	—	0.36	0.33	—	0.33	—	1,876	1,876	0.08	0.02	—	1,883
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.99	1.12	< 0.005	0.04	—	0.04	0.04	—	0.04	—	231	231	0.01	< 0.005	—	232
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	0.02	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	38.3	38.3	< 0.005	< 0.005	—	38.4
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	0.01	0.01	0.01	0.18	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	40.7	40.7	< 0.005	< 0.005	0.17	41.3
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	42.5	42.5	< 0.005	0.01	0.11	44.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	4.84	4.84	< 0.005	< 0.005	0.01	4.90
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.24	5.24	< 0.005	< 0.005	0.01	5.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.80	0.80	< 0.005	< 0.005	< 0.005	0.81
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.90
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.63	5.41	6.27	0.01	0.25	—	0.25	0.23	—	0.23	—	973	973	0.04	0.01	—	976
Paving	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.3	53.3	< 0.005	< 0.005	—	53.5
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.83	8.83	< 0.005	< 0.005	—	8.86
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	1.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	237	237	< 0.005	0.01	0.97	241
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.10
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 (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.21	1.53	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	2.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.2	11.2	< 0.005	< 0.005	—	11.3
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.86	1.86	< 0.005	< 0.005	—	1.86
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	8.13	8.13	< 0.005	< 0.005	0.03	8.25

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.50
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	1.29	1.18	0.92	10.2	0.02	0.02	0.89	0.90	0.01	0.16	0.17	—	2,541	2,541	0.12	0.10	10.4	2,584

Fast Food Restaurant with Drive Thru	4.65	4.23	3.30	36.7	0.09	0.06	3.19	3.25	0.05	0.57	0.62	—	9,148	9,148	0.42	0.35	37.5	9,300
Strip Mall	0.69	0.64	0.43	4.68	0.01	0.01	0.38	0.39	0.01	0.07	0.07	—	1,104	1,104	0.06	0.05	4.49	1,123
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.63	6.05	4.65	51.6	0.13	0.08	4.46	4.54	0.07	0.79	0.86	—	12,793	12,793	0.59	0.49	52.4	13,006
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	1.28	1.16	1.00	9.48	0.02	0.02	0.89	0.90	0.01	0.16	0.17	—	2,443	2,443	0.12	0.10	0.27	2,476
Fast Food Restaurant with Drive Thru	4.61	4.19	3.59	34.1	0.09	0.06	3.19	3.25	0.05	0.57	0.62	—	8,792	8,792	0.44	0.37	0.97	8,913
Strip Mall	0.68	0.63	0.47	4.42	0.01	0.01	0.38	0.39	0.01	0.07	0.07	—	1,061	1,061	0.06	0.05	0.12	1,077
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.57	5.98	5.06	48.0	0.12	0.08	4.46	4.54	0.07	0.79	0.86	—	12,296	12,296	0.62	0.52	1.36	12,466
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.18	0.16	0.13	1.25	< 0.005	< 0.005	0.11	0.11	< 0.005	0.02	0.02	—	275	275	0.01	0.01	0.50	280

Fast Food Restaurant with Drive Thru	0.66	0.61	0.43	4.08	0.01	0.01	0.33	0.34	0.01	0.06	0.06	—	843	843	0.05	0.04	1.52	857
Strip Mall	0.11	0.10	0.08	0.72	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	156	156	0.01	0.01	0.28	159
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.95	0.87	0.63	6.04	0.01	0.01	0.50	0.51	0.01	0.09	0.10	—	1,274	1,274	0.07	0.06	2.30	1,296

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4	0.01	< 0.005	—	79.8
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	66.2	66.2	0.01	< 0.005	—	66.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8	< 0.005	< 0.005	—	34.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.1

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.02	< 0.005	—	196
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4	0.01	< 0.005	—	79.8
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	66.2	66.2	0.01	< 0.005	—	66.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8	< 0.005	< 0.005	—	34.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.02	< 0.005	—	196
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1	< 0.005	< 0.005	—	13.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	11.0	11.0	< 0.005	< 0.005	—	11.0
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	5.59	5.59	< 0.005	< 0.005	—	5.62
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66	< 0.005	< 0.005	—	2.67

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	32.3	32.3	< 0.005	< 0.005	—	32.5

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	88.6	88.6	0.01	< 0.005	—	88.8
Fast Food Restaurant with Drive Thru	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	73.8	73.8	0.01	< 0.005	—	74.0
Strip Mall	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.91	6.91	< 0.005	< 0.005	—	6.93
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	88.6	88.6	0.01	< 0.005	—	88.8

Fast Food Restaurant with Drive Thru	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	73.8	73.8	0.01	< 0.005	—	74.0
Strip Mall	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.91	6.91	< 0.005	< 0.005	—	6.93
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.7	14.7	< 0.005	< 0.005	—	14.7
Fast Food Restaurant with Drive Thru	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.2	12.2	< 0.005	< 0.005	—	12.3
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.14	1.14	< 0.005	< 0.005	—	1.15
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.0	28.0	< 0.005	< 0.005	—	28.1

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Total	0.06	0.24	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16

Total	0.01	0.04	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.40	5.39	6.78	0.14	< 0.005	—	11.4
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.16	3.95	5.11	0.12	< 0.005	—	8.96
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.51	1.73	2.24	0.05	< 0.005	—	3.94
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.40	5.39	6.78	0.14	< 0.005	—	11.4

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.16	3.95	5.11	0.12	< 0.005	—	8.96
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.51	1.73	2.24	0.05	< 0.005	—	3.94
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.23	0.89	1.12	0.02	< 0.005	—	1.89
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.19	0.65	0.85	0.02	< 0.005	—	1.48
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.08	0.29	0.37	0.01	< 0.005	—	0.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.51	1.83	2.34	0.05	< 0.005	—	4.02

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	15.4	0.00	15.4	1.54	0.00	—	53.9
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.4	0.00	12.4	1.24	0.00	—	43.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.04	0.00	2.04	0.20	0.00	—	7.13
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	15.4	0.00	15.4	1.54	0.00	—	53.9
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.4	0.00	12.4	1.24	0.00	—	43.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.04	0.00	2.04	0.20	0.00	—	7.13
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	2.55	0.00	2.55	0.25	0.00	—	8.92
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	2.06	0.00	2.06	0.21	0.00	—	7.19
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.34	0.00	0.34	0.03	0.00	—	1.18
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.94	0.00	4.94	0.49	0.00	—	17.3

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.75	3.75
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12	3.12
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.75	3.75
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12	3.12
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62	0.62
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	1.14

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/31/2024	5.00	23.0	—
Site Preparation	Site Preparation	2/1/2024	2/29/2024	5.00	21.0	—
Grading	Grading	3/1/2024	3/29/2024	5.00	21.0	—
Building Construction	Building Construction	4/1/2024	5/31/2024	5.00	45.0	—
Paving	Paving	6/3/2024	6/28/2024	5.00	20.0	—
Architectural Coating	Architectural Coating	7/1/2024	7/31/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
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	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	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
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	11.7	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT

Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.86	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	3.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	1.31	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	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	0.60	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	0.00	0.00	12,000	4,000	2,015

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,080	—
Site Preparation	—	—	21.0	0.00	—
Grading	—	137	31.5	0.00	—
Paving	0.00	0.00	0.00	0.00	0.77

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High Turnover (Sit Down Restaurant)	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Strip Mall	0.00	0%
Parking Lot	0.44	100%
Other Asphalt Surfaces	0.33	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	349	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
High Turnover (Sit Down Restaurant)	258	294	342	100,432	1,815	2,746	3,200	783,399
Fast Food Restaurant with Drive Thru	1,068	1,232	945	391,979	5,046	11,520	8,836	2,376,923
Strip Mall	196	151	73.5	62,826	1,379	1,065	518	442,087
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	12,000	4,000	2,015

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

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)
High Turnover (Sit Down Restaurant)	83,113	349	0.0330	0.0040	276,316
Fast Food Restaurant with Drive Thru	69,261	349	0.0330	0.0040	230,263
Strip Mall	35,357	349	0.0330	0.0040	21,553
Parking Lot	16,790	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	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)
High Turnover (Sit Down Restaurant)	728,481	128,684
Fast Food Restaurant with Drive Thru	607,067	0.00
Strip Mall	266,661	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High Turnover (Sit Down Restaurant)	28.6	0.00
Fast Food Restaurant with Drive Thru	23.0	0.00
Strip Mall	3.78	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
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	User Defined	150	< 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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	12.3	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.59	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

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	55.4
AQ-PM	83.0
AQ-DPM	86.8
Drinking Water	78.3
Lead Risk Housing	61.7
Pesticides	0.00
Toxic Releases	92.4
Traffic	92.4
Effect Indicators	—
CleanUp Sites	64.9
Groundwater	10.6
Haz Waste Facilities/Generators	94.8
Impaired Water Bodies	0.00
Solid Waste	81.2

Sensitive Population	—
Asthma	33.0
Cardio-vascular	52.6
Low Birth Weights	29.0
Socioeconomic Factor Indicators	—
Education	61.7
Housing	38.8
Linguistic	47.1
Poverty	32.0
Unemployment	65.6

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	74.90055178
Employed	92.3649429
Median HI	68.29205697
Education	—
Bachelor's or higher	59.54061337
High school enrollment	100
Preschool enrollment	57.19235211
Transportation	—
Auto Access	82.44578468
Active commuting	63.55703837
Social	—
2-parent households	71.91068908

Voting	45.3997177
Neighborhood	—
Alcohol availability	16.30950853
Park access	48.36391634
Retail density	98.38316438
Supermarket access	79.84088284
Tree canopy	24.93263185
Housing	—
Homeownership	33.20929039
Housing habitability	35.94251251
Low-inc homeowner severe housing cost burden	90.99191582
Low-inc renter severe housing cost burden	54.20248941
Uncrowded housing	49.60862312
Health Outcomes	—
Insured adults	60.5800077
Arthritis	0.0
Asthma ER Admissions	68.0
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	72.0
Cognitively Disabled	84.2
Physically Disabled	55.6
Heart Attack ER Admissions	53.4

Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
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	27.6
Elderly	67.6
English Speaking	54.0
Foreign-born	38.1
Outdoor Workers	64.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	84.0
Traffic Access	87.4
Other Indices	—
Hardship	24.9
Other Decision Support	—
2016 Voting	73.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	67.0
Healthy Places Index Score for Project Location (b)	74.0
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	Taken from Site plan.
Construction: Construction Phases	Taken from Project Input File
Construction: Off-Road Equipment	T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work days
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis Pass-by trips accounted for
Operations: Architectural Coatings	SCAQMD Rule 1113

Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.

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APPENDIX 4.2:

EXISTING CALEEMOD EMISSIONS MODEL OUTPUTS

14783-Brea Gaslight (Existing) 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

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14783-Brea Gaslight (Existing)
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	21.2
Location	33.916158526558334, -117.89852806293251
County	Orange
City	Brea
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5752
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
General Office Building	16.1	1000sqft	0.37	16,074	0.00	—	—	—
User Defined Commercial	16.1	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

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.	1.51	1.75	0.94	13.2	0.03	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,992	3,005	1.52	0.09	12.5	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.39	1.63	1.03	11.6	0.02	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,873	2,887	1.53	0.10	0.36	2,955
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.10	1.37	0.79	9.19	0.02	0.02	0.67	0.69	0.02	0.12	0.14	13.5	2,243	2,257	1.49	0.08	3.99	2,322
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	0.25	0.14	1.68	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	2.24	371	374	0.25	0.01	0.66	384

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	1.38	1.26	0.82	12.4	0.03	0.01	0.92	0.93	0.01	0.16	0.17	—	2,566	2,566	0.12	0.08	12.5	2,605
Area	0.12	0.48	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.51	1.75	0.94	13.2	0.03	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,992	3,005	1.52	0.09	12.5	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.38	1.26	0.92	11.5	0.02	0.01	0.92	0.93	0.01	0.16	0.17	—	2,451	2,451	0.12	0.08	0.32	2,479
Area	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.39	1.63	1.03	11.6	0.02	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,873	2,887	1.53	0.10	0.36	2,955
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.00	0.92	0.68	8.62	0.02	0.01	0.67	0.68	0.01	0.12	0.13	—	1,819	1,819	0.09	0.06	3.95	1,843
Area	0.09	0.44	< 0.005	0.48	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.97	1.97	< 0.005	< 0.005	—	2.03
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.10	1.37	0.79	9.19	0.02	0.02	0.67	0.69	0.02	0.12	0.14	13.5	2,243	2,257	1.49	0.08	3.99	2,322
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	0.17	0.12	1.57	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	301	301	0.01	0.01	0.65	305
Area	0.02	0.08	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34

Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	66.9	66.9	0.01	< 0.005	—	67.2
Water	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98
Waste	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.20	0.25	0.14	1.68	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	2.24	371	374	0.25	0.01	0.66	384

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.36	1.25	0.74	12.3	0.02	0.01	0.89	0.91	0.01	0.15	0.17	—	2,492	2,492	0.11	0.07	11.8	2,528
User Defined Commercial	0.01	0.01	0.08	0.11	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	74.4	74.4	< 0.005	0.01	0.69	76.7
Total	1.38	1.26	0.82	12.4	0.03	0.01	0.92	0.93	0.01	0.16	0.17	—	2,566	2,566	0.12	0.08	12.5	2,605
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.37	1.25	0.83	11.3	0.02	0.01	0.89	0.91	0.01	0.15	0.17	—	2,376	2,376	0.12	0.08	0.31	2,403

User Defined Commercial	0.01	0.01	0.09	0.11	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	74.4	74.4	< 0.005	0.01	0.02	76.0
Total	1.38	1.26	0.92	11.5	0.02	0.01	0.92	0.93	0.01	0.16	0.17	—	2,451	2,451	0.12	0.08	0.32	2,479
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.18	0.17	0.11	1.56	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	292	292	0.01	0.01	0.62	296
User Defined Commercial	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.03	9.03	< 0.005	< 0.005	0.04	9.26
Total	0.18	0.17	0.12	1.57	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	301	301	0.01	0.01	0.65	305

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	45.3	45.3	< 0.005	< 0.005	—	45.6
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	45.3	45.3	< 0.005	< 0.005	—	45.6

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.11	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96

Total	0.12	0.48	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.01	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34
Total	0.02	0.08	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

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

General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

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

General Office Building	356	34.9	11.1	95,214	3,328	327	103	890,146
User Defined Commercial	6.00	0.59	0.19	1,604	56.1	5.56	1.80	14,998

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	24,111	8,037	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

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)
General Office Building	286,443	349	0.0330	0.0040	407,419
User Defined Commercial	0.00	349	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)
General Office Building	2,856,892	0.00
User Defined Commercial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	14.9	0.00
User Defined Commercial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	12.3	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.59	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	55.4
AQ-PM	83.0
AQ-DPM	86.8
Drinking Water	78.3
Lead Risk Housing	61.7
Pesticides	0.00
Toxic Releases	92.4
Traffic	92.4
Effect Indicators	—
CleanUp Sites	64.9
Groundwater	10.6
Haz Waste Facilities/Generators	94.8
Impaired Water Bodies	0.00
Solid Waste	81.2
Sensitive Population	—
Asthma	33.0
Cardio-vascular	52.6
Low Birth Weights	29.0
Socioeconomic Factor Indicators	—
Education	61.7
Housing	38.8
Linguistic	47.1
Poverty	32.0

Unemployment	65.6

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	74.90055178
Employed	92.3649429
Median HI	68.29205697
Education	—
Bachelor's or higher	59.54061337
High school enrollment	100
Preschool enrollment	57.19235211
Transportation	—
Auto Access	82.44578468
Active commuting	63.55703837
Social	—
2-parent households	71.91068908
Voting	45.3997177
Neighborhood	—
Alcohol availability	16.30950853
Park access	48.36391634
Retail density	98.38316438
Supermarket access	79.84088284
Tree canopy	24.93263185
Housing	—
Homeownership	33.20929039

Housing habitability	35.94251251
Low-inc homeowner severe housing cost burden	90.99191582
Low-inc renter severe housing cost burden	54.20248941
Uncrowded housing	49.60862312
Health Outcomes	—
Insured adults	60.5800077
Arthritis	0.0
Asthma ER Admissions	68.0
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	72.0
Cognitively Disabled	84.2
Physically Disabled	55.6
Heart Attack ER Admissions	53.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
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	27.6
Elderly	67.6
English Speaking	54.0
Foreign-born	38.1
Outdoor Workers	64.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	84.0
Traffic Access	87.4
Other Indices	—
Hardship	24.9
Other Decision Support	—
2016 Voting	73.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	67.0
Healthy Places Index Score for Project Location (b)	74.0
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
Operations: Vehicle Data	Trips taken from traffic analysis
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle. (Only 2 axle trucks were identified in the traffic analysis)

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APPENDIX 4.3:

EMFAC2021

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calen	Vehicle Ca	Model Year	Speed	Fuel	Population	Total VMT	el_Consumption (1000 g	Fuel_Consumption (gal)	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
Orange (SC)	2022	HHDT	Aggregate	Aggregate	Gasoline	10.64479499	636.0891117	0.159796207	159.7962068	223938.9931	636.0891117	1307700.654	5.84	HHDT
Orange (SC)	2022	HHDT	Aggregate	Aggregate	Diesel	10409.20146	1225028.608	209.2962505	209296.2505		1225028.608			
Orange (SC)	2022	HHDT	Aggregate	Aggregate	Natural Gas	1215.583899	82035.95646	14.48294633	14482.94633		82035.95646			
Orange (SC)	2022	LDA	Aggregate	Aggregate	Gasoline	1086828.327	42617005.89	1477.48491	1477484.91		42617005.89			
Orange (SC)	2022	LDA	Aggregate	Aggregate	Diesel	3747.629893	117442.6269	2.787485606	2787.485606	1501867.711	117442.6269	46227343.54	30.78	LDA
Orange (SC)	2022	LDA	Aggregate	Aggregate	Electricity	51765.95391	2293614.551	0	0		2293614.551			
Orange (SC)	2022	LDA	Aggregate	Aggregate	Plug-in Hybr	25592.54684	1199280.473	21.59531572	21595.31572		1199280.473			
Orange (SC)	2022	LDT1	Aggregate	Aggregate	Gasoline	100826.7442	3561400.213	146.5569422	146556.9422		3561400.213			
Orange (SC)	2022	LDT1	Aggregate	Aggregate	Diesel	38.5369848	608.9577619	0.0255781	25.57810037	146629.0747	608.9577619	3570452.742	24.35	LDT1
Orange (SC)	2022	LDT1	Aggregate	Aggregate	Electricity	159.7347967	5650.289541	0	0		5650.289541			
Orange (SC)	2022	LDT1	Aggregate	Aggregate	Plug-in Hybr	52.33305022	2793.282104	0.046554392	46.55439236		2793.282104			
Orange (SC)	2022	LDT2	Aggregate	Aggregate	Gasoline	509893.7475	20509217.79	881.8253049	881825.3049		20509217.79			
Orange (SC)	2022	LDT2	Aggregate	Aggregate	Diesel	1929.425369	82667.44857	2.660695525	2660.695525	886760.359	82667.44857	20772856.15	23.43	LDT2
Orange (SC)	2022	LDT2	Aggregate	Aggregate	Electricity	1326.84299	49414.60954	0	0		49414.60954			
Orange (SC)	2022	LDT2	Aggregate	Aggregate	Plug-in Hybr	2552.046429	131556.3031	2.274358557	2274.358557		131556.3031			
Orange (SC)	2022	LHDT1	Aggregate	Aggregate	Gasoline	41366.73444	1625999.079	122.4363472	122436.3472		1625999.079			
Orange (SC)	2022	LHDT1	Aggregate	Aggregate	Diesel	19878.52597	832705.3516	40.9921357	40992.1357	163428.4829	832705.3516	2458704.431	15.04	LHDT1
Orange (SC)	2022	LHDT2	Aggregate	Aggregate	Gasoline	6782.839754	253254.8104	21.56655707	21566.55707		253254.8104			
Orange (SC)	2022	LHDT2	Aggregate	Aggregate	Diesel	8192.434506	345341.3906	20.31538939	20315.38939	41881.94646	345341.3906	598596.201	14.29	LHDT2
Orange (SC)	2022	MCY	Aggregate	Aggregate	Gasoline	48560.51544	306702.5599	7.353306745	7353.306745		306702.5599			
Orange (SC)	2022	MDV	Aggregate	Aggregate	Gasoline	321933.0775	12350243.95	650.6154285	650615.4285	7353.306745	12350243.95	306702.5599	41.71	MCY
Orange (SC)	2022	MDV	Aggregate	Aggregate	Diesel	4623.169678	186036.5643	7.954192756	7954.192756	660030.0271	186036.5643	12665701.16	19.19	MDV
Orange (SC)	2022	MDV	Aggregate	Aggregate	Electricity	1320.463832	49198.80151	0	0		49198.80151			
Orange (SC)	2022	MDV	Aggregate	Aggregate	Plug-in Hybr	1739.264811	80221.84901	1.460405796	1460.405796		80221.84901			
Orange (SC)	2022	MH	Aggregate	Aggregate	Gasoline	6489.378479	61712.14479	12.60740114	12607.40114		61712.14479			
Orange (SC)	2022	MH	Aggregate	Aggregate	Diesel	2918.16905	29746.40525	2.931381303	2931.381303	15538.78244	29746.40525	91458.55004	5.89	MH
Orange (SC)	2022	MHDT	Aggregate	Aggregate	Gasoline	7706.61837	426354.8436	83.38549234	83385.49234		426354.8436			
Orange (SC)	2022	MHDT	Aggregate	Aggregate	Diesel	26600.84208	1137257.381	127.7406936	127740.6936	212522.6894	1137257.381	1575262.498	7.41	MHDT
Orange (SC)	2022	MHDT	Aggregate	Aggregate	Natural Gas	243.7630334	11650.27315	1.39650339	1396.50339		11650.27315			
Orange (SC)	2022	OBUS	Aggregate	Aggregate	Gasoline	901.8422731	37941.26414	7.47507003	7475.07003		37941.26414			
Orange (SC)	2022	OBUS	Aggregate	Aggregate	Diesel	454.2512638	35871.22166	5.04248424	5042.48424		35871.22166			
Orange (SC)	2022	OBUS	Aggregate	Aggregate	Natural Gas	89.13417105	5497.465201	0.62602326	626.0232602	13143.57753	5497.465201	79309.951	6.03	OBUS
Orange (SC)	2022	SBUS	Aggregate	Aggregate	Gasoline	652.2504361	29108.87801	3.297838279	3297.838279		29108.87801			
Orange (SC)	2022	SBUS	Aggregate	Aggregate	Diesel	886.6409489	18286.52106	2.497694461	2497.694461		18286.52106			
Orange (SC)	2022	SBUS	Aggregate	Aggregate	Natural Gas	680.7249375	17481.61249	4.12502627	4125.02627	9920.55901	17481.61249	64877.01157	6.54	SBUS
Orange (SC)	2022	UBUS	Aggregate	Aggregate	Gasoline	254.5889445	42002.41105	3.654765859	3654.765859		42002.41105			
Orange (SC)	2022	UBUS	Aggregate	Aggregate	Electricity	4.037405551	77.72005682	0	0		77.72005682			
Orange (SC)	2022	UBUS	Aggregate	Aggregate	Natural Gas	574.3886763	110416.7095	38.01876434	38018.76434	41673.5302	110416.7095	152496.8406	3.66	UBUS

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	endar Y	hicle Categc	Model Year	Speed	Fuel	Population	Total VMT	Fuel_Consumption	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
Orange (SC)	2024	HHDT	Aggregate	Aggregate	Gasoline	7.623311802	590.1042313	0.140377911	140.3779106	225664.9064	590.1042313	1353571.421	6.00	HHDT
Orange (SC)	2024	HHDT	Aggregate	Aggregate	Diesel	11093.50859	1265161.083	211.2875152	211287.5152		1265161.083			
Orange (SC)	2024	HHDT	Aggregate	Aggregate	Electricity	35.69370556	3457.836891	0	0		3457.836891			
Orange (SC)	2024	HHDT	Aggregate	Aggregate	Natural Gas	1322.866094	84362.39726	14.23701335	14237.01335		84362.39726			
Orange (SC)	2024	LDA	Aggregate	Aggregate	Gasoline	1065891.765	42285386.13	1408.433705	1408433.705	1435612.861	42285386.13	47017465.9	32.75	LDA
Orange (SC)	2024	LDA	Aggregate	Aggregate	Diesel	3266.416655	98494.14462	2.302447572	2302.447572		98494.14462			
Orange (SC)	2024	LDA	Aggregate	Aggregate	Electricity	67229.20858	3174887.786	0	0		3174887.786			
Orange (SC)	2024	LDA	Aggregate	Aggregate	Plug-in Hybrid	31196.5885	1458697.84	24.87670874	24876.70874		1458697.84			
Orange (SC)	2024	LDT1	Aggregate	Aggregate	Gasoline	97776.1357	3495530.367	138.9785117	138978.5117	139115.9201	3495530.367	3513592.028	25.26	LDT1
Orange (SC)	2024	LDT1	Aggregate	Aggregate	Diesel	31.55516109	483.8937201	0.020274107	20.27410716		483.8937201			
Orange (SC)	2024	LDT1	Aggregate	Aggregate	Electricity	234.5800758	10019.73277	0	0		10019.73277			
Orange (SC)	2024	LDT1	Aggregate	Aggregate	Plug-in Hybrid	142.9646924	7558.03441	0.117134304	117.1343039		7558.03441			
Orange (SC)	2024	LDT2	Aggregate	Aggregate	Gasoline	523220.8345	21321177.46	872.8633551	872863.3551	878991.9626	21321177.46	21736235.25	24.73	LDT2
Orange (SC)	2024	LDT2	Aggregate	Aggregate	Diesel	2063.415332	86972.74449	2.705696258	2705.696258		86972.74449			
Orange (SC)	2024	LDT2	Aggregate	Aggregate	Electricity	3182.504872	117085.3103	0	0		117085.3103			
Orange (SC)	2024	LDT2	Aggregate	Aggregate	Plug-in Hybrid	4167.835855	210999.7343	3.422911296	3422.911296		210999.7343			
Orange (SC)	2024	LHDT1	Aggregate	Aggregate	Gasoline	41326.42062	1661881.956	118.308255	118308.255	162824.6769	1661881.956	2595817.631	15.94	LHDT1
Orange (SC)	2024	LHDT1	Aggregate	Aggregate	Diesel	21602.56979	922158.8233	44.51642193	44516.42193		922158.8233			
Orange (SC)	2024	LHDT1	Aggregate	Aggregate	Electricity	155.3882898	11776.85136	0	0		11776.85136			
Orange (SC)	2024	LHDT2	Aggregate	Aggregate	Gasoline	6721.102951	253091.6297	20.60060746	20600.60746	43032.07034	253091.6297	647507.4334	15.05	LHDT2
Orange (SC)	2024	LHDT2	Aggregate	Aggregate	Diesel	9173.234432	391527.7031	22.43146289	22431.46289		391527.7031			
Orange (SC)	2024	LHDT2	Aggregate	Aggregate	Electricity	40.21934854	2888.100628	0	0		2888.100628			
Orange (SC)	2024	MCY	Aggregate	Aggregate	Gasoline	50238.99817	321576.5516	7.622889471	7622.889471	7622.889471	321576.5516	321576.5516	42.19	MCY
Orange (SC)	2024	MDV	Aggregate	Aggregate	Gasoline	324536.5237	12620485.4	635.3871153	635387.1153	645061.8953	12620485.4	13052021.39	20.23	MDV
Orange (SC)	2024	MDV	Aggregate	Aggregate	Diesel	4623.453247	183419.8343	7.625165924	7625.165924		183419.8343			
Orange (SC)	2024	MDV	Aggregate	Aggregate	Electricity	3450.063477	127073.3453	0	0		127073.3453			
Orange (SC)	2024	MDV	Aggregate	Aggregate	Plug-in Hybrid	2619.629178	121042.8119	2.049614094	2049.614094		121042.8119			
Orange (SC)	2024	MH	Aggregate	Aggregate	Gasoline	6023.474387	58495.55977	11.96604106	11966.04106	14894.89569	58495.55977	88257.50629	5.93	MH
Orange (SC)	2024	MH	Aggregate	Aggregate	Diesel	2969.063612	29761.94653	2.928854631	2928.854631		29761.94653			
Orange (SC)	2024	MHDT	Aggregate	Aggregate	Gasoline	7429.609302	397726.4227	77.00341058	77003.41058	207745.9375	397726.4227	1569991.739	7.56	MHDT
Orange (SC)	2024	MHDT	Aggregate	Aggregate	Diesel	27477.47253	1155908.692	129.2675278	129267.5278		1155908.692			
Orange (SC)	2024	MHDT	Aggregate	Aggregate	Electricity	75.7223849	3855.839769	0	0		3855.839769			
Orange (SC)	2024	MHDT	Aggregate	Aggregate	Natural Gas	260.262888	12500.78402	1.474999133	1474.999133		12500.78402			
Orange (SC)	2024	OBUS	Aggregate	Aggregate	Gasoline	859.2545526	35950.2379	6.944890861	6944.890861	12632.34965	35950.2379	77847.66522	6.16	OBUS
Orange (SC)	2024	OBUS	Aggregate	Aggregate	Diesel	470.1282933	36479.12846	5.101183649	5101.183649		36479.12846			
Orange (SC)	2024	OBUS	Aggregate	Aggregate	Electricity	2.385794078	184.4758931	0	0		184.4758931			
Orange (SC)	2024	OBUS	Aggregate	Aggregate	Natural Gas	85.0569544	5233.822967	0.586275139	586.2751388		5233.822967			
Orange (SC)	2024	SBUS	Aggregate	Aggregate	Gasoline	669.6299914	30256.65941	3.39846975	3398.46975	10067.43946	30256.65941	66083.9102	6.56	SBUS
Orange (SC)	2024	SBUS	Aggregate	Aggregate	Diesel	821.2477494	16793.01525	2.276611833	2276.611833		16793.01525			
Orange (SC)	2024	SBUS	Aggregate	Aggregate	Electricity	5.553480404	162.1392305	0	0		162.1392305			
Orange (SC)	2024	SBUS	Aggregate	Aggregate	Natural Gas	748.1584339	18872.09631	4.392357878	4392.357878		18872.09631			
Orange (SC)	2024	UBUS	Aggregate	Aggregate	Gasoline	255.8303759	42204.05	3.455588309	3455.588309	40826.74862	42204.05	153100.0464	3.75	UBUS
Orange (SC)	2024	UBUS	Aggregate	Aggregate	Electricity	4.037405551	77.72005682	0	0		77.72005682			
Orange (SC)	2024	UBUS	Aggregate	Aggregate	Natural Gas	576.5236337	110818.2763	37.37116031	37371.16031		110818.2763			

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Geotechnical Engineering Report

Proposed Brea Gaslight Square Development
Brea, Orange County, California
May 12, 2022
Terracon Project No. CB225046

Prepared for:
One Berry, L.L.C.
Brea, California

Prepared by:
Terracon Consultants, Inc.
Colton, California

May 12, 2022

One Berry, L.L.C.
330 W Birch Street #201
Brea, California 92821

Attn: Mr. Dwight Manley
P: (323) 595-7498

Re: Geotechnical Engineering Report
Proposed Brea Gaslight Square Development
255 E. Imperial Hwy.
Brea, Orange County, California
Terracon Project No. CB225046

Dear Mr. Manley:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. PCB225046 dated March 15, 2022. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Richard Lara, E.I.T.
Senior Staff Engineer



Fred F. Buhamdan, P.E.
Senior Principal

REPORT TOPICS

INTRODUCTION 1
SITE CONDITIONS 1
PROJECT DESCRIPTION 2
GEOTECHNICAL CHARACTERIZATION 3
SEISMIC CONSIDERATIONS 5
LIQUEFACTION AND SEISMIC SETTLEMENT 7
GEOTECHNICAL OVERVIEW 7
EARTHWORK 8
SHALLOW FOUNDATIONS 14
FLOOR SLABS 15
PAVEMENTS 17
STORM WATER MANAGEMENT 19
CORROSIVITY 21
GENERAL COMMENTS 21

Note: This report was originally delivered in a web-based format. Orange Bold text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the *GeoReport* logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

Proposed Brea Gaslight Square Development
255 E. Imperial Hwy.
Brea, Orange County, California

Terracon Project No. CB225046

May 12, 2022

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Gaslight Square Development to be located at 255 E. Imperial Hwy. in Brea, Orange County, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions and historic high groundwater
- 2019 California Building Code (CBC) seismic design parameters
- Subgrade preparation/earthwork recommendations
- Recommendations for foundation design and concrete slabs-on-grade
- Recommendations for preliminary pavement section design
- Infiltration and drainage

The geotechnical engineering Scope of Services for this project included the advancement of four test borings to depths ranging from approximately 21½ to 31½ feet below existing site grades. Additionally, subsurface exploration / boring information from a previous project performed by Terracon at the same site was utilized in our analysis upon receiving authorization from previous client. Six test borings drilled to depths ranging from approximately 5 to 26½ feet below existing grade for Terracon Project No. 60205098 were utilized in our study.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and/or as separate graphs in the **Exploration Results** section. Additional boring information for Terracon Project No. 60205098 are also identified and depicted on the **Exploration Plan.**

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project site is located at 255 E. Imperial Hwy. in Brea, Orange County, California. Just north of Imperial Highway, between S. Flower Avenue and S. Orange Avenue. Latitude: 33.9162 Longitude: -117.8985 See **Site Location**
Existing Improvements	The project site is located within an existing and operational retail shopping center that still contains, at the time of our field investigation, a multistory building and three other buildings, pavement drive, parking areas, landscaping, trees and parking lot lighting.
Current Ground Cover	The surface conditions at the site during our field investigation consisted of asphalt concrete for parking and drives, sidewalks, landscaping and multiple trees.
Existing Topography	The site is flat with an approximate elevation ranging from 352 to 354 feet.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Proposed Development	Based on our review of the site plans provided to us, the existing buildings and utilities will be demolished and removed from the site, and a Starbucks drive thru restaurant and associated pavement for parking lot and drives will be constructed. Also, a multitenant building consisting of a new medical building with an area of about 3,600 S.F. and a restaurant building with an area of about 2,400 S.F. are proposed along with appurtenant infrastructure..
Proposed Structures	Structures include a new Starbucks building drive-thru (approximately 2,000 sf), new medical building (approximately3,600 sf), new restaurant building (approximately 2,400 sf) and appurtenant improvements.
Building Construction	The proposed building will consist of a wood-frame structure supported on a shallow foundation system with slabs on grade.
Finished Floor Elevation	The finished floor elevations were not provided at the time this report was prepared. We anticipate finished floor elevations will be within 1 feet of the existing grade.

Item	Description
Structural Loads (assumed)	Structural loads were not provided at the time of this report. We assume that the proposed structures will have the following loads: ■ Columns: 40 to 80 kips ■ Walls: 1 to 3 kips per linear foot (klf) ■ Slabs: 100 to 150 pounds per square foot (psf)
Grading Requirements	Preliminary grading plans were not yet available for review at the time this proposal was prepared and should be made available for review once completed. We anticipate cuts and fills of 1 foot or less will be required to develop final grade, excluding remedial grading requirements.
Below Grade Structures	Not anticipated
Free-Standing Retaining Wall	Not anticipated
Pavements	Paved driveway and parking will be constructed on site. We assume both rigid (concrete) and flexible (asphalt) pavement sections should be considered. Please confirm this assumption. Anticipated traffic indices (TIs) are as follows for asphalt pavement: ■ Auto Parking Areas: TI=4.5 ■ Drive Lanes TI=5.5 ■ Truck Delivery Areas: TI=6.0 ■ The pavement design period is 20 years. Anticipated average daily truck traffic (ADTT) is as follows for concrete pavement: ■ Light Duty: ADTT=1 (Category A) ■ Medium Duty: ADTT=25 (Category B) ■ Dumpster Pad: ADTT=700 (Category C)
Infiltration Systems	An on-site stormwater retention/infiltration system is planned.

GEOTECHNICAL CHARACTERIZATION

Subsurface Profile

We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting and planned construction. The following table provides our geotechnical characterization.

The geotechnical characterization forms the basis of our geotechnical calculations and evaluation of site preparation, foundation options and pavement options. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the site, and variations are likely.

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description [1]	Consistency/ Density
Stratum I	0.42 to 0.58	Asphalt pavement, 5" to 7" thick	
Stratum II	2½	Fill- Poorly Graded Sand (SP)	
Stratum II	31½ [2]	Interchanging layers of sand with variable amount of clay and clay with varying amount of sand	Medium dense to dense (sand) and stif to very stiff (clay)

1. The soil materials encountered are not expected to experience substantial volumetric changes (shrink/swell) with fluctuations in moisture content.
2. Boring terminated at 33 feet due to practical refusal.

Conditions encountered at each boring location are indicated on the individual boring logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; in situ, the transition between materials may be gradual.

Lab Results

Laboratory tests were conducted on selected soil samples and the test results are presented in the **Exploration Results** section and on the boring logs. Atterberg limit test results indicate that the on-site soils generally have medium plasticity. Expansion Index test for upper soils encountered in B-6 resulted in an expansion index of 37. Additionally, test results performed from previous exploration were utilized on our analysis. A consolidation test indicates that the sandy clay soils encountered at an approximate depth of 3 feet bgs have a slight swell potential when saturated under normal footing loads of 2,000 psf. An Expansion Index test for upper soils encountered in B-1 resulted in an expansion index of 59.

The results are presented in the **Exploration Results** section.

Groundwater Conditions

The borings were advanced using continuous flight auger drilling techniques that allow short-term groundwater observations to be made while drilling. Groundwater seepage was not observed within the maximum depths of exploration during or at the completion of drilling.

In clayey soils with low permeability, the accurate determination of groundwater level may not be possible without long term observation. Long term observation after drilling could not be performed as borings were backfilled immediately upon completion due to safety concerns.

Groundwater levels can best be determined by implementation of a groundwater monitoring plan. Such a plan would include installation of groundwater monitoring wells, and periodic measurement of groundwater levels over a sufficient period of time.

Based on review of Plate 1.2 of the Seismic Hazard Zone Report (SHZP) for the LA HABRA 7.5-Minute Quadrangle, historic groundwater elevations at the project site are reported to be more than 10 feet bgs.

According to data collected from the Geotracker website for a nearby well (OS-4) advanced by Test America located across the street from the site at 120 East Imperial Highway, the groundwater level recorded on April 18, 2007 was measured at 47 feet below existing site grade.[1]

SEISMIC CONSIDERATIONS

The 2019 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16 and 2019 CBC. The 2019 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped S_1 value greater than or equal 0.2.

However, Section 11.4.8 of ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) states that “In general, this exception effectively limits the requirements for site-specific hazard analysis to very tall and or flexible structures at Site Class D sites.” Based on our understanding of the proposed structures, it is our assumption that the exception in Section 11.4.8 applies to the proposed structure. However, the structural engineer should verify the applicability of this exception.

Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2019 CBC.

Description	Value
Site Classification (CBC) [1]	D [2]
Site Latitude (°N)	33.9162
Site Longitude (°W)	117.8985

[1] *Groundwater elevation was obtained from geotracker (well id: OS-4) advanced by Test America located at 120 East Imperial Highway (https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900455)*

Description	Value
S_s Spectral Acceleration for a 0.2-Second Period	1.799
S_1 Spectral Acceleration for a 1-Second Period	0.633
F_a Site Coefficient for a 0.2-Second Period	1.0
F_v Site Coefficient for a 1-Second Period	1.7
Site Modified Peak Ground Acceleration	0.858g
De-aggregated Modal seismic zone Magnitude [3]	6.26

1. Seismic site classification in general accordance with the *2019 California Building Code*.
2. The 2019 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile determination. Our borings were extended to a maximum depth of 31½ feet. This seismic site class definition considers that similar or denser soils continue below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.
3. These values were obtained using on-line Unified Hazard Tool by the USGS (https://earthquake.usgs.gov/hazards/interactive/) for return period of 2% in 50 years accessed

A site-specific ground motion study may reduce design values and consequently construction costs. We recommend consulting with a structural engineer to evaluate the need for such study and its potential impact on construction costs. Terracon should be contacted if a site-specific ground motion study is desired.

Faulting and Estimated Ground Motions

The site is located in the seismically active southern California area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the Whittier fault zone, which is considered to have the most significant effect at the site from a design standpoint, has a maximum magnitude of 7.27 and is located approximately 3.5 kilometers from the site. Other, more distant faults including the Richfield and Puente Hills sources contribute to the seismic hazard at the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the peak ground acceleration (PGA_M) at the project site is expected to be 0.858 g. Based on the USGS Unified Hazard Tool, the project site has a modal magnitude of 6.26. Furthermore, the site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.

LIQUEFACTION AND SEISMIC SETTLEMENT

Liquefaction Potential

Liquefaction is a mode of ground failure that results from the generation of high pore-water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geological Survey (CGS) has designated certain areas as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table.

The project site is not located within a liquefaction hazard zone as designated by the CGS. Based on CGS maps and the anticipated depth to groundwater, liquefaction hazard potential at the site is considered low. Other geologic hazards related to liquefaction, such as lateral spreading, are therefore also considered low.

GEOTECHNICAL OVERVIEW

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations provided in this report are implemented in the design and construction phases of this project.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and our current understanding of the proposed project.

Expansive soils are present on this site. This report provides recommendations to help mitigate the effects of soil shrinkage and expansion; however, even if these procedures are followed, some movement and at least minor cracking in the structure should be anticipated. The severity of cracking and other cosmetic damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

Based on laboratory test results and expansion potential of the near surface soils, foundations and floor slabs should bear on non-expansive engineered fill consisting of low volume change import soils for support of the proposed structure. The engineered fill should extend to a minimum depth of 2 feet below the bottom of foundations. Grading for the proposed building should incorporate the limits of the footing plus a lateral distance of 3 feet beyond the outside edge of

perimeter footings. The low volume change import fill should conform to the specifications of the *Fill Materials and Placement* section of this report.

On-site soils generally consisted of lean clay with variable amount of sand and sand with variable amount of clay extending to the maximum depth of the borings. Fill material was encountered in Borings B-3 and B-5 to a depth of 2½ ft bgs.

Estimated movements described in this report are based on effective drainage for the life of the structure and cannot be relied upon if effective drainage is not maintained. Exposed ground, extending at least 10 feet from the perimeter, should be sloped a minimum of 5% away from the building to provide positive drainage away from the structure. Grades around the structure should be periodically inspected and adjusted as part of the structure's maintenance program

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

The following recommendations include site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations, slabs, and pavements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

Strip and remove existing vegetation, debris, pavements and other deleterious materials from proposed buildings and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. The site should be initially graded to create a relatively level surface to receive fill and provide for a relatively uniform thickness of fill beneath proposed building structures.

Demolition of the existing building should include complete removal of all foundation systems and remaining underground utilities within the proposed construction area. This should include removal of any loose backfill found adjacent to existing foundations. All materials derived from the demolition of existing structures and pavements should be removed from the site and not be allowed for use as on-site fill, unless processed in accordance with the fill requirements included in this report.

Fill material was encountered in Borings B-3 and B-5 to a depth of 2½ ft bgs. It is apparent that the fill materials are associated with the grading of the existing development onsite. Terracon does not have any documentation to show if the grading operations were monitored or the fill materials have been compacted and tested. Structures that are classified as "occupied structures" in accordance with California Code of Regulations Section 3601 should not be constructed on undocumented fill. We recommend that all fill soils be removed within the proposed building area and the excavation thoroughly cleaned prior to backfill placement and/or construction. If such documentation exists, Terracon should be notified and the recommendations in this report may be appropriately modified.

Although no evidence of underground facilities such as septic tanks, cesspools, basements, and utilities was not observed during the site reconnaissance, such features could be encountered during construction. If unexpected fills or underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Subgrade Preparation

Due to the expansion potential of the near surface soils, foundations and floor slabs should bear on non-expansive engineered fill consisting of low volume change import soils for support of the proposed structure. The engineered fill should extend to a minimum depth of 2 feet below the bottom of foundations. Grading for the proposed building should incorporate the limits of the footing plus a lateral distance of 3 feet beyond the outside edge of perimeter footings. The low volume change import fill should conform to the specifications of the *Fill Materials and Placement* section of this report.

Subgrade soils beneath exterior slabs and pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 10 inches. The moisture content and compaction of subgrade soils should be maintained until slab or pavement construction.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted per the compaction requirements in this report.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Excavation

We anticipate that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Individual contractors are responsible for designing and constructing stable, temporary excavations. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

Fill Material Types

Due to the on-site soils expansion potential, they are not recommended for use as engineered fill beneath foundation and interior floor slabs. Such soils may be used as fill materials for the following:

■ general site grading	■ exterior slab areas
■ pavement areas	

Imported low volume change soils should be used as engineered fill for:

■ interior floor slab areas	■ foundation backfill
■ foundation areas	

If imported soils are used as fill materials to raise grades, these soils should conform to low volume change materials and should conform to the following requirements:

Gradation	**Percent Finer by Weight (ASTM C 136)**
3”	100
No. 4 Sieve	50 - 100
No. 200 Sieve	20 - 50

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 15 (max)
- Maximum Expansive Index* ..... 20 (max)

*ASTM D 4829

The contractor shall notify the Geotechnical Engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" (Class S0) potential for sulfate attack based upon current ACI criteria and is "mildly corrosive" to ferrous

metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness.

Compaction Requirements

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site soils and/or low volume change imported fill:			
Beneath foundations:	90	-1%	+3%
Beneath interior slabs:	90	-1%	+3%
Utility trenches (pavement and structural areas)*:	95	-1%	+3%
On-site native soils			
Beneath asphalt pavements:	95	-1%	+3%
Beneath concrete pavements:	90	-1%	+3%
Utility Trenches (Landscape Areas)*:	90	-1%	+3%
Exterior Slabs:	90	-1%	+3%
Miscellaneous backfill:	90	-1%	+3%
Aggregate base (beneath pavements):	95	-1%	+3%

* Upper 12 inches should be compacted to 95% within pavement and structural areas. Low-volume change imported soils should be used in structural areas.

Utility Trenches

We anticipate that the on-site soils will provide suitable support for underground utilities and piping that may be installed. Any soft and/or unsuitable material encountered at the bottom of excavations should be removed and be replaced with an adequate bedding material. A non-expansive granular material with a sand equivalent greater than 30 is recommended for bedding and shading of utilities, unless otherwise allowed by the utility manufacturer.

On-site materials are considered suitable for backfill of utility and pipe trenches from one foot above the top of the pipe to the final ground surface, provided the material is free of organic matter

and deleterious substances. Imported low volume change soils should be used for trench backfill in structural areas.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

We recommend a minimum horizontal setback distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

Roof drainage should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of foundation walls.

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the structure. Trees and shrubbery should be kept away from the exterior of the structure a distance at least equal to their expected mature height

Exterior Slab Design and Construction

Compacted subgrade composed of on-site clayey soils will expand with increasing moisture content; therefore, exterior concrete slabs may heave, resulting in cracking or vertical offsets. The potential for damage would be greatest where exterior slabs are constructed adjacent to the building or other structural elements. To reduce the potential for damage caused by movement, we recommend:

- exterior slabs should be supported directly on subgrade fill (not ABC) with no, or very low expansion potential;
- strict moisture-density control during placement of subgrade fills;

- maintain proper subgrade moisture until placement of slabs;
- placement of effective control joints on relatively close centers and isolation joints between slabs and other structural elements;
- provision for adequate drainage in areas adjoining the slabs;
- use of designs which allow vertical movement between the exterior slabs and adjoining structural elements.
- placing effective control joints on relatively close centers.

Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

Some onsite soils consist of cohesionless sandy soils. Such soils have the tendency to cave and slough during excavations. Therefore, formwork may be needed for foundation excavations.

On-site clay soils may pump, and unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. The use of light construction equipment would aid in reducing subgrade disturbance. The use of remotely operated equipment, such as a backhoe, would be beneficial to perform cuts and reduce subgrade disturbance.

Should unstable subgrade conditions develop stabilization measures will need to be employed. Stabilization measures may include placement of aggregate base and multi-axial geogrid. Use of lime, fly ash, kiln dust or cement could also be considered as a stabilization technique. Laboratory evaluation is recommended to determine the effect of chemical stabilization on subgrade soils prior to construction.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork operations may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards.

Construction Observation and Testing

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test for every 50 linear feet of compacted utility trench backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event that unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Item	Description
Foundation Support	Engineered fill extending 2 feet below the bottom of foundations.
Net Allowable Bearing pressure [1, 2]	2,500 psf
Minimum Foundation Dimensions	Columns: 24 inches Continuous: 18 inches

Item	Description
Foundation Support	Engineered fill extending 2 feet below the bottom of foundations.
Minimum Footing Depth	18" below finish grade
Ultimate Passive Resistance [4]	360 pcf
Ultimate Coefficient of Sliding Friction [5]	0.36
Estimated Total Static Settlement from Structural Loads [2]	about 1 inch
Estimated Differential Settlement [2, 6]	About 1/2 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.
2. Values provided are for maximum loads noted in **Project Description**. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations.
3. Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in the **Earthwork**.
4. Use of passive earth pressures requires the footing forms be removed and compacted structural fill be placed against the vertical footing face. A factor of safety of 2.0 is recommended.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions. A factor of safety of 1.5 is recommended.
6. Differential settlements are as measured over a span of 40 feet.

Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

To ensure foundations have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings should be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest edge of adjacent trenches.

FLOOR SLABS

DESCRIPTION	RECOMMENDATION
Interior floor system	Slab-on-grade concrete
Floor slab support	Engineered fill extending 2 feet below the bottom of foundations.

DESCRIPTION	RECOMMENDATION
Subbase	Minimum 4-inches of Aggregate Base
Modulus of subgrade reaction	150 pounds per square inch per inch (psi/in) (The modulus was obtained based on estimates obtained from NAVFAC 7.1 design charts). This value is for a small loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

LATERAL EARTH PRESSURES

Design Parameters

For import low volume change materials above any free water surface, recommended equivalent fluid pressures for unrestrained foundation elements are:

ITEM	VALUE[a, b]
Active Case	42 psf/ft
Passive Case	360 psf/ft
At-Rest Case	64 psf/ft
Coefficient of Friction	0.36

[a]Note: The values are based on on-site soils used as backfill.
[b]Note: Uniform, horizontal backfill, compacted to at least 90% of the ASTM D 1557 maximum dry density, rendering a maximum unit weight of 125 pcf.

The lateral earth pressures herein do not include any factor of safety and are not applicable for submerged soils/hydrostatic loading. Additional recommendations may be necessary if such conditions are to be included in the design.

Fill against foundation and retaining walls should be compacted to densities specified in the Earthwork section of this report. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors.

PAVEMENTS

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Pavement Design Parameters

Design of asphalt concrete (AC) pavements is based on the procedures outlined in the Caltrans "Highway Design Manual for Safety Roadside Rest Areas" (Caltrans, 2016). Design of Portland cement concrete (PCC) pavements are based upon American Concrete Institute (ACI) 330R-08; "Guide for Design and Construction of Concrete Parking Lots."

An estimated correlated R-value was used to calculate the AC pavement thickness sections. A modulus of subgrade reaction of 110 pci and a modulus of rupture of 600 psi were used for the PCC pavement designs.

The structural sections are predicated upon proper compaction of the utility trench backfills and the subgrade soils as prescribed by in **Earthwork**, with the upper 12 inches of subgrade soils and all aggregate base material brought to a minimum relative compaction of 95 percent in accordance with ASTM D 1557 prior to paving. The aggregate base should meet Caltrans requirements for Class 2 base.

The pavement designs were based upon the results of preliminary sampling and testing and assumed R-value based on soil conditions encountered. R-value testing should be performed during construction when the actual subgrade soils are exposed.

Pavement Section Thicknesses

The following table provides options for AC and PCC Sections:

Asphalt Concrete Design		
Usage	**Assumed Traffic Index**	**Recommended Structural Section**
Auto Parking Areas	4.5	3" HMA[1]/7" Class 2 AB[2]
Drive lanes	5.5	3" HMA[1]/10" Class 2 AB[2]
Truck Delivery Areas	6.0	3" HMA[1]/12" Class 2 AB[2]

1. HMA = hot mix asphalt
2. AB = aggregate base

Portland Cement Concrete Design			
Layer	**Thickness (inches)**		
	Light Duty[1]	**Medium Duty[2]**	**Dumpster Pad[3]**
PCC	5.0	6.0	7.5
Aggregate Base [4]	4.0	4.0	4.0

1. Car Parking and Access Lanes, Average Daily Truck Traffic (ADTT) = 1 (Category A).
2. Truck Parking Areas, Multiple Units, ADTT = 25 (Category B)
3. In areas of anticipated heavy traffic, fire trucks, delivery trucks, or concentrated loads (e.g., dumpster pads), and areas with repeated turning or maneuvering of heavy vehicles, ADTT = 700 (Category C).
4. Aggregate base is not required. Compacted on-site material is considered competent.

Recommended structural sections were calculated based on assumed TIs and our preliminary assumed value for R-value.

Terracon does not practice traffic engineering. We recommend that the project civil engineer or traffic engineer verify that the TIs and ADTT traffic indices used are appropriate for this project.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2 percent.
- Subgrade and pavement surfaces should have a minimum 2 percent slope to promote proper surface drainage.
- Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

STORM WATER MANAGEMENT

Two (2) in-situ percolation tests were performed at the site and conducted for Project No. 60205098 and was utilize in our analysis. The test were performed to approximate depths of 6 to 25 feet bgs. A 2-inch thick layer of gravel was placed in the bottom of each boring after the borings were drilled to investigate the soil profile. A 3-inch diameter perforated pipe was installed on top of the gravel layer in each boring. Gravel was used to backfill between the perforated pipes and the boring sidewall. The borings were then filled with water for a pre-soak period of 24 hours. Testing began after a pre-soak period. At the beginning of the test, the pipes were refilled with water and readings were taken at standardized time intervals. Percolation rates are provided in the following table:

Test Location	Boring Depth (ft.) [1]	Test Depth Range (ft.) [1]	Soil Type	Water Head (in)	Percolation Rate Average (in./hr.)	Infiltration Rate Average (in./hr.) [2]
P-1	6	0 to 5	CL	38	1	<0.1
P-2	25	19 to 25	CL/SC	34	51.1	2.2

1. Below existing ground surface.
2. If proposed infiltration system will mainly rely on vertical downward seepage, the correlated infiltration rates should be used.

The subsurface profiled is layered with low permeability clay layers and higher permeability sandy soils. Design considerations should be given to the depth of the proposed system and targeting the sandy layers for the bottom of the infiltration systems. Furthermore, design should consider perched water conditions and lateral seepage through the sandy soils within the existing layered soils onsite.

With time, the bottoms of infiltration systems tend to plug with organics, sediments, and other debris. Long term maintenance will likely be required to remove these deleterious materials to help reduce decreases in actual percolation rates.

The percolation tests were performed with clear water, whereas the storm water will likely not be clear, but may contain organics, fines, and grease/oil. The presence of these deleterious materials will tend to decrease the rate that water percolates from the infiltration systems. Design of the stormwater infiltration systems should account for the presence of these materials and should incorporate structures/devices to remove these deleterious materials. A safety factor should be applied to these measured rates.

Based on the soils encountered in our borings, we expect the percolation rates of the soils could be different than measured in the field due to variations in fines and gravel content. The design elevation and size of the proposed infiltration system should account for this expected variability in infiltration rates.

Infiltration testing should be performed after construction of the infiltration system to verify the design infiltration rates. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the infiltration areas. The actual infiltration rate may vary from the values reported here. Infiltration systems should be located a minimum of 10 feet from any existing or proposed foundation system.

CORROSIVITY

The following table lists the laboratory electrical resistivity (standard and as-received), chlorides, soluble sulfates, and pH testing results. These values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Boring	Depth (feet)	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)	Total Salts (mg/kg)	pH	Resistivity (as-received) (Ohm-cm)	Resistivity (saturated) (Ohm-cm)
B-4	0 to 3	342	37	1394	8.5	8924	1067

1. Test performed according to ASTM; G51, C1580, D512, G57 and AWWA 2540

Boring	Sample Depth (ft.) [1]	Soluble Sulfate (%) [1]	Electrical Resistivity (Ohm-cm) [1]	Chlorides (ppm) [1]	pH
B-2	0 to 3	0.0312	4,000	101	7.1

1. Test performed according to CT. 643, CT. 417, CT.422

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 19.3.1.1 of the ACI Building Code Requirements. Concrete should be designed in accordance with the provisions of the ACI Building Code Requirements Manual, Section 318, Chapter 19.

For protection against corrosion to buried metals, Terracon recommends that an experienced corrosion engineer be retained to design a suitable corrosion protection system for underground metal structures or components.

If corrosion of buried metal is critical, it should be protected using a non-corrosive backfill, wrapping, coating, sacrificial anodes, or a combination of these methods, as designed by a qualified corrosion engineer.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather.

The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Initially, six borings were proposed for our scope of work however due to accessibility restrictions only four borings were drilled. Terracon conducted four soil-testing borings. These borings were planned to the following extended depths below existing grades.

Number of Borings	Boring Depth (feet) [1]	Location
4	21 ½ to 31 ½	Planned building area and Planned parking/driveway area

1. Below ground surface.

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet) and approximate elevations were obtained by interpolation from the Google Earth. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advance the borings with a truck-mounted drill rig using hollow-stem augers. Both a standard penetration test (SPT) sampler (2-inch outer diameter and 1-3/8-inch inner diameter) and a modified California ring-lined sampler (3-inch outer diameter and 2-3/8-inch inner diameter) are utilized in our investigation. The penetration resistance is recorded on the boring logs as the number of hammer blows used to advance the sampler in 6-inch increments (or less if noted). The samplers are driven with an automatic hammer that drops a 140-pound weight 30 inches for each blow. After the required seating, samplers are advanced up to 18 inches, providing up to three sets of blowcounts at each sampling interval. The sampling depths, penetration distances, and other sampling information are recorded on the field boring logs. The recorded blows are raw numbers without any corrections for hammer type (automatic vs. manual cathead) or sampler size (ring sampler vs. SPT sampler). Relatively undisturbed and bulk samples of the soils encountered are placed in sealed containers and returned to the laboratory for testing and evaluation.

We observe and record groundwater levels during drilling and sampling. For safety purposes, all borings are backfilled with auger cuttings after their completion.

Our exploration team prepares field boring logs as part of the drilling operations. These field logs include visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs are prepared from the field logs. The

final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- Water (Moisture) Content of Soil by Mass
- Laboratory Determination of Density (Unit Weight) of Soil Specimens
- Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
- Atterberg Limits test
- Corrosivity suite test

The laboratory testing program often included examination of soil samples by an engineer. Based on the material’s texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

SITE LOCATION

Proposed Brea Gaslight Square Development ■ Brea, Orange County, California
May 12, 2022 ■ Terracon Project No. CB225046

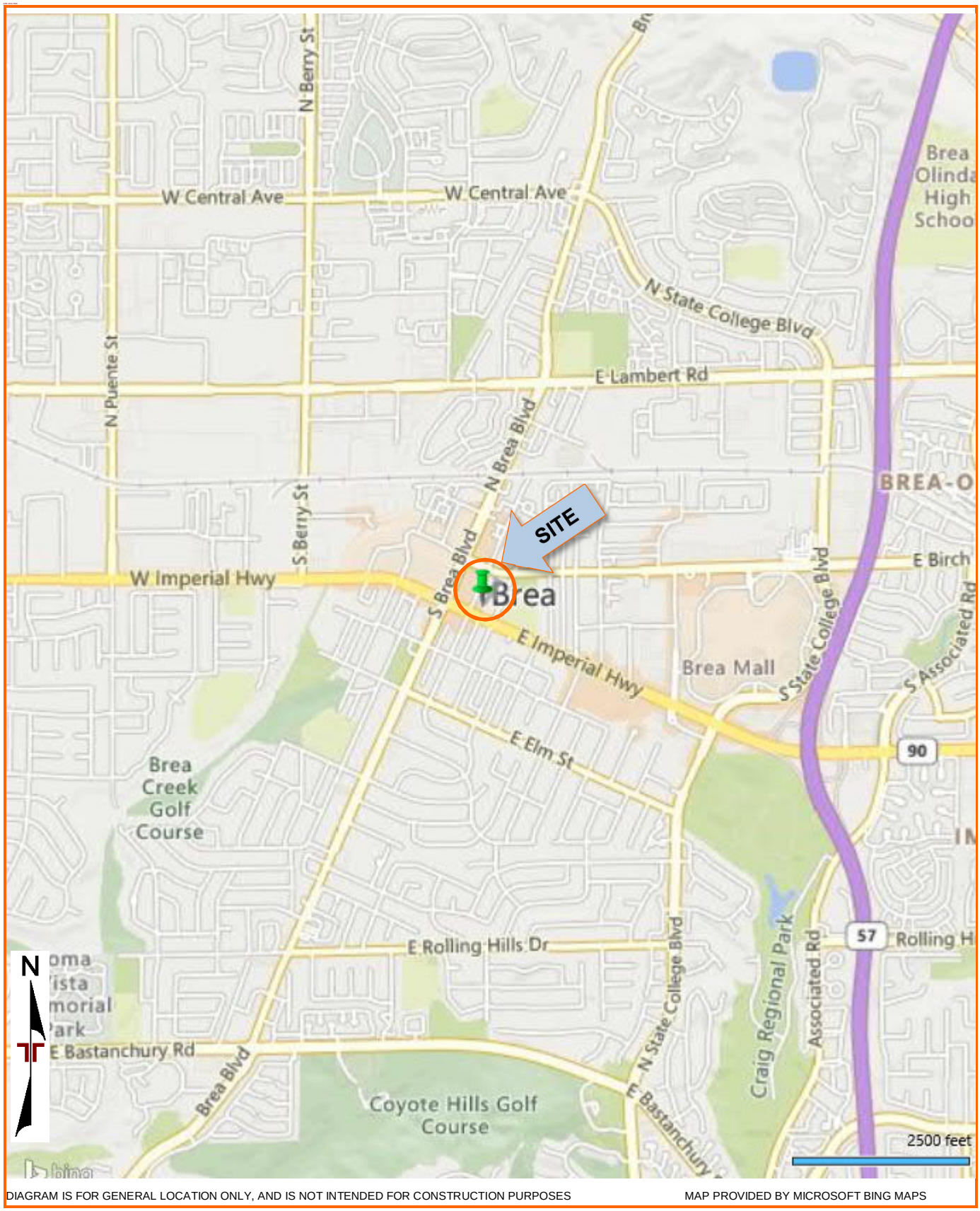


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Proposed Brea Gaslight Square Development ■ Brea, Orange County, California
May 12, 2022 ■ Terracon Project No. CB225046



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

BORING LOG NO. B-3

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9164° Longitude: -117.8987°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.6		**ASPHALT**, 7" thickness												
1.0		**AGGREGATE BASE COURSE**, 5" thickness											30-18-12	1
2.5		**FILL - POORLY GRADED SAND (SP)**, dark brown												
		SANDY LEAN CLAY (CL), dark brown, very stiff				4-10-14					14.4	97		
			5			3-10-17					14.1	117		
7.5		**CLAYEY SAND (SC)**, reddish brown, medium dense				5-13-17					14.2	103		28
10.0		**LEAN CLAY WITH SAND (CL)**, reddish brown, very stiff	10			3-8-16					18.1	107		
15.0		**SANDY LEAN CLAY (CL)**, trace sand, reddish brown, stiff	15			3-5-6 N=11								
		very stiff	20			6-7-11 N=18								68
		stiff	25			3-4-11 N=15								
30.0		**SILTY CLAYEY SAND (SC-SM)**, reddish brown, medium dense	30			5-5-5 N=10								
31.5		***Boring Terminated at 31.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

BORING LOG NO. B-4

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9163° Longitude: -117.8986°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.5		**ASPHALT**, 6" thickness												
0.8		**AGGREGATE BASE COURSE**, 4" thickness												56
		SANDY LEAN CLAY (CL), dark brown reddish brown, very stiff				4-10-17					16.6	111		
			5			4-11-19					15.1	113		
7.5		**CLAYEY SAND (SC)**, reddish brown, medium dense				4-11-22					14.6	111		42
10.0		**SANDY LEAN CLAY (CL)**, reddish brown, very stiff	10			3-11-19					18.7	97		
			15			7-9-14 N=23								
			20			7-11-17 N=28								
25.0		**SILTY CLAYEY SAND (SC-SM)**, light brown, medium dense	25			10-11-19 N=30								
30.0		**SANDY SILTY CLAY (CL-ML)**, brown, stiff	30			8-7-8 N=15								
31.5		***Boring Terminated at 31.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

BORING LOG NO. B-5

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8986°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.5		**ASPHALT**, 6.5" thickness												
0.9		**AGGREGATE BASE COURSE**, 4" thickness											42-20-22	3
2.5		**FILL - POORLY GRADED SAND (SP)**, reddish brown												
		SANDY LEAN CLAY (CL), reddish brown, very stiff				6-8-13					17.5	102		
			5			5-11-17					15.2	112		
7.5		**CLAYEY SAND (SC)**, trace gravel, reddish brown, medium dense				6-9-10					17.1	101		37
10.0		**SANDY LEAN CLAY (CL)**, reddish brown, very stiff	10			5-11-19					11.9	107		
			15			4-8-11 N=19								
20.0		**LEAN CLAY (CL)**, brown, hard	20			11-16-20 N=36								
25.0		**POORLY GRADED SAND WITH CLAY (SP-SC)**, trace gravel, reddish brown, dense	25			13-14-20 N=34								
30.0		**CLAYEY SAND (SC)**, trace micaceous gravel, reddish brown, medium dense	30			10-9-8 N=17								
31.5		***Boring Terminated at 31.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

BORING LOG NO. B-6

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9165° Longitude: -117.8988°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.4		**ASPHALT**, 5" thickness					Expansion Index = 37						38-19-19	59
0.7		**AGGREGATE BASE COURSE**, 3.5" thickness												
		SANDY LEAN CLAY (CL), brown very stiff				5-12-22					15.0	118		
			5			4-13-20					12.1	115		
						6-13-21					10.3	111		
10.0		**LEAN CLAY WITH SAND (CL)**, reddish brown, very stiff	10			2-9-14					20.7	118		
15.0		**LEAN CLAY (CL)**, trace sand, reddish brown, stiff	15			3-6-7 N=13								
			20			3-6-9 N=15								
21.5		***Boring Terminated at 21.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
One Berry LLC

Project
Proposed Brea Gaslight Square

Sample Submitted By: Terracon (CB) **Date Received:** 4/28/2022 **Lab No.: 22-0338**

Results of Corrosion Analysis

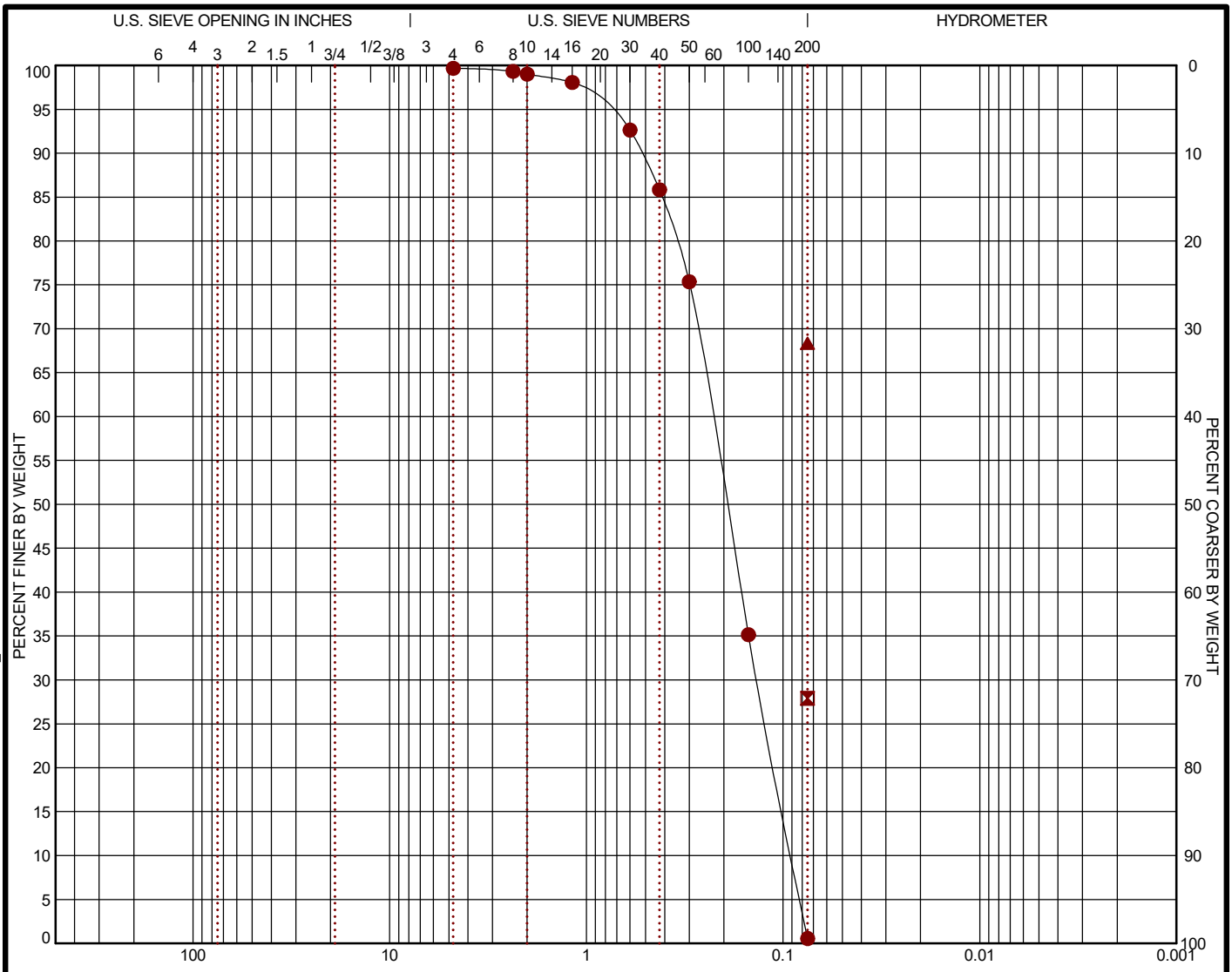
Sample Number	--
Sample Location	B-4
Sample Depth (ft.)	0.0
pH Analysis, ASTM G 51	8.54
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	342
Chlorides, ASTM D 512, (mg/kg)	37
Total Salts, AWWA 2540, (mg/kg)	1394
As-Received Resistivity, ASTM G 57, (ohm-cm)	8924
Saturated Minimum Resistivity, ASTM G 57, (ohm-cm)	1067

Analyzed By:
Nathan Campo
Engineering Technician II

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	**B-3**	**0 - 2.5**			**99.1**		**0.5**		**SP**
⊠	**B-3**	**7.5 - 9**					**27.9**		
▲	**B-3**	**20 - 21.5**					**68.4**		

	GRAIN SIZE		
	●	⊠	▲
D_{60}	**0.23**		
D_{30}	**0.135**		
D_{10}	**0.091**		
	COEFFICIENTS		
C_C	**0.88**		
C_U	**2.54**		

●		⊠		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#4	99.66	#200	27.92	#200	68.36
#8	99.31				
#10	99.0				
#16	98.06				
#30	92.63				
#40	85.84				
#50	75.36				
#100	35.15				
#200	0.54				

SOIL DESCRIPTION
● POORLY GRADED SAND (SP)
⊠
▲

REMARKS
●
⊠
▲

PROJECT: Proposed Brea Gaslight Square

SITE: 255 E. Imperial Hwy.
Brea, CA

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB225046

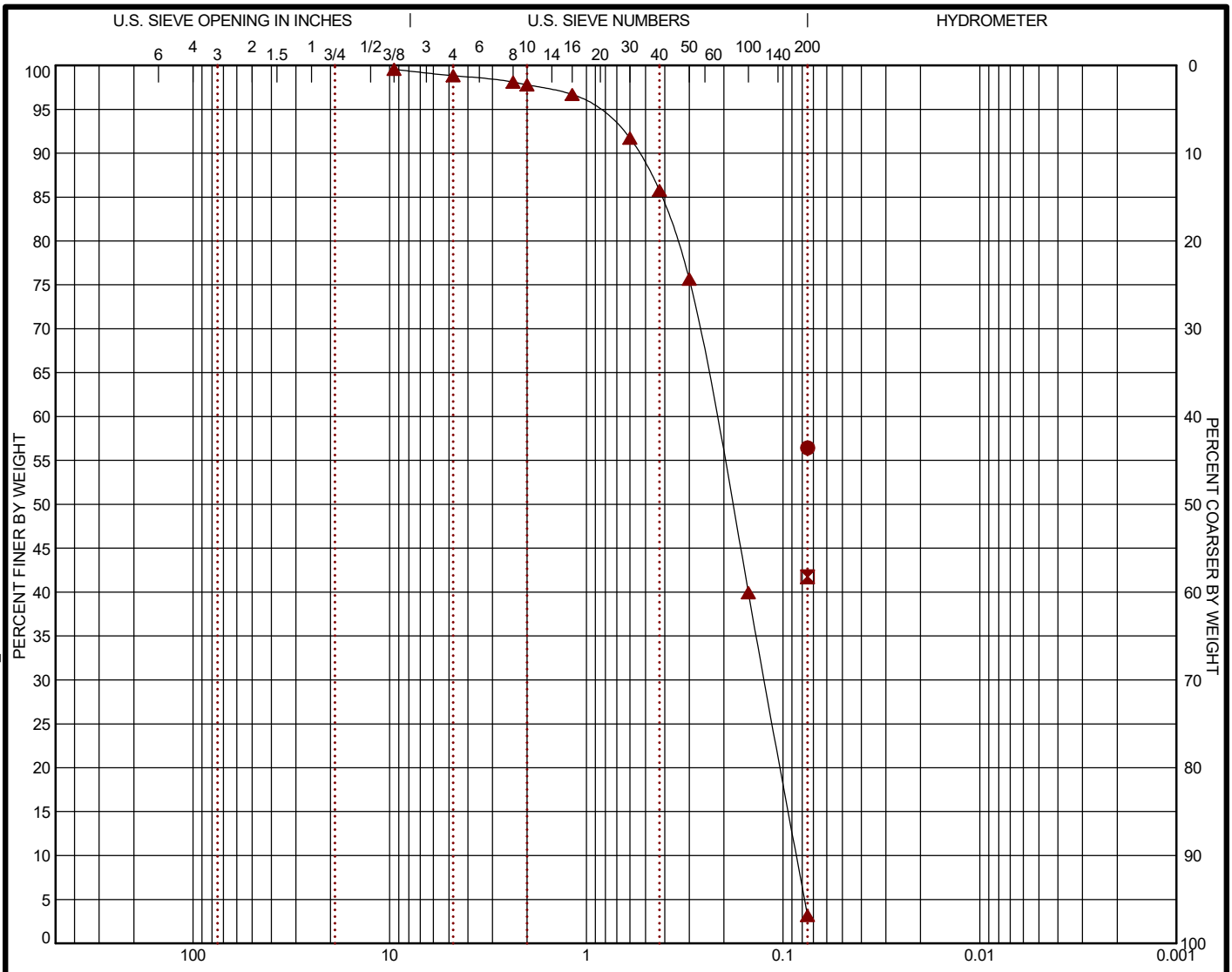
CLIENT: One Berry LLC
Brea, CA

EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/11/22

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	**B-4**	**0 - 2.5**					**56.4**		
⊠	**B-4**	**7.5 - 9**					**41.8**		
▲	**B-5**	**0 - 2.5**		**0.7**	**95.7**		**3.2**		**SP**

	GRAIN SIZE		
	●	⊠	▲
D_{60}			**0.221**
D_{30}			**0.124**
D_{10}			**0.085**
	COEFFICIENTS		
C_C			**0.82**
C_U			**2.59**

●		⊠		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#200	**56.43**	**#200**	**41.76**	**3/8"**	**99.56**
				#4	**98.83**
				#8	**98.1**
				#10	**97.78**
				#16	**96.69**
				#30	**91.71**
				#40	**85.77**
				#50	**75.65**
				#100	**39.94**
				#200	**3.15**

SOIL DESCRIPTION

●

⊠

▲ POORLY GRADED SAND (SP)

REMARKS

●

⊠

▲

PROJECT: Proposed Brea Gaslight Square

SITE: 255 E. Imperial Hwy.
Brea, CA

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB225046

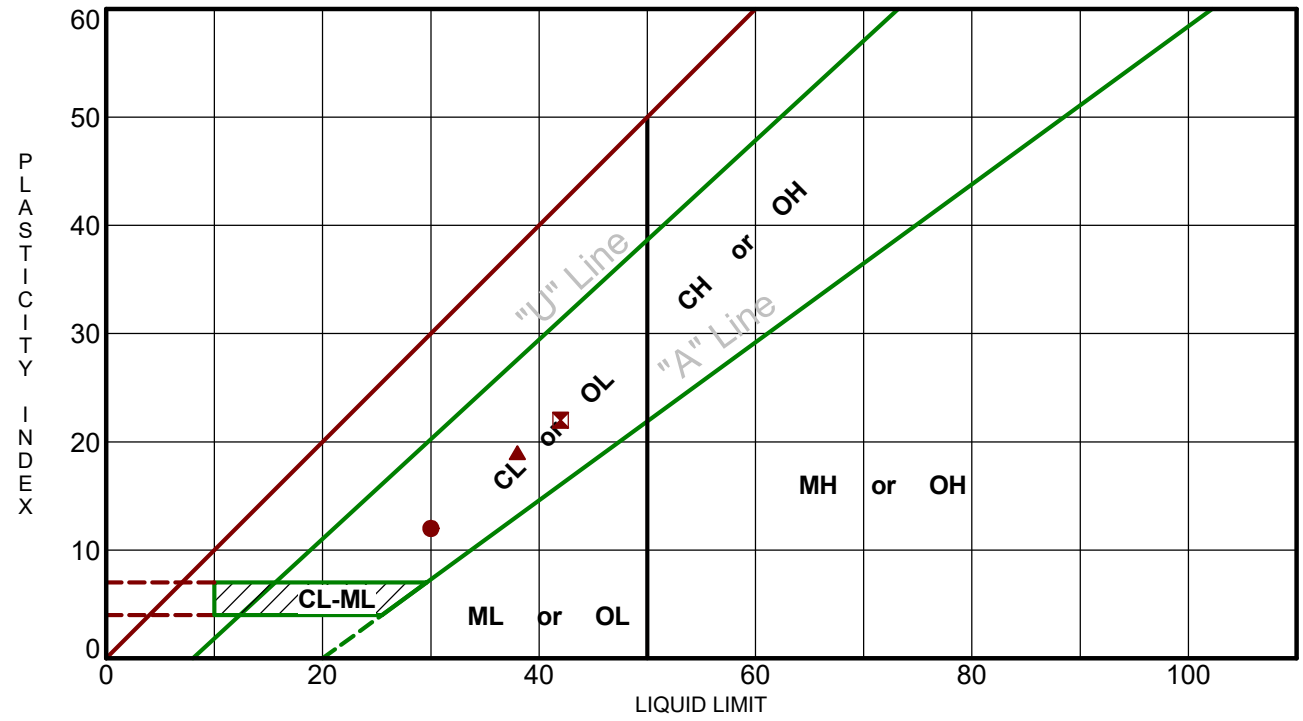
CLIENT: One Berry LLC
Brea, CA

EXHIBIT: B-2

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/11/22

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
● B-3	0 - 2.5	30	18	12	0.5	SP	POORLY GRADED SAND
⊠ B-5	0 - 2.5	42	20	22	3.2	SP	POORLY GRADED SAND
▲ B-6	0 - 2.5	38	19	19	59.1	CL	SANDY LEAN CLAY

PROJECT: Proposed Brea Gaslight Square

SITE: 255 E. Imperial Hwy.
Brea, CA

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB225046

CLIENT: One Berry LLC
Brea, CA

EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/11/22

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
One Berry LLC

Project
Proposed Brea Gaslight Square

Sample Submitted By: Terracon (CB) **Date Received:** 4/28/2022 **Lab No.: 22-0338**

Results of Corrosion Analysis

Sample Number	--
Sample Location	B-4
Sample Depth (ft.)	0.0
pH Analysis, ASTM G 51	8.54
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	342
Chlorides, ASTM D 512, (mg/kg)	37
Total Salts, AWWA 2540, (mg/kg)	1394
As-Received Resistivity, ASTM G 57, (ohm-cm)	8924
Saturated Minimum Resistivity, ASTM G 57, (ohm-cm)	1067

Analyzed By:
Nathan Campo
Engineering Technician II

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

BORING LOG NO. B-1

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8984°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.3		**ASPHALT**, 3" Thickness												
0.5		**AGGREGATE BASE COURSE**, 3" Thickness												
		SANDY LEAN CLAY (CL), brown					59						36-16-20	64
		very stiff				7-13-27					17	112		
			5			18-12-14 N=26								
						4-11-13					17	108		
			10			5-8-8 N=16								
15.0		**LEAN CLAY (CL)**, trace sand, dark brown, hard	15			16-22-26					19	100		
20.0		**SILTY CLAYEY SAND (SC-SM)**, brown, medium dense	20			6-10-11 N=21								
25.0		**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown, very dense	25			14-21-33 N=54								
26.5		***Boring Terminated at 26.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. B-2

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9159° Longitude: -117.8982°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.5		**ORGANIC CLAY WITH SAND (OL)**, dark brown to black												
		SANDY LEAN CLAY (CL), dark brown											27-13-14	63
		stiff				3-4-5 N=9								
		brown, hard	5			11-20-28					14	116		
		very stiff				6-8-8 N=16								
10.0		**LEAN CLAY WITH SAND (CL)**, brown, very stiff	10			8-16-19					17	110		
15.0		**SANDY LEAN CLAY (CL)**, brown, hard	15			12-15-22 N=37								
20.0		**SILTY SAND (SM)**, light brown, dense	20			21-32-30					14	115		
25.0		**POORLY GRADED SAND WITH SILT (SP-SM)**, dark tan, very dense	25			24-33-50/4"					4	111		
26.3		***Boring Terminated at 26.33 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings and surface capped with sod

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-1

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.916° Longitude: -117.8986° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	0.5 **ORGANIC CLAY WITH SAND (OL)**, dark brown **SANDY LEAN CLAY (CL)**, brown 5.0												
	Boring Terminated at 5 Feet	5											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings and surface capped with sod

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-02-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-2

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8982°

DEPTH	GRAPHIC LOG	DESCRIPTION
0.3		**ASPHALT**, 3" Thickness
0.5		**AGGREGATE BASE COURSE**, 3" Thickness
2.5		**LEAN CLAY WITH SAND (CL)**, dark brown to brown
		SANDY LEAN CLAY (CL), brown
20.0		**CLAYEY SAND (SC)**, brown
25.0		***Boring Terminated at 25 Feet***

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
5											
10											
15											
20											
25											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-02-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-3

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9163° Longitude: -117.8984°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	0.3 **ASPHALT**, 3" Thickness 0.6 **AGGREGATE BASE COURSE**, 4" Thickness **LEAN CLAY WITH SAND (CL)**, dark brown to brown	5											
	6.0 ***Boring Terminated at 6 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-4

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8981°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	0.2 **ASPHALT**, 2" Thickness 0.5 **AGGREGATE BASE COURSE**, 4" Thickness **LEAN CLAY WITH SAND (CL)**, dark brown to brown 6.0	5											
	Boring Terminated at 6 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

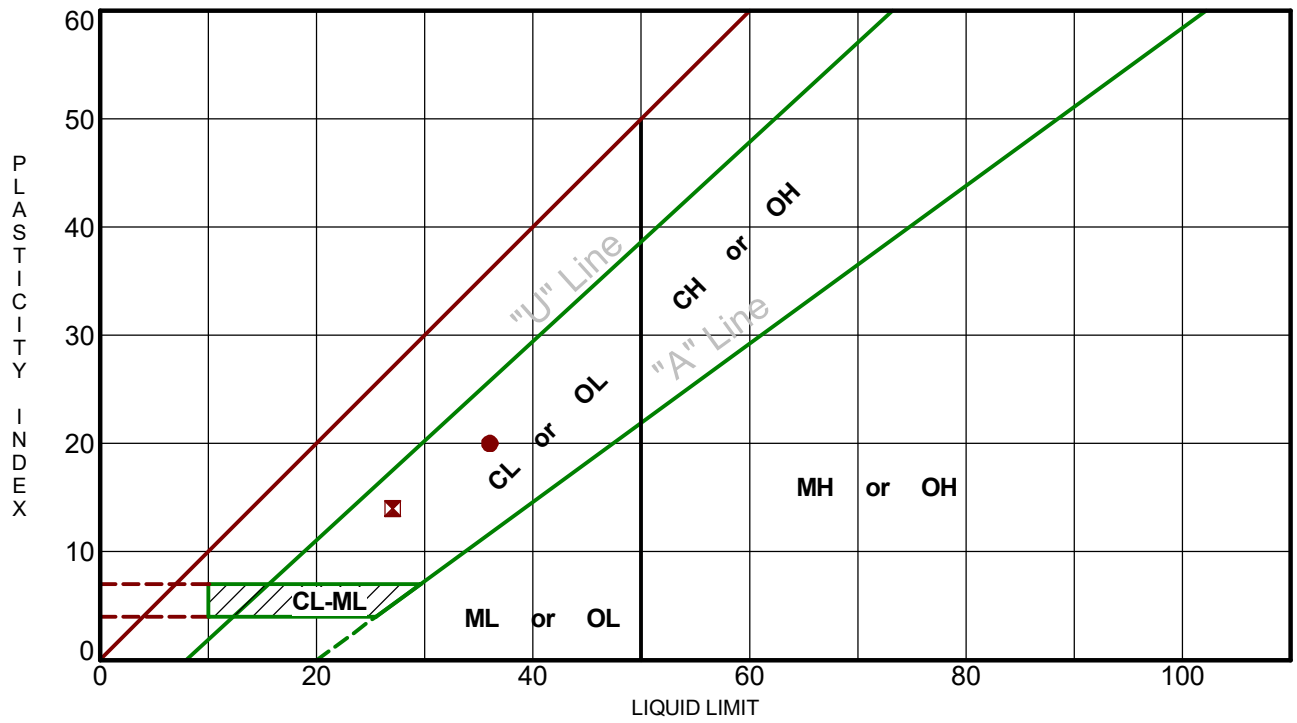
Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth	LL	PL	PI	Fines	USCS	Description
●	B-1	0.5 - 3	36	16	20	63.8	CL	SANDY LEAN CLAY
⊠	B-2	0 - 3	27	13	14	62.6	CL	SANDY LEAN CLAY

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

PROJECT NUMBER: 60205098

SITE: West Imperial Highway & South Flower Avenue, Brea, CA

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/11/20

ANAHEIM TEST LAB, INC

196 Technology Drive, Unit D
Irvine, CA 92618
Phone (949)336-6544

Terracon Consultants, Inc.
1421 Edinger Ave.
Tustin, CA 92780

DATE: 06/09/2020

P.O. NO.: Chain of Custody

LAB NO.: C-3851

SPECIFICATION: CTM-643/417/422

MATERIAL: Soil

Project No.: 60205098
Project: Raising Cane's Restaurant
(RC: 550) Brea
Sample ID: B-2 @ 0-3'

ANALYTICAL REPORT

CORROSION SERIES

SUMMARY OF DATA

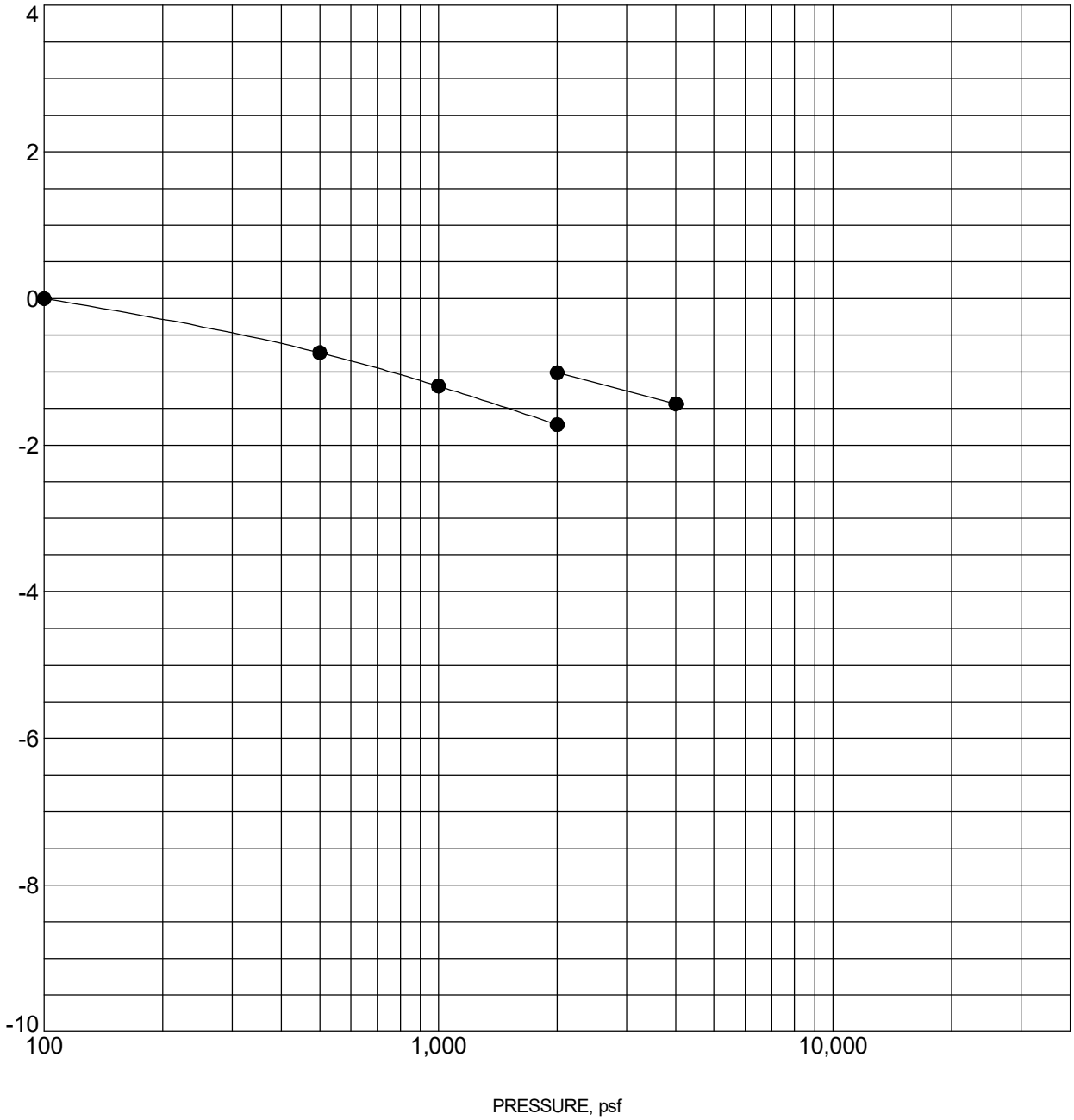
pH	MIN. RESISTIVITY per CT. 643 ohm-cm	SOLUBLE SULFATES per CT. 417 (% by weight)	SOLUBLE CHLORIDES per CT. 422 ppm
7.1	4,000	0.0312%	101

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

SWELL CONSOLIDATION TEST

ASTM D4546



Specimen Identification			Classification	γ_d, pcf	WC, %
●	B-1	3 - 4.5 ft	SANDY LEAN CLAY (CL)	112	17

NOTES: Water added at 2,000 psf

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

SITE: West Imperial Highway & South Flower Avenue, Brea, CA

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

PROJECT NUMBER: 60205098

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC_CONSOL_STRAIN-USCS 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/12/20

TERRACON

DATE: 6/5/2020 **P.N. :** 6E+07

CLIENT : Raising Canes **TECH:** M. Safaie

SITE: RC No. 550 - Brea

EXPANSION INDEX TEST

Location of sample	B-1	
Depth	0-3'	
Soil Classification	Sandy Lean Clay	
Wet Weight + Ring (gm)	589.4	
Ring Weight (gm)	182.5	
Wet Weight (gm)	406.9	
Wet Weight (lb.)	0.896	
Volume of Wet Soil	0.0073	
Wet Density (γ) lb./ft3	122.8	
% Moisture (W)	9.7	
Dry Density (γD) lb./ft3	111.9	
% Saturation = W/((62.4/γD) - (1/2.7))	51.8	
Initial Dial Reading	0.016	
Initial Time	2P.M.	
Final Dial Reading	0.075	
Final Time (Next Day)	2 P.M.	
Expansion Index	**59**	

SUPPORTING INFORMATION

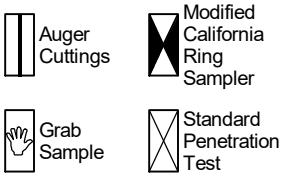
Contents:

General Notes
Unified Soil Classification System

GENERAL NOTES
DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Terracon GeoReport

SAMPLING



WATER LEVEL



Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Cave In Encountered

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

N	**Standard Penetration Test Resistance (Blows/Ft.)**
(HP)	**Hand Penetrometer**
(T)	**Torvane**
(DCP)	**Dynamic Cone Penetrometer**
UC	**Unconfined Compressive Strength**
(PID)	**Photo-Ionization Detector**
(OVA)	**Organic Vapor Analyzer**

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS

(More than 50% retained on No. 200 sieve.)
Density determined by Standard Penetration Resistance

Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6
Loose	4 - 9	7 - 18
Medium Dense	10 - 29	19 - 58
Dense	30 - 50	59 - 98
Very Dense	> 50	> 99

CONSISTENCY OF FINE-GRAINED SOILS

(50% or more passing the No. 200 sieve.)
Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (tsf)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Soft	less than 0.25	0 - 1	< 3
Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Stiff	0.50 to 1.00	4 - 8	5 - 9
Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Stiff	2.00 to 4.00	15 - 30	19 - 42
Hard	> 4.00	> 30	> 42

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu ≥ 4 and 1 ≤ Cc ≤ 3 [E]		GW	Well-graded gravel [F]
			Cu < 4 and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu ≥ 6 and 1 ≤ Cc ≤ 3 [E]		SW	Well-graded sand [I]
			Cu < 6 and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

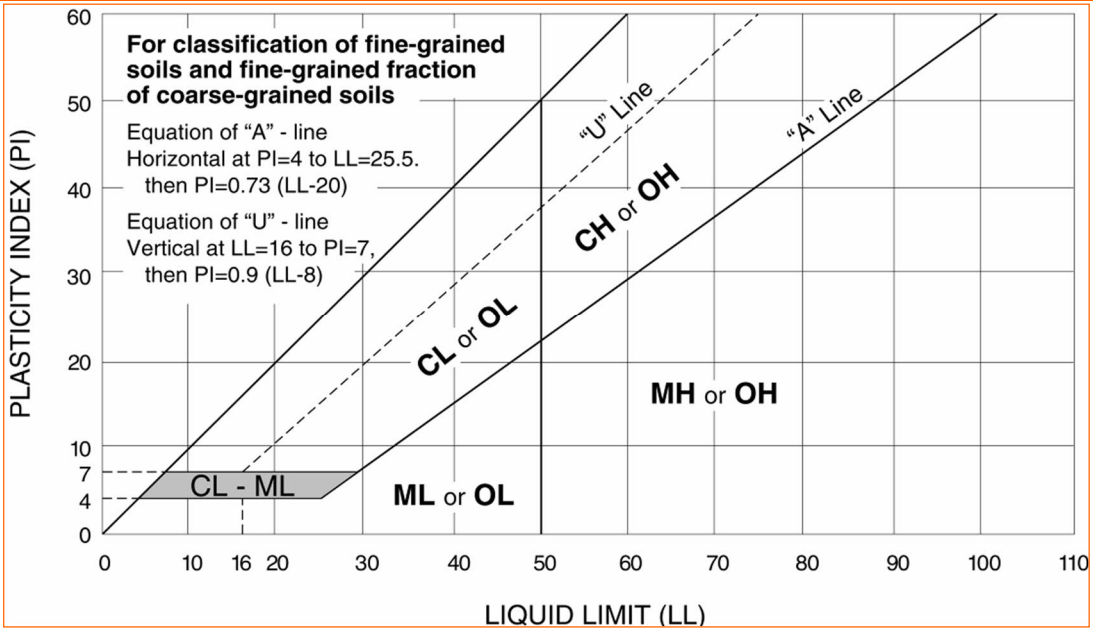
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Brea Gaslight Square

GREENHOUSE GAS ANALYSIS

CITY OF BREA

PREPARED BY:

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January 23, 2023

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**
APPENDICES ..... **I**
LIST OF EXHIBITS ..... **I**
LIST OF TABLES ..... **II**
LIST OF ABBREVIATED TERMS ..... **III**
EXECUTIVE SUMMARY ..... **VII**

ES.1 Summary of Findings vii
ES.2 Project Requirements vii

1 INTRODUCTION **9**

1.1 Site Location 9
1.2 Project Description 9

2 CLIMATE CHANGE SETTING **13**

2.1 Introduction to Global Climate Change 13
2.2 Global Climate Change Defined 13
2.3 Greenhouse Gases 13
2.4 Global Warming Potential 19
2.5 Greenhouse Gas Emissions Inventories 21
2.6 Regulatory Setting 21

3 PROJECT GREENHOUSE GAS IMPACT **39**

3.1 Introduction 39
3.2 Standards of Significance 39
3.3 California Emissions Estimator Model™ 41
3.4 Construction and Operational Life-Cycle Analysis Not Required 41
3.5 Construction Emissions 42
3.6 Operational Emissions 44
3.7 Emissions Summary 46
3.8 Greenhouse Gas Emissions Findings and Recommendations 47

4 REFERENCES **1**
5 CERTIFICATIONS **5**

APPENDICES

APPENDIX 3.1: PROPOSED PROJECT CALEEMOD EMISSIONS MODEL OUTPUTS
APPENDIX 3.2: EXISTING CALEEMOD EMISSIONS MODEL OUTPUTS

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP **10**
EXHIBIT 1-B: SITE PLAN **11**
EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990) **20**

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS VII
TABLE 2-1: GREENHOUSE GASES 14
TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS 20
TABLE 3-1: CONSTRUCTION DURATION 42
TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS 43
TABLE 3-3: CONSTRUCTION GHG EMISSIONS 44
TABLE 3-4: EMISSIONS FROM EXISTING DEVELOPMENT 46
TABLE 3-5: PROJECT GHG EMISSIONS 46

LIST OF ABBREVIATED TERMS

%	Percent
°F	Degrees Fahrenheit
(1)	Reference
AB	Assembly Bill
AB 32	Global Warming Solutions Act of 2006
AB 1493	Pavley Fuel Efficiency Standards
ABAU	Adjusted BAU
Annex I	Industrialized Nations
APA	Administrative Procedure Act
BAU	Business as Usual
C_2F_6	Hexafluoroethane
C_2H_6	Ethane
$C_2H_2F_4$	Tetrafluroethane
$C_2H_4F_2$	Ethylidene Fluoride
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CALGAPS	California LBNL GHG Analysis of Policies Spreadsheet
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAP	Climate Action Plan
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CF_4	Tetrafluoromethane
CFC	Chlorofluorocarbons
CH_4	Methane
CHF_3	Fluoroform
CH_2FCF	1,1,1,2-tetrafluoroethane
CH_3CF_2	1,1-difluoroethane
CNRA	California Natural Resources Agency
CNRA 2009	2009 California Climate Adaptation Strategy
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EMFAC	EMissions FACtor
EPA	U.S. Environmental Protection Agency

GCC	Global Climate Change
Gg	Gigagram
GHGA	Greenhouse Gas Analysis
GWP	Global Warming Potential
HDT	Heavy-Duty Trucks
IPCC	Intergovernmental Panel on Climate Change
LBNL	Lawrence Berkeley National Laboratory
LCA	Life-Cycle Analysis
LCD	Liquid Crystal Display
LCFS	Low Carbon Fuel Standard
LEV III	Low-Emission Vehicle
MMT CO_2e	Million Metric Ton of Carbon Dioxide Equivalent
MPG	Miles Per Gallon
MPOs	Metropolitan Planning Organizations
MT/yr	Metric Tons Per Year
MT CO_2e	Metric Ton of Carbon Dioxide Equivalent
MWELO	California Department of Water Resources' Model Water Efficient
N_20	Nitrous Oxide
NF_3	Nitrogen Trifluoride
NHTSA	National Highway Traffic Safety Administration
NIOSH	National Institute for Occupational Safety and Health
NO_X	Oxides of Nitrogen
Non-Annex I	Developing Nations
OAL	Office of Administrative Law
OPR	Office of Planning and Research
PFC	Perfluorocarbons
ppm	Parts Per Million
ppt	Parts Per Trillion
Project	Brea Gaslight Square
RPS	Renewable Portfolio Standards
RTPs	Regional Transportation Plans
SB	Senate Bill
SB 32	California Global Warming Solutions Act of 2006: Emission Limit
SB 375	Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies
SCAQMD	South Coast Air Quality Management District

sf	Square Feet
SF_6	Sulfur Hexafluoride
SP	Service Population
SR-79	State Route 79
UNFCCC	United Nations' Framework Convention on Climate Change
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WRI	World Resources Institute
ZEV	Zero-Emissions Vehicles

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

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

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: Would the Project generate direct or indirect GHG emission that would result in a significant impact on the environment?	3.8	*Less Than Significant*	*N/A*
GHG Impact #2: Would the Project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?	3.8	*Less Than Significant*	*N/A*

ES.2 PROJECT REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District (SCAQMD) aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of GHG emissions include:

- California Global Warming Solutions Act of 2006: Emissions Limit (SB 32) (2).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (Senate Bill (SB) 375) (3).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles (4).
- California Building Code (Title 24 California Code of Regulations (CCR)). Establishes energy efficiency requirements for new construction (5).
- Appliance Energy Efficiency Standards (Title 20 CCR). Establishes energy efficiency requirements for appliances (6).
- Low Carbon Fuel Standard (LCFS). Requires carbon content of fuel sold in California to be 20% less by 2030 (7).
- California Water Conservation in Landscaping Act of 2006 (AB 1881). Requires local agencies to adopt the Department of Water Resources Model Water Efficient Landscape Ordinance, or equivalent, to ensure efficient landscapes in new development and reduced water waste in existing landscapes (8).

- Statewide Retail Provider Emissions Performance Standards. Requires energy generators to achieve performance standards for GHG emissions (9).
- Renewable Portfolio Standards (RPS). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 60 percent by 2030, with interim targets of 44 percent by 2024 and 52 percent by 2027 as well (10).

Promulgated regulations that will affect the Project's emissions are accounted for in the Project's GHG calculations provided in this report. In particular, AB 1493, LCFS, and RPS, and therefore are accounted for in the Project's emission calculations.

1 INTRODUCTION

This report presents the results of the Greenhouse Gas Analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed Brea Gaslight Square ("Project"). The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Project is located between located between Orange Avenue and Flower Avenue and north of Imperial Highway (State Route or SR-90) at 255 Imperial Highway (SR-90) in the City of Brea, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project involves the redevelopment of approximately 0.95-acre of a 1.88-acre Project site. The site is currently occupied with six commercial/office buildings. The southern 0.95-acre portion of the Project site is proposed to be redeveloped with two proposed commercial buildings. As part of the Project, four of the existing commercial/office buildings would be demolished, including two 2,799 square foot (s.f.) office buildings, a 3,166 s.f. office building, and a two-story office/commercial building that contains 10,109 s.f. of floor space. Two new commercial buildings would be constructed on-site. A 6,000 s.f. commercial building is proposed at the northeast corner of South Orange Avenue and Imperial Highway, which would include a 2,400 s.f. sit-down restaurant and 3,600 s.f. of retail or medical office uses as shown on Exhibit 1-B. In addition, an approximate 2,000 s.f. drive-through restaurant is proposed at the northwest corner of South Flower Avenue and Imperial Highway. Future tenants of the new, proposed buildings are unknown at this time.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



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2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

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

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

2.2 GLOBAL CLIMATE CHANGE DEFINED

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

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative increased accumulation of these gases in the earth's atmosphere over the past 200 years is considered to be the cause for the observed increase in the earth's temperature.

2.3 GREENHOUSE GASES

GREENHOUSE GASES AND HEALTH EFFECTS

GHGs trap heat in the atmosphere, creating a GHG effect that results in climate change. Many gases demonstrate these properties and as discussed in Table 2-1. For the purposes of this analysis, emissions of CO_2, CH_4, and N_2O were evaluated because these gases are the primary

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

TABLE 2-1: GREENHOUSE GASES

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

TABLE 2-1: GREENHOUSE GASES

Greenhouse Gases	Description	Sources	Health Effects
	will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up) (11).		
CO_2	CO_2 is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30%. Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (12).	CO_2 is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO_2 is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (13).	Outdoor levels of CO_2 are not high enough to result in negative health effects. According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO_2 can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO_2 in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of

TABLE 2-1: GREENHOUSE GASES

Greenhouse Gases	Description	Sources	Health Effects
			30,000 ppm averaged over a 15 minute period (14).
CH_4	CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropocentric sources include fossil-fuel combustion and biomass burning (15).	CH_4 is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high levels of CH_4 can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.
N_2O	N_2O, also known as laughing gas, is a colorless GHG. Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion.	N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and	N_2O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (16).

TABLE 2-1: GREENHOUSE GASES

Greenhouse Gases	Description	Sources	Health Effects
		vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (16).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

TABLE 2-1: GREENHOUSE GASES

Greenhouse Gases	Description	Sources	Health Effects
		atmosphere for over 100 years (17).	
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), fluoroform (CHF_3), 1,1,1,2-tetrafluoroethane (CH_2FCF), and 1,1-difluoroethane (CH_3CF_2). Prior to 1990, the only significant emissions were of CHF_3. CH_2FCF emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The U.S. Environmental Protection Agency (EPA) estimates that concentrations of CF_4 in the atmosphere are over 70 parts per trillion (ppt).	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.
SF_6	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential (GWP) of any gas evaluated (23,900) (18). The EPA	SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

TABLE 2-1: GREENHOUSE GASES

Greenhouse Gases	Description	Sources	Health Effects
	indicates that concentrations in the 1990s were about 4 ppt.	manufacturing, and as a tracer gas for leak detection.	
Nitrogen Trifluoride (NF_3)	NF_3 is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI) indicates that NF_3 has a 100-year GWP of 17,200 (19).	NF_3 is used in industrial processes and is produced in the manufacturing of semiconductors, Liquid Crystal Display (LCD) panels, types of solar panels, and chemical lasers.	Long-term or repeated exposure may affect the liver and kidneys and may cause fluorosis (20).

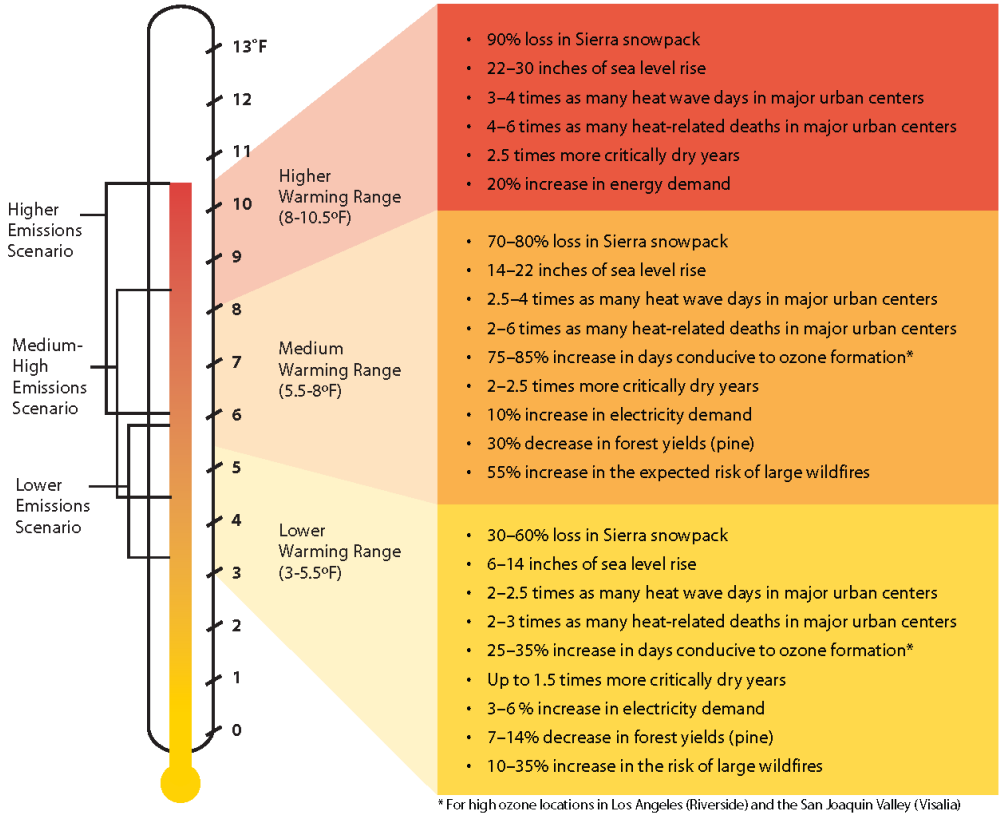
The potential health effects related directly to the emissions of CO_2, CH_4, and N_2O as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (21). Exhibit 2-A presents the potential impacts of global warming (22).

2.4 GLOBAL WARMING POTENTIAL

GHGs have varying global warming potential (GWP) values. GWP of a GHG indicates the amount of warming a gas may cause over a given period of time and represents the potential of a gas to trap heat in the atmosphere. CO_2 is utilized as the reference gas for GWP, and thus has a GWP of 1. CO_2 equivalent (CO_2e) is a term used for describing the difference GHGs in a common unit. CO_2e signifies the amount of CO_2 which would have the equivalent GWP.

The atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for each assessment report has changed based the current understanding of the interactions of different chemicals in the atmosphere (23).

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



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

TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	GWP (100-year time horizon)		
		2nd Assessment Report	4th Assessment Report	5th Assessment Report
CO_2	See*	1	1	1
CH_4	12 .4	21	25	28
N_2O	121	310	298	265
HFC-23	222	11,700	14,800	12,400
HFC-134a	13.4	1,300	1,430	1,300
HFC-152a	1.5	140	124	138
SF_6	3,200	23,900	22,800	23,500

Source: International Panel on Climate Change, Library. https://www.ipcc.ch/library/

2.5 GREENHOUSE GAS EMISSIONS INVENTORIES

2.5.2 UNITED STATES

According to the United States (U.S.) Environmental Protection Agency (EPA), in 2019, GHG emissions in the U.S. totaled 6,558 million metric tons of carbon dioxide equivalents (MT CO_2e), or 5,769 million MT CO_2e after accounting for sequestration from the land sector. Emissions decreased from 2018 to 2019 by 1.7% (after accounting for sequestration from the land sector). This decrease was driven largely by a decrease in emissions from fossil fuel combustion resulting from a decrease in total energy use in 2019 compared to 2018 and a continued shift from coal to natural gas and renewables in the electric power sector. In 2019 U.S. GHG emissions were 13% below 2005 levels (24).

2.5.3 STATE OF CALIFORNIA

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls but is still a substantial contributor to the U.S. emissions inventory total. The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2021 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2019 GHG emissions period, California emitted an average 418.2 million MT CO_2e per year (/yr) (25). In 2016, statewide GHG emissions dropped below the 2020 GHG Limit and have remained below the Limit since that time.

2.6 REGULATORY SETTING

2.6.1 FEDERAL

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

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

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below (26).

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

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

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

On April 2, 2018, the EPA signed the Mid-term Evaluation Final Determination, which declared that the MY 2022-2025 GHG standards are not appropriate and should be revised (27). This Final Determination serves to initiate a notice to further consider appropriate standards for MY 2022-2025 light-duty vehicles. On August 2, 2018, the NHTSA in conjunction with the EPA, released a notice of proposed rulemaking, the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). The SAFE Vehicles Rule was proposed to amend exiting Corporate Average Fuel Economy (CAFE) and tailpipe CO_2

standards for passenger cars and light trucks and to establish new standards covering model years 2021 through 2026. As of March 31, 2020, the NHTSA and EPA finalized the SAFE Vehicle Rule, which set new CAFE standards and requires a 1.5% improvement in vehicle fuel efficiency each year through model year 2026 (28).

As of January 2021, Executive Order 13990 directed the EPA to reconsider the EPA's 2019 action titled "The Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program Rule (SAFE-1)" for the purposes of rescinding the action taken by the prior administration (29).

Mandatory Reporting of GHGs. The Consolidated Appropriations Act of 2008 requires the establishment of mandatory GHG reporting requirements. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

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

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

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

SmartWay Program. The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (30):

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

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

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

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

2.6.2 STATE

2.7.3.1 EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has issued several Executive Orders (EO) to state agencies to reduce GHGs. EO are not legally enforceable on local governments or the private sector. Although not regulatory and not directly applicable to development projects, they set the tone for the state and guide the actions of state agencies.

EXECUTIVE ORDER S-3-05

Executive Order (EO) S-3-05 initiated the State's formal efforts to reduce GHG emissions and set the following reduction targets for GHG emissions:

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

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target.

EXECUTIVE ORDER S-01-07

EO S-01-07 mandates a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. CARB adopted the Low Carbon Fuel Standard (LCFS) to achieve the 10% reduction in GHG emissions from the transportation fuels sector by 2020.

EXECUTIVE ORDER S-13-08

EO S-13-08 requires the creation of the California Climate Adaptation Strategy (CCAS), the first of which was adopted. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

EXECUTIVE ORDER B-30-15

EO B-30-15 establishes a California GHG reduction target of 40% below 1990 levels by 2030. The new interim statewide GHG emission reduction target is set at a level to ensure California meets its 2050 target of reducing GHG emissions 80% below 1990 levels. EO B-30-15 directs CARB to update the State Climate Change Scoping Plan to include a 2030 target in terms of millions of MT CO_2e. EO B-30-15 also requires the CCAS to be updated every three years, and for the State to continue its climate change research program, among other provisions.

EXECUTIVE ORDER B-55-18

Executive Order B-55-18 establishes a Statewide policy to achieve carbon neutrality by 2045 and maintain net negative emissions thereafter. As per Executive Order B-55-18, CARB is directed to work with relevant State agencies to develop a framework for implementation and accounting that tracks progress toward this goal and to ensure future Climate Change Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

EXECUTIVE ORDER N-79-20

EO N-79-20 sets new statewide goals for phasing out gasoline-powered cars and trucks in California. Under EO N-79-20, 100% of in-state sales of new passenger cars and trucks are to be zero-emission by 2035; 100% of in-state sales of medium- and heavy-duty trucks and busses are to be zero-emission by 2045, where feasible; and 100% of off-road vehicles and equipment sales

are to be zero-emission by 2035, where feasible. EO-79-20 directs CARB and other state agencies to develop regulations or take other steps within existing authority to achieve these goals.

2.7.3.1 LEGISLATIVE ACTIONS TO REDUCE GHGS

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as Global Warming Solutions Act of 2006 (AB32) and the Global Warming Solutions Act of 2006: Emissions Limit (SB 32) which were specifically enacted to address GHG emissions and the 2020 and 2030 targets identified in EO S-3-05 and B-30-15.

GLOBAL WARMING SOLUTIONS ACT OF 2006 (AB 32)

In 2006, the State Legislature enacted AB 32, the California Global Solutions Act of 2006 (HSC §38500-38599), which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020 (this goal has been met since 2016[1]). GHGs as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

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

GLOBAL WARMING SOLUTIONS ACT OF 2006: EMISSIONS LIMIT (SB 32)

In September 2016, the State Legislature enacted SB 32, the California Global Warming Solutions Act of 2006: Emissions Limit (HSC §38566). SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon AB 32 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050 (31).

THE SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT OF 2008 (SB 375)

According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40% of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community

[1] Based upon the 2021 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2019 GHG emissions period, California emitted less than the 2020 emissions target of 431 million MT CO_2e in 2016 and each year after that.

strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

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

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

VEHICULAR EMISSIONS: GREENHOUSE GASES (AB 1493)

California's AB 1493, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. The standards initially phased in during the 2009 through 2016 model years. The near-term (2009–2012) standards resulted in about a 22% reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards resulted in about a 30% improvement in fuel efficiency. The second phase of the implementation for AB 1493 was incorporated into Amendments to the Low-Emission Vehicle Program (LEV III) or the Advanced Clean Cars (ACC) program. The ACC program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation is intended reduce GHGs from new cars by 34% from 2016 levels by 2025. The new rules are intended to clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric vehicles (EV), newly emerging plug-in hybrid EVs, and hydrogen fuel cell vehicles. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

CALIFORNIA RENEWABLES PORTFOLIO STANDARD PROGRAM: EMISSIONS OF GREENHOUSE GASES

The State Renewable Portfolio Standard (RPS) was initially established by SB 1078. SB 1078 required electricity providers to increase procurement of electricity from renewable energy sources by at least one percent per year with the goal of reaching 20 percent renewables by 2017. SB 107 accelerated the 20 percent RPS requirement from 2017 to 2010. Subsequently, SB 2 (1X) increased the RPS requirements to 33 percent renewables by 2020 with compliance period targets of 20 percent by 2013 and 25 percent by 2016. SB 350 further increases the RPS requirement to 50 percent by 2030, with interim targets of 40 percent by 2024 and 45 percent by 2027. In addition, the bill requires that 65 percent of RPS procurement must be derived from long-term contracts (10 years or more) starting in 2021. The most recent change is from SB 100, which increases RPS requirements to 60 percent by 2030, with new interim targets of 44 percent by 2024 and 52 percent by 2027 as well. The bill further requires that all of the state's electricity come from carbon-free resources (not only RPS-eligible ones) by 2045.

MODEL WATER EFFICIENT LANDSCAPING ORDINANCE

The Model Water Efficient Landscaping Ordinance (MWELO) was enacted by AB 1881, the Water Conservation Act. AB 1881 required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. EO B-29-15 directs DWR to update the MELOW through expedited regulation. The California Water Commission approved the revised MELOW became effective December 15, 2015, which requires new development projects that include landscape areas of 500 sf to implement:

- More efficient irrigation systems;
- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Includes reporting requirements for local agencies.

SB 97 AND THE CEQA GUIDELINES UPDATE

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

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

Section 15064.3 was added the CEQA Guidelines and states that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or

methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use (32).

CALIFORNIA RPS PROGRAM

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

2.7.3.2 CARB

CALIFORNIA CLIMATE CHANGE SCOPING PLAN

In December 2022, CARB released the *Final 2022 Scoping Plan Update* (*2022 Scoping Plan*), which identifies the State's strategies to reduce GHG emissions by 85% and achieve carbon neutrality by 2045. The *2022 Scoping Plan* reflects an accelerated target of an 85% reduction in GHG emissions compared to 1990 levels by 2045 (33). This third update relies on key programs in place, including the Cap-and-Trade Regulation and the LCFS, while stressing the need to increase their pace and scale.

In order to meet these targets, the *2022 Scoping Plan* would require contributions from all sectors of the economy and includes an enhanced focus on reducing fossil fuel demand by 94% by 2045 compared to 2022 consumption.

Major elements of the *2022 Scoping Plan* framework include:

- Maintaining progress on meeting SB 32 GHG reduction targets of at least 40% below 1990 emissions by 2030.
- Implementation of strategies for reducing California's dependence on petroleum by providing consumers with clean energy options.
- Integrating equity and protecting California's most impacted communities.
- Incorporation of natural and working lands to the state's GHG emissions, as well as their role in achieving carbon neutrality.
- Use of all viable tools to address climate change, including carbon capture and sequestration, as well as direct air capture.

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

In addition to the statewide strategies listed above, the *2022 Scoping Plan* also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the previous *2017 Scoping Plan*, CARB recommended that local governments achieve a community-wide goal to achieve emissions of no more than 6 metric tons of CO_2e ($MTCO_2e$) or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. However, because the state is now pursuing carbon neutrality no later than 2045, CARB now recommends that local governments instead focus on developing locally-appropriate, plan-level targets that align with the goal of carbon neutrality rather than focusing on a 2050 target. CARB identifies several "priority areas," including transportation electrification, VMT reduction, and building decarbonization, as these are the GHG reduction opportunities over which local governments have the most authority and the highest GHG reduction potential.

CAP-AND-TRADE PROGRAM

The *2022 Scoping Plan* identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program would help put California on the path to meet its goal of achieving a 40% reduction in GHG emissions from 1990 levels by 2030. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap would be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from regulated entities by more than 16% between 2013 and 2020, and by an additional 40% by 2030. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25.000 $MTCO_2e$/yr must comply with the Cap-and-Trade Program. Triggering of the 25.000 $MTCO_2e$/yr "inclusion threshold" is measured against a subset

of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30% of the prior year's compliance obligation by November of each year (34).

The Cap-and-Trade Program provides a firm cap, which provides the highest certainty of achieving the 2030 target. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the *First Update to the Climate Change Scoping Plan*:

> *"The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative."* (35)

The Cap-and-Trade Program covered approximately 80% of California's GHG emissions (36). The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported.

CARB REFRIGERANT MANAGEMENT PROGRAM

CARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, CCR. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 lbs of a high GWP refrigerant. The refrigerant

management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

LCFS

In 2018, the CARB approved amendments to LCFS that included strengthening the carbon intensity benchmarks through 2030 in compliance with GHG emissions reduction target for 2030. The amendments included crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector (37).

PHASE I AND 2 HEAVY-DUTY VEHICLE GHG STANDARDS

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

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

In February 2019, the OAL approved the Phase 2 Heavy-Duty Vehicle GHG Standards and became effective April 1, 2019. The Phase 2 GHG standards are needed to offset projected VMT growth and keep heavy-duty truck CO_2 emissions declining. The federal Phase 2 standards establish for the first time, federal emissions requirements for trailers hauled by heavy-duty tractors. The federal Phase 2 standards are more technology-forcing than the federal Phase 1 standards, requiring manufacturers to improve existing technologies or develop new technologies to meet the standards. The federal Phase 2 standards for tractors, vocational vehicles, and heavy-duty pick-up trucks and vans (PUVs) will be phased-in from 2021-2027, additionally for trailers, the standards are phased-in from 2018 (2020 in California) through 2027 (38).

TRACTOR-TRAILER GHG REGULATION

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

2.7.3.3 CALIFORNIA REGULATIONS AND BUILDING CODES

Other legislation such as Title 20 and Title 24 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions.

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

TITLE 20 CCR

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

TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recently approved update consisting of the 2022 California Green Building Code Standards that was effective on January 1, 2023. The Project would be required to comply with the applicable standards in place at the time plan check submittals are made (39). These require, among other items (40):

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3). Additionally, Table 5.106.5.4.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty electric vehicle supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reuse or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).

- Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
- Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).

- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.6.3 REGIONAL

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

SCAQMD

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

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD

Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and Commercial land use: 3,000 MT CO_2e per year
    - Industrial land use: 10,000 MT CO_2e per year
    - Based on land use type: residential: 3,500 MT CO_2e per year; commercial: 1,400 MT CO_2e per year; or mixed use: 3,000 MT CO_2e per year
- Tier 4 has the following options:
    - Option 1: Reduce BAU emissions by a certain percentage; this percentage is currently undefined.
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
    - Option 3: 2020 target for service populations (SP), which includes residents and employees: 4.8 MT CO_2e/SP/year for projects and 6.6 MT CO2e/SP/year for plans;
    - Option 3, 2035 target: 3.0 MT CO_2e/SP/year for projects and 4.1 MT CO_2e/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

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

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

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

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.

- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

CONNECT SOCAL 2020-2045 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

On September 3,2020 SCAG's Regional Council adopted the Connect SoCal 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The plan charts a path toward a more mobile, sustainable and prosperous region by making key connections: between transportation networks, between planning strategies and between the people whose collaboration can make plans a reality (41).

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3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

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

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related GHG impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to GHG if it would (42):

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

The evaluation of an impact under CEQA requires measuring data from a project against both existing conditions and a "threshold of significance." For establishing significance thresholds, the Office of Planning and Research's amendments to the CEQA Guidelines Section 15064.7(c) state "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

CEQA Guidelines Section 15064.4(a) further states, ". . . A lead agency shall have discretion to determine, in the context of a particular project, whether to: (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use . . .; or (2) Rely on a qualitative analysis or performance-based standards."

CEQA Guidelines Section 15064.4 provides that a lead agency should consider the following factors, among others, in assessing the significance of impacts from greenhouse gas emissions:

- **Consideration #1:** The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration #2:** Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration #3:** The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies

address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

4.2.1 THRESHOLDS OF SIGNIFICANCE

The City of Brea has not adopted its own numeric threshold of significance for determining impacts with respect to GHG emissions. The *Guidance for Greenhouse Gas Emissions Analysis* (Memo) provides guidance to the City of Brea Planning Division staff for evaluating GHG emissions analyses in CEQA documents for all non-exempt project where the City of Orange is the lead agency. Based on the Memo, the City will accept GHG analyses that use the Tier 3 quantitative thresholds recommended in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* (SCAQMD Interim Threshold) (43).

The 3,000 $MTCO_2e$ per year threshold is based on a 90 percent emission "capture" rate methodology. Prior to its use by the SCAQMD, the 90 percent emissions capture approach was one of the options suggested by the California Air Pollution Control Officers Association (CAPCOA) in their *CEQA & Climate Change* white paper (2008). A 90 percent emission capture rate means that unmitigated GHG emissions from the top 90 percent of all GHG-producing projects within a geographic area – the SCAB in this instance – would be subject to a detailed analysis of potential environmental impacts from GHG emissions, while the bottom 10 percent of all GHG-producing projects would be excluded from detailed analysis. A GHG significance threshold based on a 90 percent emission capture rate is appropriate to address the long-term adverse impacts associated with global climate change because medium and large projects will be required to implement measures to reduce GHG emissions, while small projects, which are generally infill development projects that are not the focus of the State's GHG reduction targets, are allowed to proceed. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial proportion of future development projects and demonstrate that cumulative emissions reductions are being achieved while setting the emission threshold high enough to exclude small projects that will, in aggregate, contribute approximate 1 percent of projected statewide GHG emissions in the Year 2050 (44).

In setting the threshold at 3,000 $MTCO_2e$ per year, SCAQMD researched a database of projects kept by the Governor's Office of Planning and Research (OPR). That database contained 798 projects, 87 of which were removed because they were very large projects and/or outliers that would skew emissions values too high, leaving 711 as the sample population to use in determining the 90th percentile capture rate. The SCAQMD analysis of the 711 projects within the sample population combined commercial, residential, and mixed-use projects. It should be noted that the sample of projects included warehouses and other light industrial land uses but did not include industrial processes (i.e., oil refineries, heavy manufacturing, electric generating stations, mining operations, etc.). Emissions from each of these projects were calculated by SCAQMD to provide a consistent method of emissions calculations across the sample population and from projects within the sample population. In calculating the emissions, the SCAQMD analysis determined that the 90th percentile ranged between 2,983 to 3,143 $MTCO_2e$ per year. The SCAQMD set their significance threshold at the low-end value of the range when rounded to the nearest hundred tons of emissions (i.e., 3,000 $MTCO_2e$ per year) to define small projects that are considered less than significant and do not need to provide further analysis.

The City understands that the 3,000 $MTCO_2e$ per year threshold for residential/commercial uses was proposed by SCAQMD a decade ago and was adopted as an interim policy; however, no permanent, superseding policy or threshold has since been adopted. The 3,000 $MTCO_2e$ per year threshold was developed and recommended by SCAQMD, an expert agency, based on substantial evidence as provided in the *Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold* (2008) document and subsequent Working Group meetings (latest of which occurred in 2010). SCAQMD has not withdrawn its support of the interim threshold and all documentation supporting the interim threshold remains on the SCAQMD website on a page that provides guidance to CEQA practitioners for air quality analysis (and where all SCAQMD significance thresholds for regional and local criteria pollutants and toxic air contaminants also are listed). Further, as stated by SCAQMD, this threshold "uses the Executive Order S-3-05 goal [80 percent below 1990 levels by 2050] as the basis for deriving the screening level" and, thus, remains valid for use in 2022 (44). Lastly, this threshold has been used for hundreds, if not thousands of GHG analyses performed for projects located within the SCAQMD jurisdiction.

Thus, for purposes of analysis in this analysis, if Project-related GHG emissions do not exceed the 3,000 $MTCO_2e$ per year threshold, then Project-related GHG emissions would clearly have a less-than-significant impact pursuant to Threshold GHG-1. On the other hand, if Project-related GHG emissions exceed 3,000 $MTCO_2e$ per year, the Project would be considered a substantial source of GHG emissions.

3.3 CALIFORNIA EMISSIONS ESTIMATOR MODEL™

In May 2022 California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released the latest version of the CalEEMod Version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation (45). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions. CalEEMod output for both construction and operational scenarios is provided in Appendix 3.1.

3.4 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (46). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time, an LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and

would be challenging to mitigate (47). Additionally, the science to calculate life cycle emissions is not yet established or well defined; therefore, SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.5 CONSTRUCTION EMISSIONS

Project construction actvities would generate CO_2 and CH_4 emissions. The report *Brea Gaslight Square Air Quality Impact Analysis Report* (Urban Crossroads, Inc.) contains detailed information regarding Project construction activities (48). As discussed in the Air Quality Impact Analysis, Construction related emissions are expected from the following construction activities:

- Demolition/Crushing
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

3.5.1 CONSTRUCTION DURATION

Construction is expected to commence in January 2024 and will last through July 2024. The construction schedule utilized in the analysis, shown in Table 3-1, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[2] The Activity and associated equipment represent a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (49).

TABLE 3-1: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition/Crushing	1/1/2024	1/31/2024	23
Site Preparation	2/1/2024	2/29/2024	21
Grading	3/1/2024	3/29/2024	21
Building Construction	4/1/2024	5/31/2024	45
Paving	6/3/2024	6/28/2024	20
Architectural Coating	7/1/2024	7/31/2024	23

Source: Appendix 3.1.

[2] As shown in the CalEEMod User's Guide Version 2022.1, Section 4.3 "Offroad Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

3.5.2 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The equipment list is generally based on CalEEMod default parameters and confirmed with the Project Applicant. A detailed summary of construction equipment assumptions by phase is provided at Table 3-2. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1.

TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment[1]	Amount	Hours Per Day
Demolition/Crushing	Concrete/Industrial Saws	1	8
	Rubber Tired Dozers	1	8
	Tractors/Loaders/Backhoes	2	8
Site Preparation	Grader	1	8
	Crawler Tractors	1	8
Grading	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	1	8
Building Construction	Cranes	1	8
	Forklifts	2	8
	Tractors/Loaders/Backhoes	2	8
Paving	Cement and Mortar Mixers	4	8
	Pavers	1	8
	Rollers	1	8
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	8

[1] In order to account for fugitive dust emissions, Crawler Tractors were used in lieu of Tractors/Loaders/Backhoes during the site preparation and grading phases.

3.5.3 CONSTRUCTION EMISSIONS SUMMARY

To evaluate Project construction emissions, GHG emissions are quantified and amortized over the life of the Project and added to the operations emissions. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total GHG emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational GHG emissions (50). Therefore, Project construction emissions have been amortized over a 30-year period and added to the annual operational GHG emissions. The amortized construction emissions are presented in Table 3-3.

TABLE 3-3: CONSTRUCTION GHG EMISSIONS

Year	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	R	Total CO_2e[3]
2024	119.00	0.01	< 0.005	0.02	119.00
Total GHG Emissions	119.00	0.01	0.00	0.02	119.00
Amortized Construction Emissions	**3.97**	**0.00**	**0.00**	**0.00**	**3.97**

Source CalEEMod annual construction-source emissions are presented in Appendix 3.1.

3.6 OPERATIONAL EMISSIONS

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

- Area Sources
- Energy Sources
- Mobile Sources
- Water Supply, Treatment, and Distribution
- Solid Waste
- Refrigerants

3.6.1 AREA SOURCE EMISSIONS

Landscape maintenance equipment are typically the only area sources that would generate GHG emissions, which are primarily due to fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on standard assumptions included in CalEEMod.

3.6.2 ENERGY SOURCE EMISSIONS

COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

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

[3] CalEEMod reports the most common GHGs emitted which include CO_2, CH_4, N_2O and R. These GHGs are then converted into the CO_2e by multiplying the individual GHG by the GWP.

[4] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

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

3.6.3 Mobile Source Emissions

The Project related operational air quality emissions derive primarily from vehicle trips generated by the Project, including employee trips to and from the site and truck trips associated with the proposed uses. Trip characteristics available from the *Brea Gaslight Square Trip Generation Assessment* were utilized in this analysis (51). Per the *Brea Gaslight Square Trip Generation Assessment* , the proposed Project is expected to generate approximately 872 two-way trips per day. However, a comparison between the existing use and the proposed Project results in 510 total net trips per day.

3.6.4 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. CalEEMod default parameters were used to estimate GHG emissions associated with water supply, treatment and distribution for the Project scenario.

3.6.5 Solid Waste

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

3.6.6 Refrigerants

Air conditioning (A/C) and refrigeration equipment associated with the building are anticipated to generate GHG emissions. CalEEMod automatically generates a default A/C and refrigeration equipment inventory for each project land use subtype based on industry data from the USEPA (2016b). CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then derives average annual emissions from the lifetime estimate. Note that CalEEMod does not quantify emissions from the disposal of refrigeration and A/C equipment at the end of its lifetime. Per 17 CCR 95371, new facilities with refrigeration equipment containing more than 50 pounds of refrigerant are prohibited from utilizing refrigerants with a GWP of 150 or greater as of January 1, 2022. As such, it was conservatively assumed that air conditioning systems installed at the commercial portion of the Project would utilize refrigerants with a GWP of 150. Otherwise, GHG emissions associated with refrigerants were calculated by CalEEMod using default parameters.

3.7 EMISSIONS SUMMARY

EXISTING EMISSIONS

The Project site is currently occupied, GHG emissions from the existing development were calculated using CalEEMod and driveway counts presented in the Project traffic analysis. Emissions from the existing development are summarized on Table 3-4. Detailed calculations are provided in Appendix 3.2.

TABLE 3-4: EMISSIONS FROM EXISTING DEVELOPMENT

Emission Source	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	R	Total CO_2e
Mobile Source	301.00	0.01	0.01	0.65	305.00
Area Source	0.33	< 0.005	< 0.005	0.00	0.34
Energy Source	66.90	0.01	< 0.005	0.00	67.20
Water Usage	3.98	0.09	< 0.005	0.00	6.98
Waste	1.33	0.13	0.00	0.00	4.67
Refrigerants	0.00	0.00	0.00	0.01	0.01
Total CO_2e (All Sources)	**384.20**				

Source: CalEEMod output, See Appendix 3.2 for detailed model outputs.

PROPOSED PROJECT EMISSIONS

The annual GHG emissions associated with the operation of the proposed Project are estimated to be approximately 998.99 MT CO_2e per year as summarized in Table 3-5. Detailed calculations are provided in Appendix 3.1.

TABLE 3-5: PROJECT GHG EMISSIONS

Emission Source	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	R	Total CO_2e
Amortized Construction Emissions	3.97	3.33E-04	0.00E+00	6.67E-04	3.97
Mobile Source	1,274.00	0.07	0.06	2.30	1,296.00
Area Source	0.16	< 0.005	< 0.005	0.00	0.16
Energy Source	60.40	0.01	< 0.005	0.00	60.60
Water Usage	2.34	0.05	< 0.005	0.00	4.02
Waste	4.94	0.49	0.00	0.00	17.30
Refrigerants	0.00	0.00	0.00	1.14	1.14
Total CO_2e (All Sources)	**1,383.19**				
Existing Emissions	384.20				
Total Net CO_2e (All Sources)	**998.99**				

Source: CalEEMod output, See Appendix 3.1 for detailed model outputs.

3.8 GREENHOUSE GAS EMISSIONS FINDINGS AND RECOMMENDATIONS

GHG -1: Would the Project generate GHG emissions either directly or indirectly, that may have a significant impact on the environment?

As previously stated, the City of Brea has not adopted its own numeric threshold of significance for determining impacts with respect to GHG emissions. A screening threshold of 3,000 $MTCO_2e$/yr to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by the City and numerous cities in the SCAB and is based on the SCAQMD staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required (53).

As shown on Table 3-5, the Project will result in approximately 998.99 $MTCO_2e$/yr; the proposed Project would not exceed the SCAQMD/City's screening threshold of 3,000 $MTCO_2e$/yr. Thus, project-related emissions would not have a significant direct or indirect impact on GHG, and climate change and no mitigation or further analysis is required.

GHG-2: Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

The Project's consistency with the 2022 Scoping Plan is discussed below.

2022 SCOPING PLAN CONSISTENCY

Pursuant to 15604.4 of the CEQA Guidelines, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions (54).

In November 2022, CARB released the Final 2022 Scoping Plan Update, which identifies the State's progress towards the statutory 2030 target, while providing a path towards carbon neutrality and reduce greenhouse gases emissions by 85% below 1990 levels by 2045. Recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030 (55). The Project would not conflict with any of the 2022 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project.

Finally, the Project is consistent with the general plan land use designation, density, building intensity, and applicable policies specified for the Project area in SCAG's Sustainable Community Strategy/Regional Transportation Plan, which pursuant to SB 375 calls for the integration of transportation, land-use and housing policies to plan for achievement of the GHG-emissions target for the region. Thus, a less than significant impact related to GHG emissions from Project construction and operation would occur and no mitigation is required.

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Less than significant impact.

5 CERTIFICATIONS

The contents of this energy analysis report represent an accurate depiction of the environmental impacts associated with the proposed Brea Gaslight Square. The information contained in this energy analysis report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com.

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APPENDIX 3.1:

PROPOSED PROJECT CALEEMOD EMISSIONS MODEL OUTPUTS

14783-Brea Gaslight 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

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

3.3. Site Preparation (2024) - Unmitigated

3.5. Grading (2024) - Unmitigated

3.7. Building Construction (2024) - Unmitigated

3.9. Paving (2024) - Unmitigated

3.11. Architectural Coating (2024) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14783-Brea Gaslight
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	21.2
Location	33.91618627251319, -117.89859599419326
County	Orange
City	Brea
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5752
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
High Turnover (Sit Down Restaurant)	2.40	1000sqft	0.06	2,400	9,929	—	—	—
Fast Food Restaurant with Drive Thru	2.00	1000sqft	0.05	2,000	0.00	—	—	—

Strip Mall	3.60	1000sqft	0.08	3,600	0.00	—	—	—
Parking Lot	112	Space	0.44	0.00	0.00	—	—	—
Other Asphalt Surfaces	14.4	1000sqft	0.33	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	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.	0.97	2.20	8.05	9.28	0.02	0.36	0.23	0.48	0.33	0.05	0.34	—	1,959	1,959	0.08	0.02	0.97	1,968
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	1.80	16.7	15.1	0.03	0.87	2.09	2.96	0.80	0.93	1.73	—	3,165	3,165	0.16	0.16	0.06	3,216
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.47	0.53	3.67	3.82	0.01	0.17	0.24	0.42	0.16	0.08	0.24	—	716	716	0.03	0.02	0.12	722
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	0.10	0.67	0.70	< 0.005	0.03	0.04	0.08	0.03	0.01	0.04	—	119	119	0.01	< 0.005	0.02	119

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.97	2.20	8.05	9.28	0.02	0.36	0.23	0.48	0.33	0.05	0.34	—	1,959	1,959	0.08	0.02	0.97	1,968
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.15	1.80	16.7	15.1	0.03	0.87	2.09	2.96	0.80	0.93	1.73	—	3,165	3,165	0.16	0.16	0.06	3,216
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.47	0.53	3.67	3.82	0.01	0.17	0.24	0.42	0.16	0.08	0.24	—	716	716	0.03	0.02	0.12	722
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.10	0.67	0.70	< 0.005	0.03	0.04	0.08	0.03	0.01	0.04	—	119	119	0.01	< 0.005	0.02	119

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.	6.71	6.30	4.79	52.1	0.13	0.09	4.46	4.55	0.08	0.79	0.87	32.9	13,170	13,203	3.92	0.50	59.3	13,510
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.58	6.17	5.20	48.1	0.12	0.09	4.46	4.55	0.08	0.79	0.87	32.9	12,671	12,704	3.95	0.53	8.25	12,968
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.24	5.03	3.60	33.5	0.08	0.06	2.73	2.79	0.06	0.48	0.54	32.9	8,073	8,106	3.78	0.36	20.8	8,328

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.96	0.92	0.66	6.11	0.01	0.01	0.50	0.51	0.01	0.09	0.10	5.45	1,337	1,342	0.63	0.06	3.44	1,379

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	6.63	6.05	4.65	51.6	0.13	0.08	4.46	4.54	0.07	0.79	0.86	—	12,793	12,793	0.59	0.49	52.4	13,006
Area	0.06	0.24	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	6.71	6.30	4.79	52.1	0.13	0.09	4.46	4.55	0.08	0.79	0.87	32.9	13,170	13,203	3.92	0.50	59.3	13,510
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.57	5.98	5.06	48.0	0.12	0.08	4.46	4.54	0.07	0.79	0.86	—	12,296	12,296	0.62	0.52	1.36	12,466
Area	—	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	6.58	6.17	5.20	48.1	0.12	0.09	4.46	4.55	0.08	0.79	0.87	32.9	12,671	12,704	3.95	0.53	8.25	12,968
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	5.19	4.79	3.46	33.1	0.08	0.05	2.73	2.78	0.05	0.48	0.53	—	7,697	7,697	0.45	0.35	13.9	7,825
Area	0.04	0.23	< 0.005	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.98	0.98	< 0.005	< 0.005	—	0.98
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	365	365	0.03	< 0.005	—	366
Water	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Waste	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Total	5.24	5.03	3.60	33.5	0.08	0.06	2.73	2.79	0.06	0.48	0.54	32.9	8,073	8,106	3.78	0.36	20.8	8,328
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.95	0.87	0.63	6.04	0.01	0.01	0.50	0.51	0.01	0.09	0.10	—	1,274	1,274	0.07	0.06	2.30	1,296
Area	0.01	0.04	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Energy	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	60.4	60.4	0.01	< 0.005	—	60.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.51	1.83	2.34	0.05	< 0.005	—	4.02
Waste	—	—	—	—	—	—	—	—	—	—	—	4.94	0.00	4.94	0.49	0.00	—	17.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	1.14
Total	0.96	0.92	0.66	6.11	0.01	0.01	0.50	0.51	0.01	0.09	0.10	5.45	1,337	1,342	0.63	0.06	3.44	1,379

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

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

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

Off-Road Equipment	1.78	1.49	14.4	14.1	0.02	0.62	—	0.62	0.57	—	0.57	—	2,203	2,203	0.09	0.02	—	2,211
Demolition	—	—	—	—	—	—	0.99	0.99	—	0.15	0.15	—	—	—	—	—	—	—
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	0.11	0.09	0.91	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	139	139	0.01	< 0.005	—	139
Demolition	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.0	23.0	< 0.005	< 0.005	—	23.1
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.52	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	129	129	< 0.005	< 0.005	0.01	130
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	0.08	0.02	1.07	0.45	0.01	0.01	0.06	0.07	0.01	0.02	0.03	—	833	833	0.07	0.13	0.05	874
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	8.24	8.24	< 0.005	< 0.005	0.02	8.35
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	< 0.005	0.07	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	52.5	52.5	< 0.005	0.01	0.05	55.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.36	1.36	< 0.005	< 0.005	< 0.005	1.38
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	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.69	8.69	< 0.005	< 0.005	0.01	9.13

3.3. Site Preparation (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.72	6.24	6.16	0.01	0.40	—	0.40	0.37	—	0.37	—	916	916	0.04	0.01	—	919
Dust From Material Movement	—	—	—	—	—	—	0.28	0.28	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.36	0.35	< 0.005	0.02	—	0.02	0.02	—	0.02	—	52.7	52.7	< 0.005	< 0.005	—	52.9

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.73	8.73	< 0.005	< 0.005	—	8.76
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	64.5	64.5	< 0.005	< 0.005	0.01	65.2
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	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	3.76	3.76	< 0.005	< 0.005	0.01	3.81
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.63
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

3.5. Grading (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.11	1.77	16.6	14.6	0.02	0.87	—	0.87	0.80	—	0.80	—	2,294	2,294	0.09	0.02	—	2,302
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.91	0.91	—	—	—	—	—	—	—
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	0.12	0.10	0.96	0.84	< 0.005	0.05	—	0.05	0.05	—	0.05	—	132	132	0.01	< 0.005	—	132
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.9	21.9	< 0.005	< 0.005	—	21.9

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.39	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	96.7	96.7	< 0.005	< 0.005	0.01	97.9
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	< 0.005	0.08	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	60.8	60.8	< 0.005	0.01	< 0.005	63.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	5.64	5.64	< 0.005	< 0.005	0.01	5.72
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.50	3.50	< 0.005	< 0.005	< 0.005	3.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61

3.7. Building Construction (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.99	9.08	0.02	0.36	—	0.36	0.33	—	0.33	—	1,876	1,876	0.08	0.02	—	1,883
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.99	1.12	< 0.005	0.04	—	0.04	0.04	—	0.04	—	231	231	0.01	< 0.005	—	232
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	0.02	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	38.3	38.3	< 0.005	< 0.005	—	38.4
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	0.01	0.01	0.01	0.18	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	40.7	40.7	< 0.005	< 0.005	0.17	41.3
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	42.5	42.5	< 0.005	0.01	0.11	44.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	4.84	4.84	< 0.005	< 0.005	0.01	4.90
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.24	5.24	< 0.005	< 0.005	0.01	5.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.80	0.80	< 0.005	< 0.005	< 0.005	0.81
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.90
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.63	5.41	6.27	0.01	0.25	—	0.25	0.23	—	0.23	—	973	973	0.04	0.01	—	976
Paving	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.3	53.3	< 0.005	< 0.005	—	53.5
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.83	8.83	< 0.005	< 0.005	—	8.86
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	1.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	237	237	< 0.005	0.01	0.97	241
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.10
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 (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.21	1.53	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	2.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.2	11.2	< 0.005	< 0.005	—	11.3
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.86	1.86	< 0.005	< 0.005	—	1.86
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	8.13	8.13	< 0.005	< 0.005	0.03	8.25

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.50
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	1.29	1.18	0.92	10.2	0.02	0.02	0.89	0.90	0.01	0.16	0.17	—	2,541	2,541	0.12	0.10	10.4	2,584

Fast Food Restaurant with Drive Thru	4.65	4.23	3.30	36.7	0.09	0.06	3.19	3.25	0.05	0.57	0.62	—	9,148	9,148	0.42	0.35	37.5	9,300
Strip Mall	0.69	0.64	0.43	4.68	0.01	0.01	0.38	0.39	0.01	0.07	0.07	—	1,104	1,104	0.06	0.05	4.49	1,123
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.63	6.05	4.65	51.6	0.13	0.08	4.46	4.54	0.07	0.79	0.86	—	12,793	12,793	0.59	0.49	52.4	13,006
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	1.28	1.16	1.00	9.48	0.02	0.02	0.89	0.90	0.01	0.16	0.17	—	2,443	2,443	0.12	0.10	0.27	2,476
Fast Food Restaurant with Drive Thru	4.61	4.19	3.59	34.1	0.09	0.06	3.19	3.25	0.05	0.57	0.62	—	8,792	8,792	0.44	0.37	0.97	8,913
Strip Mall	0.68	0.63	0.47	4.42	0.01	0.01	0.38	0.39	0.01	0.07	0.07	—	1,061	1,061	0.06	0.05	0.12	1,077
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.57	5.98	5.06	48.0	0.12	0.08	4.46	4.54	0.07	0.79	0.86	—	12,296	12,296	0.62	0.52	1.36	12,466
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.18	0.16	0.13	1.25	< 0.005	< 0.005	0.11	0.11	< 0.005	0.02	0.02	—	275	275	0.01	0.01	0.50	280

Fast Food Restaurant with Drive Thru	0.66	0.61	0.43	4.08	0.01	0.01	0.33	0.34	0.01	0.06	0.06	—	843	843	0.05	0.04	1.52	857
Strip Mall	0.11	0.10	0.08	0.72	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	156	156	0.01	0.01	0.28	159
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.95	0.87	0.63	6.04	0.01	0.01	0.50	0.51	0.01	0.09	0.10	—	1,274	1,274	0.07	0.06	2.30	1,296

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4	0.01	< 0.005	—	79.8
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	66.2	66.2	0.01	< 0.005	—	66.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8	< 0.005	< 0.005	—	34.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.1

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.02	< 0.005	—	196
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4	0.01	< 0.005	—	79.8
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	66.2	66.2	0.01	< 0.005	—	66.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8	< 0.005	< 0.005	—	34.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.02	< 0.005	—	196
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1	< 0.005	< 0.005	—	13.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	11.0	11.0	< 0.005	< 0.005	—	11.0
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	5.59	5.59	< 0.005	< 0.005	—	5.62
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66	< 0.005	< 0.005	—	2.67

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	32.3	32.3	< 0.005	< 0.005	—	32.5

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	88.6	88.6	0.01	< 0.005	—	88.8
Fast Food Restaurant with Drive Thru	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	73.8	73.8	0.01	< 0.005	—	74.0
Strip Mall	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.91	6.91	< 0.005	< 0.005	—	6.93
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	88.6	88.6	0.01	< 0.005	—	88.8

Fast Food Restaurant with Drive Thru	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	73.8	73.8	0.01	< 0.005	—	74.0
Strip Mall	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.91	6.91	< 0.005	< 0.005	—	6.93
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.7	14.7	< 0.005	< 0.005	—	14.7
Fast Food Restaurant with Drive Thru	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.2	12.2	< 0.005	< 0.005	—	12.3
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.14	1.14	< 0.005	< 0.005	—	1.15
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.0	28.0	< 0.005	< 0.005	—	28.1

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Total	0.06	0.24	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.43	1.43	< 0.005	< 0.005	—	1.44
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16

Total	0.01	0.04	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.40	5.39	6.78	0.14	< 0.005	—	11.4
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.16	3.95	5.11	0.12	< 0.005	—	8.96
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.51	1.73	2.24	0.05	< 0.005	—	3.94
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.40	5.39	6.78	0.14	< 0.005	—	11.4

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.16	3.95	5.11	0.12	< 0.005	—	8.96
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.51	1.73	2.24	0.05	< 0.005	—	3.94
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.07	11.1	14.1	0.32	0.01	—	24.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.23	0.89	1.12	0.02	< 0.005	—	1.89
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.19	0.65	0.85	0.02	< 0.005	—	1.48
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.08	0.29	0.37	0.01	< 0.005	—	0.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.51	1.83	2.34	0.05	< 0.005	—	4.02

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	15.4	0.00	15.4	1.54	0.00	—	53.9
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.4	0.00	12.4	1.24	0.00	—	43.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.04	0.00	2.04	0.20	0.00	—	7.13
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	15.4	0.00	15.4	1.54	0.00	—	53.9
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.4	0.00	12.4	1.24	0.00	—	43.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.04	0.00	2.04	0.20	0.00	—	7.13
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.8	0.00	29.8	2.98	0.00	—	104
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	2.55	0.00	2.55	0.25	0.00	—	8.92
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	2.06	0.00	2.06	0.21	0.00	—	7.19
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.34	0.00	0.34	0.03	0.00	—	1.18
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.94	0.00	4.94	0.49	0.00	—	17.3

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.75	3.75
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12	3.12
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.75	3.75
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.12	3.12
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.89	6.89
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62	0.62
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	1.14

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/31/2024	5.00	23.0	—
Site Preparation	Site Preparation	2/1/2024	2/29/2024	5.00	21.0	—
Grading	Grading	3/1/2024	3/29/2024	5.00	21.0	—
Building Construction	Building Construction	4/1/2024	5/31/2024	5.00	45.0	—
Paving	Paving	6/3/2024	6/28/2024	5.00	20.0	—
Architectural Coating	Architectural Coating	7/1/2024	7/31/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
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	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	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
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	11.7	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT

Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.86	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	3.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	1.31	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	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	0.60	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	0.00	0.00	12,000	4,000	2,015

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,080	—
Site Preparation	—	—	21.0	0.00	—
Grading	—	137	31.5	0.00	—
Paving	0.00	0.00	0.00	0.00	0.77

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High Turnover (Sit Down Restaurant)	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Strip Mall	0.00	0%
Parking Lot	0.44	100%
Other Asphalt Surfaces	0.33	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	349	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
High Turnover (Sit Down Restaurant)	258	294	342	100,432	1,815	2,746	3,200	783,399
Fast Food Restaurant with Drive Thru	1,068	1,232	945	391,979	5,046	11,520	8,836	2,376,923
Strip Mall	196	151	73.5	62,826	1,379	1,065	518	442,087
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	12,000	4,000	2,015

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

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)
High Turnover (Sit Down Restaurant)	83,113	349	0.0330	0.0040	276,316
Fast Food Restaurant with Drive Thru	69,261	349	0.0330	0.0040	230,263
Strip Mall	35,357	349	0.0330	0.0040	21,553
Parking Lot	16,790	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	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)
High Turnover (Sit Down Restaurant)	728,481	128,684
Fast Food Restaurant with Drive Thru	607,067	0.00
Strip Mall	266,661	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High Turnover (Sit Down Restaurant)	28.6	0.00
Fast Food Restaurant with Drive Thru	23.0	0.00
Strip Mall	3.78	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
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	User Defined	150	< 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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	12.3	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.59	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

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	55.4
AQ-PM	83.0
AQ-DPM	86.8
Drinking Water	78.3
Lead Risk Housing	61.7
Pesticides	0.00
Toxic Releases	92.4
Traffic	92.4
Effect Indicators	—
CleanUp Sites	64.9
Groundwater	10.6
Haz Waste Facilities/Generators	94.8
Impaired Water Bodies	0.00
Solid Waste	81.2

Sensitive Population	—
Asthma	33.0
Cardio-vascular	52.6
Low Birth Weights	29.0
Socioeconomic Factor Indicators	—
Education	61.7
Housing	38.8
Linguistic	47.1
Poverty	32.0
Unemployment	65.6

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	74.90055178
Employed	92.3649429
Median HI	68.29205697
Education	—
Bachelor's or higher	59.54061337
High school enrollment	100
Preschool enrollment	57.19235211
Transportation	—
Auto Access	82.44578468
Active commuting	63.55703837
Social	—
2-parent households	71.91068908

Voting	45.3997177
Neighborhood	—
Alcohol availability	16.30950853
Park access	48.36391634
Retail density	98.38316438
Supermarket access	79.84088284
Tree canopy	24.93263185
Housing	—
Homeownership	33.20929039
Housing habitability	35.94251251
Low-inc homeowner severe housing cost burden	90.99191582
Low-inc renter severe housing cost burden	54.20248941
Uncrowded housing	49.60862312
Health Outcomes	—
Insured adults	60.5800077
Arthritis	0.0
Asthma ER Admissions	68.0
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	72.0
Cognitively Disabled	84.2
Physically Disabled	55.6
Heart Attack ER Admissions	53.4

Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
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	27.6
Elderly	67.6
English Speaking	54.0
Foreign-born	38.1
Outdoor Workers	64.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	84.0
Traffic Access	87.4
Other Indices	—
Hardship	24.9
Other Decision Support	—
2016 Voting	73.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	67.0
Healthy Places Index Score for Project Location (b)	74.0
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	Taken from Site plan.
Construction: Construction Phases	Taken from Project Input File
Construction: Off-Road Equipment	T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work days
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis Pass-by trips accounted for
Operations: Architectural Coatings	SCAQMD Rule 1113

Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.

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APPENDIX 3.2:

EXISTING CALEEMOD EMISSIONS MODEL OUTPUTS

14783-Brea Gaslight (Existing) 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

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14783-Brea Gaslight (Existing)
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	21.2
Location	33.916158526558334, -117.89852806293251
County	Orange
City	Brea
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5752
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
General Office Building	16.1	1000sqft	0.37	16,074	0.00	—	—	—
User Defined Commercial	16.1	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

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.	1.51	1.75	0.94	13.2	0.03	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,992	3,005	1.52	0.09	12.5	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.39	1.63	1.03	11.6	0.02	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,873	2,887	1.53	0.10	0.36	2,955
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.10	1.37	0.79	9.19	0.02	0.02	0.67	0.69	0.02	0.12	0.14	13.5	2,243	2,257	1.49	0.08	3.99	2,322
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	0.25	0.14	1.68	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	2.24	371	374	0.25	0.01	0.66	384

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	1.38	1.26	0.82	12.4	0.03	0.01	0.92	0.93	0.01	0.16	0.17	—	2,566	2,566	0.12	0.08	12.5	2,605
Area	0.12	0.48	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.51	1.75	0.94	13.2	0.03	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,992	3,005	1.52	0.09	12.5	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.38	1.26	0.92	11.5	0.02	0.01	0.92	0.93	0.01	0.16	0.17	—	2,451	2,451	0.12	0.08	0.32	2,479
Area	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.39	1.63	1.03	11.6	0.02	0.02	0.92	0.94	0.02	0.16	0.18	13.5	2,873	2,887	1.53	0.10	0.36	2,955
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.00	0.92	0.68	8.62	0.02	0.01	0.67	0.68	0.01	0.12	0.13	—	1,819	1,819	0.09	0.06	3.95	1,843
Area	0.09	0.44	< 0.005	0.48	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.97	1.97	< 0.005	< 0.005	—	2.03
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	404	404	0.04	< 0.005	—	406
Water	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	1.10	1.37	0.79	9.19	0.02	0.02	0.67	0.69	0.02	0.12	0.14	13.5	2,243	2,257	1.49	0.08	3.99	2,322
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	0.17	0.12	1.57	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	301	301	0.01	0.01	0.65	305
Area	0.02	0.08	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34

Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	66.9	66.9	0.01	< 0.005	—	67.2
Water	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98
Waste	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.20	0.25	0.14	1.68	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	2.24	371	374	0.25	0.01	0.66	384

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.36	1.25	0.74	12.3	0.02	0.01	0.89	0.91	0.01	0.15	0.17	—	2,492	2,492	0.11	0.07	11.8	2,528
User Defined Commercial	0.01	0.01	0.08	0.11	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	74.4	74.4	< 0.005	0.01	0.69	76.7
Total	1.38	1.26	0.82	12.4	0.03	0.01	0.92	0.93	0.01	0.16	0.17	—	2,566	2,566	0.12	0.08	12.5	2,605
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.37	1.25	0.83	11.3	0.02	0.01	0.89	0.91	0.01	0.15	0.17	—	2,376	2,376	0.12	0.08	0.31	2,403

User Defined Commercial	0.01	0.01	0.09	0.11	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	74.4	74.4	< 0.005	0.01	0.02	76.0
Total	1.38	1.26	0.92	11.5	0.02	0.01	0.92	0.93	0.01	0.16	0.17	—	2,451	2,451	0.12	0.08	0.32	2,479
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.18	0.17	0.11	1.56	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	292	292	0.01	0.01	0.62	296
User Defined Commercial	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.03	9.03	< 0.005	< 0.005	0.04	9.26
Total	0.18	0.17	0.12	1.57	< 0.005	< 0.005	0.12	0.12	< 0.005	0.02	0.02	—	301	301	0.01	0.01	0.65	305

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	274	274	0.03	< 0.005	—	275
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	45.3	45.3	< 0.005	< 0.005	—	45.6
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	45.3	45.3	< 0.005	< 0.005	—	45.6

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.11	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96

Total	0.12	0.48	0.01	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.96
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.01	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34
Total	0.02	0.08	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.34

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

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

General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.47	18.6	24.1	0.56	0.01	—	42.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.91	3.08	3.98	0.09	< 0.005	—	6.98

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67
User Defined Commercial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.33	0.00	1.33	0.13	0.00	—	4.67

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

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

General Office Building	356	34.9	11.1	95,214	3,328	327	103	890,146
User Defined Commercial	6.00	0.59	0.19	1,604	56.1	5.56	1.80	14,998

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	24,111	8,037	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

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)
General Office Building	286,443	349	0.0330	0.0040	407,419
User Defined Commercial	0.00	349	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)
General Office Building	2,856,892	0.00
User Defined Commercial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	14.9	0.00
User Defined Commercial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	12.3	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.59	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	55.4
AQ-PM	83.0
AQ-DPM	86.8
Drinking Water	78.3
Lead Risk Housing	61.7
Pesticides	0.00
Toxic Releases	92.4
Traffic	92.4
Effect Indicators	—
CleanUp Sites	64.9
Groundwater	10.6
Haz Waste Facilities/Generators	94.8
Impaired Water Bodies	0.00
Solid Waste	81.2
Sensitive Population	—
Asthma	33.0
Cardio-vascular	52.6
Low Birth Weights	29.0
Socioeconomic Factor Indicators	—
Education	61.7
Housing	38.8
Linguistic	47.1
Poverty	32.0

Unemployment	65.6

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	74.90055178
Employed	92.3649429
Median HI	68.29205697
Education	—
Bachelor's or higher	59.54061337
High school enrollment	100
Preschool enrollment	57.19235211
Transportation	—
Auto Access	82.44578468
Active commuting	63.55703837
Social	—
2-parent households	71.91068908
Voting	45.3997177
Neighborhood	—
Alcohol availability	16.30950853
Park access	48.36391634
Retail density	98.38316438
Supermarket access	79.84088284
Tree canopy	24.93263185
Housing	—
Homeownership	33.20929039

Housing habitability	35.94251251
Low-inc homeowner severe housing cost burden	90.99191582
Low-inc renter severe housing cost burden	54.20248941
Uncrowded housing	49.60862312
Health Outcomes	—
Insured adults	60.5800077
Arthritis	0.0
Asthma ER Admissions	68.0
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	72.0
Cognitively Disabled	84.2
Physically Disabled	55.6
Heart Attack ER Admissions	53.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
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	27.6
Elderly	67.6
English Speaking	54.0
Foreign-born	38.1
Outdoor Workers	64.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	84.0
Traffic Access	87.4
Other Indices	—
Hardship	24.9
Other Decision Support	—
2016 Voting	73.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	67.0
Healthy Places Index Score for Project Location (b)	74.0
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
Operations: Vehicle Data	Trips taken from traffic analysis
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle. (Only 2 axle trucks were identified in the traffic analysis)

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Brea Gaslight Square

Technical Hydrology and Hydraulics Memorandum

255 E Imperial Highway, Brea, CA 92821

APN 319-292-35

238 & 242 S. Orange Avenue, Brea CA 92821

APN 319-292-36

Prepared for:

Kristen Roberts
Raising Cane's Restaurants, LLC
6800 Bishop Road
Plano, TX 75024
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Prepared By:

John Pollock, P.E.
Kimley-Horn and Associate, Inc.
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Submittal: December 8th, 2022

INTRODUCTION

One Berry, L.L.C. proposes to construct and operate a new drive-thru restaurant, restaurant, retail/medical space, associated parking lot, and multiple landscape areas at the shopping center at the corner of Imperial Highway and Flower Ave (238 S. Orange Avenue, Brea, CA 92821; and 242 S. Orange Avenue, Brea, CA 92821). The existing project site is a 2-story office building and a 1-story office building and associated parking lot. The existing buildings and a portion of the parking lot will be demolished and replaced for the two new restaurants and retail/medical space.

According to the A.L.T.A. survey found in Appendix I, the site is a 1.44-acre property in the existing shopping center development. The project site will disturb a total of 0.95-acre in the property (65.9% disturbance of total property) which currently consists of two (2) existing buildings, paved area, as well as landscaped areas. The site currently sheet flows from the north-eastern and south eastern corners of the site and is captured by a sidewalk parkway drain on the south-western portion of the site as shown on the existing conditions hydrology map (see Appendix B).

A new building will be constructed for the new restaurant and drive thru at 255 E Imperial Highway, Brea, CA 92821. The building total size is 2,000 square feet. At the western side of the site, a 2,400 S.F. restaurant and 3,600 S.F. retail and medical space will be constructed. New landscaped area will be added throughout the project area as shown on the proposed conditions hydrology map (see Appendix C). Roof drains will discharge from each of the buildings at the surface and the site will drain southerly similar to existing conditions. A series of valley gutters and curb and gutters will be used to collect and convey water to one (1) storm water BMP that will be constructed within each of the two Drainage Management Area (DMAs). Storm water will be routed by the proposed on-site storm drain system to be conveyed via the shopping center's modified existing on-site sidewalk parkway drain south-west, ultimately discharging onto the public storm drain system. Storm water will also be routed by the proposed on-site storm drain system to be conveyed via a parkway drain, east, to the existing curb and gutter along Flower Ave, ultimately discharging onto the public storm drain system.

HYDROLOGY BACKGROUND

The hydrology and hydraulic analysis were completed in accordance with the Orange County Hydrology Manual (OC Hydrology Manual, 1986) and OC Local Drainage Manual 1996. Per the drainage manuals, minimum recurrence intervals for the design of new local drainage facilities shall be:

- Habitable structures shall have 100-year flood protection
- A 25-year storm event for all open and underground channels and storm drains with drainage areas less than 640 acres, and watershed tributary the Santa Ana River.

- A 10-year storm event for all open and underground channels and storm drains with drainage areas less than 640 acres, and tributary to all other watersheds.
- Analysis of all storm events shall be based on “high confidence level”

HYDROLOGY – EXISTING CONDITION

In the existing condition, storm water runoff from the building and parking lot area drains via surface flow southerly from the north-eastern and south eastern corners of the site and is captured by a sidewalk parkway drain on the south-western portion of the site where it enters the public storm drain system. The site will also take on offsite run-on via the alley and parking lot just north and adjacent to the project site. It should be noted that runoff from the center high point of the above-mentioned alley to Birch Street drains north. Flows from this area will the surface flow south onsite to the existing valley gutter which conveys the onsite flows to the parkway drain and public system mentioned above. The storm drain system conveys flows south-west where it will discharge into the Artesia-Norwalk Drain which will convey flows further south-west and discharge into Coyote Creek and drain to San Gabriel River Estuary before discharging into the Pacific Ocean. Notably, no stormwater quality infrastructure exists on site.

HYDROLOGY – PROPOSED CONDITION

The project will disturb 68.0% of the property, a total of 0.95-acres within a total of 1.44-acres, consisting of 2 parcels owned by One Berry, LLC. Because over 50.0% of the property is disturbed, the stormwater for the water quality event of the entire property will be treated.

In the proposed condition, the drainage patterns of the existing condition will be maintained as in storm water runoff from the building and parking lot area drains via surface flow southerly from the northeast corner of the site and the south-east corner of the building to proposed drop inlets.

At the western portion of the site, storm water will then be conveyed to one (1) underground detention vault and one (1) proprietary underground dry well systems. The full design capture volume is infiltrated through the proprietary dry well system. The underground detention vault is used for storage of the remaining design capture volume. The site will also take on offsite run-on via the parking lot just north and adjacent to the project site, as it does in the existing condition. Flows from this area are conveyed south and will surface flow south onsite to the existing valley gutter. The existing valley gutter connects to a proposed valley gutter which conveys the onsite flows to the parkway drain and public system mentioned above. For the 25-year and 100-year storm events, water will surcharge the proposed BMPs and overflow the catch basin along the westerly side of the site and be conveyed via the shopping center’s

existing on-site sidewalk parkway drain south-west, ultimately discharging onto the public storm drain system.

The stormwater at the eastern portion of the site will be conveyed to one (1) underground detention vault and one (1) proprietary underground dry well system. The full design capture volume is infiltrated through the proprietary dry well system. The underground detention vault is used for storage of the remaining design capture volume. For the 25-year and 100-year storm events, storm water at the eastern portion of the site will also over-flow the catch basin at the south-east corner of the building and be conveyed east via a parkway drain to the curb and gutter along Flower Ave, ultimately discharging onto the public storm drain system.

The project is intended to keep flowrates for the proposed project conditions from significant increase beyond existing conditions peak flows that are discharging directly to the on-site storm drain system. A rational method analysis in accordance with the Orange County Hydrology Manual was completed to calculate the peak discharges for existing conditions and proposed conditions. Orange County Hydrology Manual Equation D.3 was used to calculate the runoff coefficient. (Refer to Appendices D, E, F, and G for calculations). A review of soil maps from the Hydrology Manual showed that the existing soils consisted of hydrologic group D as shown in the Soils Map in Appendix A. Soil group D is defined as soils having very slow infiltration rates and was used to calculate the soil loss rates. In addition, antecedent moisture condition (AMC) of 3 was used to calculate the 2-year, 25-year and 100-year storm events peak flows. Per the OCPW Local Drainage Manual, a loss rate of 0.2 was used for soil group D. The land use for each subarea was selected based on the percent pervious for existing and proposed conditions.

The Orange County Hydrology Manual was used to complete the rational method analysis. The proposed project will increase the impervious area onsite DMA's 1A, 1B, 2A, and 2B from 77.6% to 78.9% percent, as shown in Appendix I Site Statistics. Considering offsite DMA 3, all run-on to the proposed development including DMA's 1A, 1B, 2A, 2B, and 3 increase the impervious area from 79.3% in the existing condition to 80.5% in the project condition. This is also depicted within Tables 1 and 2. This approach is conservative because the peak flow for proposed conditions would be reduced further by the addition of the two (2) underground detention vaults and two (2) proprietary underground dry well systems, which will decrease site run-off and attenuate the peak flow.

Hydrology results for existing and proposed conditions are included in Appendix D through Appendix G, and shown in Tables 1 and 2 below.

Table 1: Existing Conditions Rational Method Results

Drainage Area	Area (acres)	Impervious Area (SF)	Pervious Area (SF)	Impervious Fraction	Time of Concentration (min)	2-year Peak Flow (cfs)	25-year Peak Flow (cfs)	100-year Peak Flow (cfs)
1A (Offsite Run-On)	0.56	19,685	4,540	0.81	7.25	0.897	1.938	2.484
1B	0.45	14,079	5,383	0.72	7.25	0.713	1.55	1.989
2A (Offsite Run-On)	0.35	12,493	2,705	0.82	7.25	0.563	1.216	1.559
2B	0.51	16,566	5,548	0.75	7.25	0.813	1.763	2.262
3 (Offsite Run-On)	0.16	6,993	0	1	7.25	0.264	0.565	0.723
Total	**2.02**	**69,816**	**18,176**	**0.79***	**7.25***	**3.25**	**7.031**	**9.016**

*Average value

Table 2: Proposed Conditions Rational Method Results

Drainage Area	Area (acres)	Impervious Area (SF)	Pervious Area (SF)	Impervious Fraction	Time of Concentration (min)	2-year Peak Flow (cfs)	25-year Peak Flow (cfs)	100-year Peak Flow (cfs)
1A (Offsite Run-On)	0.56	19,685	4,540	0.81	7.25	0.897	1.938	2.484
1B	0.45	15,485	3,977	0.80	7.25	0.713	1.555	1.994
2A (Offsite Run-On)	0.35	12,493	2,705	0.82	7.25	0.563	1.216	1.559
2B	0.51	16,229	5,885	0.73	7.25	0.811	1.762	2.261
3 (Offsite Run-On)	0.16	6,993	0	1	7.25	0.264	0.565	0.723
Total	**2.02**	**70,885**	**17,107**	**0.80***	**7.25***	**3.253**	**7.036**	**9.021**

*Average Value

HYDROLOGY – PEAK FLOW RUNOFF ATTENUATION

Since there is no stormwater quality infrastructure currently on site, the addition of the underground stormwater vaults will reduce the project condition flow to the existing condition flow rate. The 100 year proposed flow rate, including off-site run-on, is 9.021 CFS. The 100 year existing flow rate, including off-site run-on, is 9.016 CFS. The total increase in flow is 0.005 CFS.

$$100\ yr\ volume\ (CF) = \frac{\text{flow rate (CFS)} \times 43{,}560\ \left(\frac{\text{SF}}{\text{acre}}\right) \times \text{storm depth (in.)}}{Intensity\ \left(\frac{in}{hr}\right) \times 12\ \left(\frac{in}{ft}\right)}$$

$$100\ yr\ volume\ (CF) = \frac{0.005\ (\text{CFS}) \times 43{,}560\ \left(\frac{\text{SF}}{\text{acre}}\right) \times 0.89\ (\text{in.})}{5.0\ \left(\frac{in}{hr}\right) \times 12\ \left(\frac{in}{ft}\right)} = \boldsymbol{3\ CF}$$

Appendix J includes sizing calculations and determinations for the two (2) underground detention vaults and two (2) onsite stormwater quality drywells that will reduce peak flows. Accompanying WQMP exhibit is also included.

The underground detention vault (DB-1) and drywell (DW-1) for DMA 1A and DMA 1B has a capacity of 2,831 CF. The required DCV for DMA 1A and DMA 1B is 2,442. The water quality system is oversized by 389 CF of additional storage.

The underground detention vault (DB-2) and drywell (DW-2) for DMA 2A and DMA 2B has a capacity of 2,217 CF. The required DCV for DMA 2A and DMA 2B is 2,013 CF. The water quality system is oversized by 204 CF of additional storage,

$$\text{Flow Rate (CFS)} = \frac{BMP\ volume\ (CF) \times Intensity\ \left(\frac{in}{hr}\right) \times 12\ \left(\frac{in}{ft}\right)}{43{,}560\ \left(\frac{\text{SF}}{\text{acre}}\right) \times \text{storm depth (in.)}}$$

Flow Rate Captured by Additional Volume in DMA 1A and 1B BMPs:

$$\text{Flow Rate (CFS)} = \frac{389\ (CF) \times 5.0\ \left(\frac{in}{hr}\right) \times 12\ \left(\frac{in}{ft}\right)}{43{,}560\ \left(\frac{\text{SF}}{\text{acre}}\right) \times 0.89\ (\text{in.})} = 0.602\ CFS$$

Flow Rate Captured by Additional Volume in DMA 2A and 2B BMPs:

$$\text{Flow Rate (CFS)} = \frac{204\ (CF) \times 5.0\ \left(\frac{in}{hr}\right) \times 12\ \left(\frac{in}{ft}\right)}{43{,}560\ \left(\frac{\text{SF}}{\text{acre}}\right) \times 0.89(\text{in.})} = 0.315\ CFS$$

The additional storage provided by BMP's DB-1, DW-1, DB-2, and DW-2 are 0.917, larger than the peak flow difference of 0.005 CFS. The additional storage provided in the BMP structures will mitigate the increase in runoff and reduce flows in the project condition to less than the flows of the existing condition.

PARKWAY DRAIN CALCULATIONS

Attachment A of the Orange County Local Drainage Manual was used to size the Parkway Drains, as depicted in Appendix H. Each parkway drain is sized to the 25 year storm event. The 25 year flows for DMA 1A, 1B, and 3 were added for the parkway drain to the west of the site, less the flow rate out of the drywell DW-1 of 0.03 CFS. Similarly, the 25 year flows for DMA 2A and 2B were added for the parkway drain to the east of the site, less the flow rate out of the drywell DW-2 of 0.03 CFS. The drywell flow rates are calculated in Appendix J.

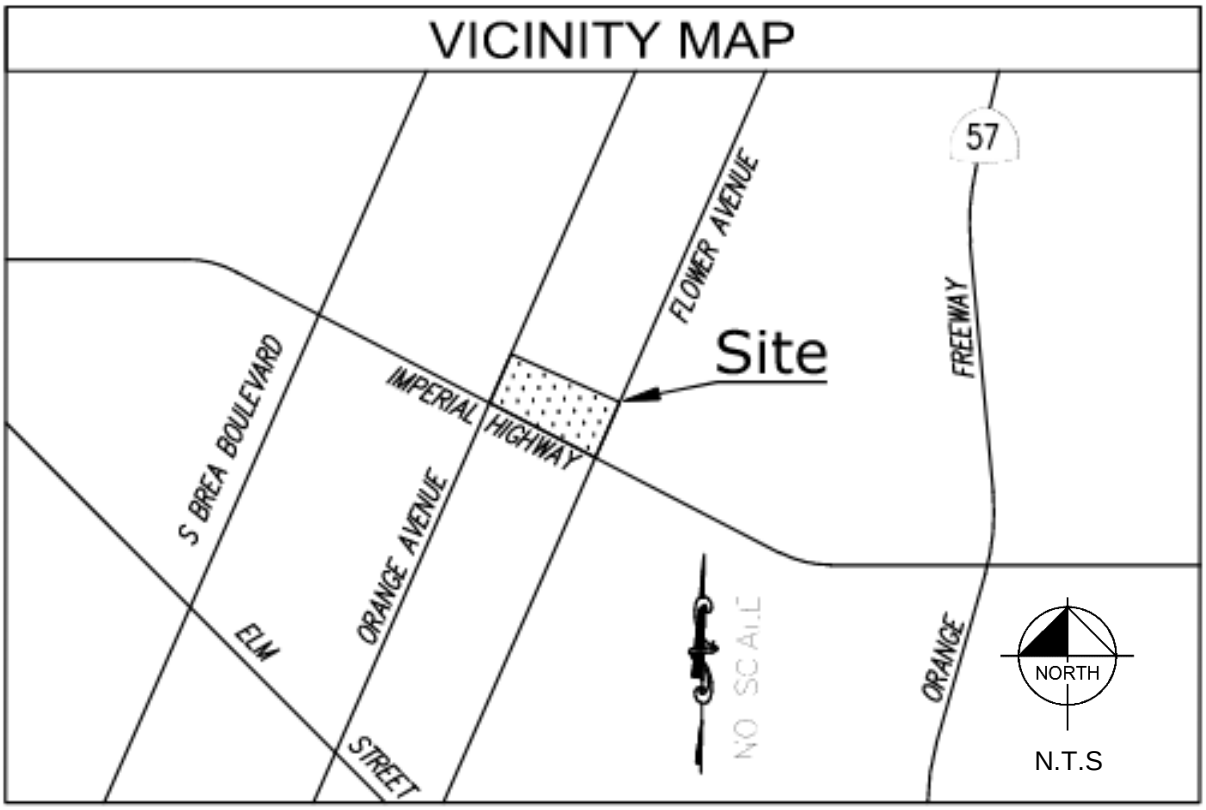
See below for parkway drain sizing, mirroring the Calculations in Appendix J. The western parkway servicing DMA's 1A, 1B, and 3 has an existing width of 4.9' and will be widened to 6.4' to meet the sizing criteria. The proposed parkway servicing DMA's 2A and 2B will be sized to 4.7' wide to meet the sizing criteria.

Parkway Sizing									
DMA	**Proposed 25-Year Peak Flow Rate (CFS)**	**Water Quality Flow Rate Captured by Drywell (CFS)**	**Q_i Flow Rate at Parkway Drain (CFS)**	**H Depth at opening (in.)**	**h height at opening (in.)**	**H/h**	**Q/L**	**Length Required Qi /(Q/L) (ft)**	**Length Provided (ft)**
DMAs 1A, 1B, 3	4.06	0.03	3.68	4	6	0.67	0.63	6.4	6.4
DMAs 2A and 2B	2.98	0.03	2.94	4	6	0.67	0.63	4.7	4.7

CONCLUSION

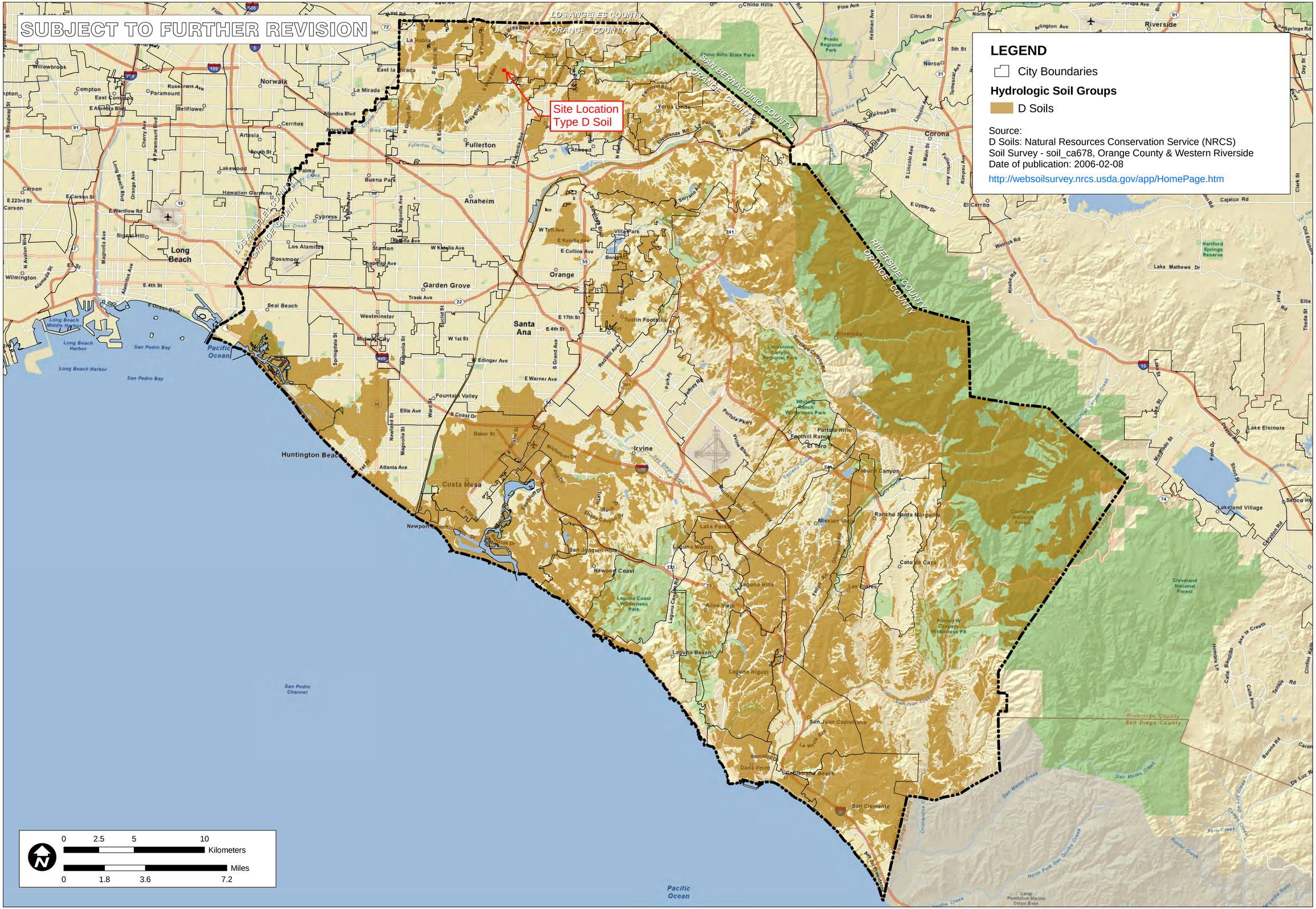
The site design approach is conservative as the peak flow for proposed conditions is reduced to less than existing condition flow by the addition of the two (2) underground detention vaults and the (2) proprietary underground dry well systems oversized for the stormwater quality event.

Figure 1: Brea Gaslight Square Project Location Map



APPENDIX A: SOILS MAP

SUBJECT TO FURTHER REVISION



LEGEND

City Boundaries

Hydrologic Soil Groups

D Soils

Source:
D Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08

http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers

0 1.8 3.6 7.2 Miles

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2b_D-Soils_20110215.mxd

TITLE

HYDROLOGIC SOIL GROUP
TYPE D NRCS SOIL SURVEY

ORANGE COUNTY
INFILTRATION STUDY

CA

JOB

ORANGE CO.

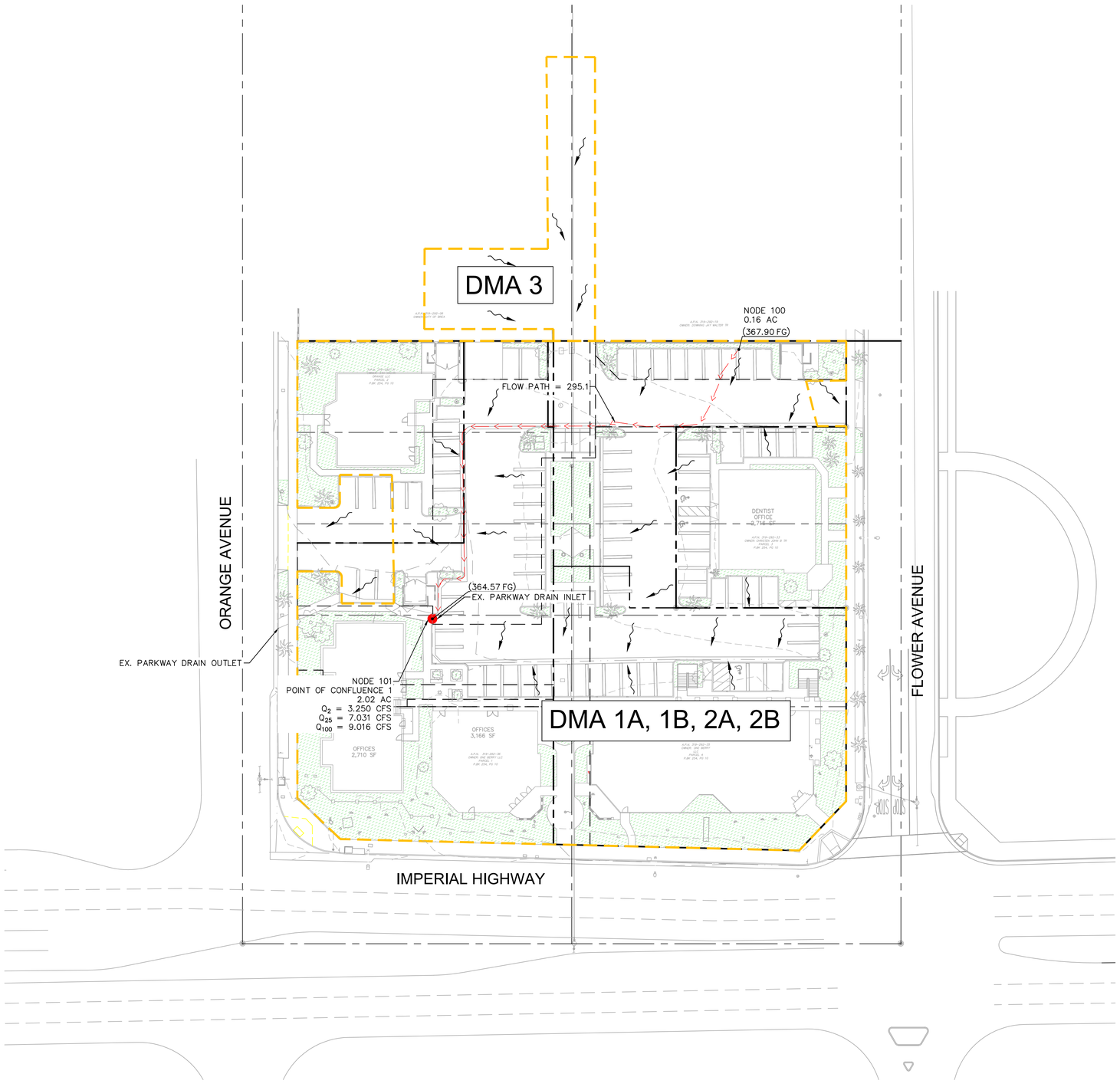
SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE

XVI-2b

APPENDIX B: EXISTING CONDITIONS HYDROLOGY EXHIBIT



LEGEND

- CENTER LINE
- PROPERTY / R/W/ LINE
- EASEMENT / SETBACK LINE
- DRAINAGE MAP AREA (DMA) BOUNDARY AREA
- EXISTING STORM DRAIN LINE (SD)
- LONGEST HYDROLOGIC PATH
- EXISTING PERVIOUS AREA
- EXISTING FLOW
- CONFLUENCE POINT (CP)

NOTES:

HYDROLOGICAL SOIL GROUP: TYPE D

DEPTH TO GROUNDWATER: 47'

EXISTING CONDITIONS

	DMA 1A	DMA 1B	DMA 2A	DMA 2B	DMA 3	TOTAL
TOTAL AREA, SF (ACRES)	24,225 (0.56)	19,462 (0.45)	15,198 (0.35)	22,114 (0.51)	6,993 (0.16)	87,992 (2.02)
IMPERVIOUS AREA, SF (ACRES)	19,685 (0.45)	14,079 (0.32)	12,493 (0.29)	16,566 (0.38)	6,993 (0.16)	69,816 (1.60)
PERVIOUS AREA, SF (ACRES)	4,540 (0.10)	5,383 (0.12)	2,705 (0.06)	5,548 (0.13)	0 (0)	18,176 (0.42)
IMPERVIOUS FRACTION (IMP)	0.81	0.72	0.82	0.75	1.00	0.79*
TIME, MIN	7.25	7.25	7.25	7.25	7.25	7.25*
C	0.88	0.87	0.88	0.88	0.90	0.88*
2-YEAR INTENSITY, IN/HR	1.83	1.83	1.83	1.83	1.83	1.83*
2-YEAR FLOW RATE (CFS)	0.897	0.713	0.563	0.813	0.264	3.250
25-YEAR INTENSITY, IN/HR	3.91	3.91	3.91	3.91	3.91	3.91*
25-YEAR FLOW RATE (CFS)	1.938	1.550	1.216	1.763	0.565	7.031
100-YEAR INTENSITY, IN/HR	5.00	5.00	5.00	5.00	5.00	5.00*
100-YEAR FLOW RATE (CFS)	2.484	1.989	1.559	2.262	0.723	9.016

*AVERAGE VALUE

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

SCALE
1" = 30'
WHEN PRINTED AT FULL SIZE (24"X36")

Drawing name: \\orafp01\ca_ora\ORA_LDEV\194440001 - Brea Gaslight Square\CAD\Exhibits\Reports\H&H\EX 1 - RC0550 - Existing Conditions.dwg Sheet Dec 08, 2022 1:07pm by: tatiana.braun
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

811 Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

TB
DRAWN BY
JP
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RECOMMENDED

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
DATE:
JOHN POLLOCK, R.C.E. NO. 86160 EXP. 12/31/2022

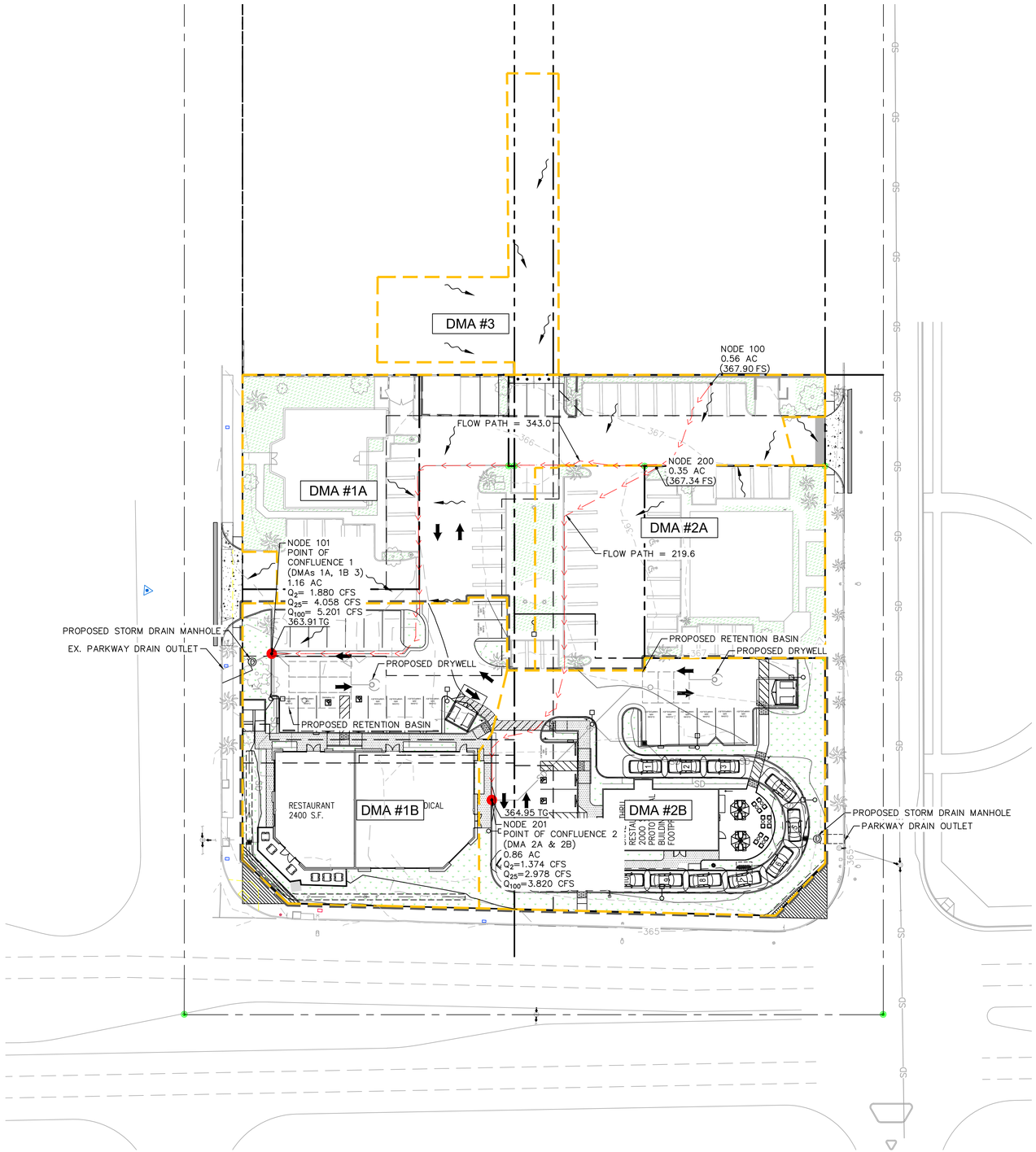
BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA

EXISTING DRAINAGE CONDITIONS

1 OF 1

APPENDIX C: PROPOSED CONDITIONS HYDROLOGY EXHIBIT



LEGEND

- CENTER LINE
- PROPERTY LINE
- EASEMENT LINE
- APPROXIMATE LIMITS OF DISTURBANCE
- DMA LIMITS
- R — PROPOSED RIDGE LINE
- GB — PROPOSED GRADE BREAK LINE
- PROPOSED FLOW LINE
- SD — PROPOSED STORM DRAIN LINE
- SD — EXISTING STORM DRAIN LINE
- CORNER CUT–OFF AREA
- EXISTING PERVIOUS AREA
- PROPOSED PERVIOUS AREA
- LONGEST FLOW PATH LINE
- FLOW DIRECTION
- CONFLUENCE POINT

NOTES:

HYDROLOGICAL SOIL GROUP: TYPE D

DEPTH TO GROUNDWATER: 47'

PROPOSED CONDITIONS

	DMA 1A (OFFSITE RUN–ON)	DMA 1B	DMA 2A (OFFSITE RUN–ON)	DMA 2B	DMA 3	TOTAL
TOTAL AREA, SF (ACRES)	24,225 (0.56)	19,462 (0.45)	15,198 (0.35)	22,114 (0.51)	6,993 (0.16)	87,992 (2.02)
IMPERVIOUS AREA, SF (ACRES)	19,685 (0.45)	15,485 (0.36)	12,493 (0.29)	16,229 (0.37)	6,993 (0.16)	70,885 (1.63)
PERVIOUS AREA, SF (ACRES)	4,540 (0.10)	3,977 (0.09)	2,705 (0.06)	5,885 (0.14)	0 (0)	17,107 (0.39)
IMPERVIOUS FRACTION (IMP)	0.81	0.80	0.82	0.73	1.00	0.80*
TIME, MIN	7.25	7.25	7.25	7.25	7.25	7.25*
C	0.88	0.89	0.89	0.88	0.90	0.89*
2–YEAR INTENSITY, IN/HR	1.83	1.83	1.83	1.83	1.83	1.83*
2–YEAR FLOW RATE (CFS)	0.897	0.719	0.563	0.811	0.264	3.254
25–YEAR INTENSITY, IN/HR	3.91	3.91	3.91	3.91	3.91	3.91*
25–YEAR FLOW RATE (CFS)	1.938	1.555	1.216	1.762	0.565	7.036
100–YEAR INTENSITY, IN/HR	5.00	5.00	5.00	5.00	5.00	5.00*
100–YEAR FLOW RATE (CFS)	2.484	1.994	1.559	2.261	0.723	9.021

*AVERAGE VALUE

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

SCALE
1" = 30'
WHEN PRINTED AT FULL SIZE
(24"X36")

Drawing name: \\oratp01\ca_ora\ORA_LDEV\194440001 – Brea Gaslight Square\CAD\Exhibits\Reports\H&H\EX 2 – RC0550 – Proposed Conditions.dwg 1 – Preliminary WQMP Plan Dec 08, 2022 1:05pm by: tatiana.braun
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

811 Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

TB
DRAWN BY
JP
CHECKED BY
TH
RECOMMENDED

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
DATE:
JOHN POLLOCK, R.C.E. NO. 86160 EXP. 12/31/2022

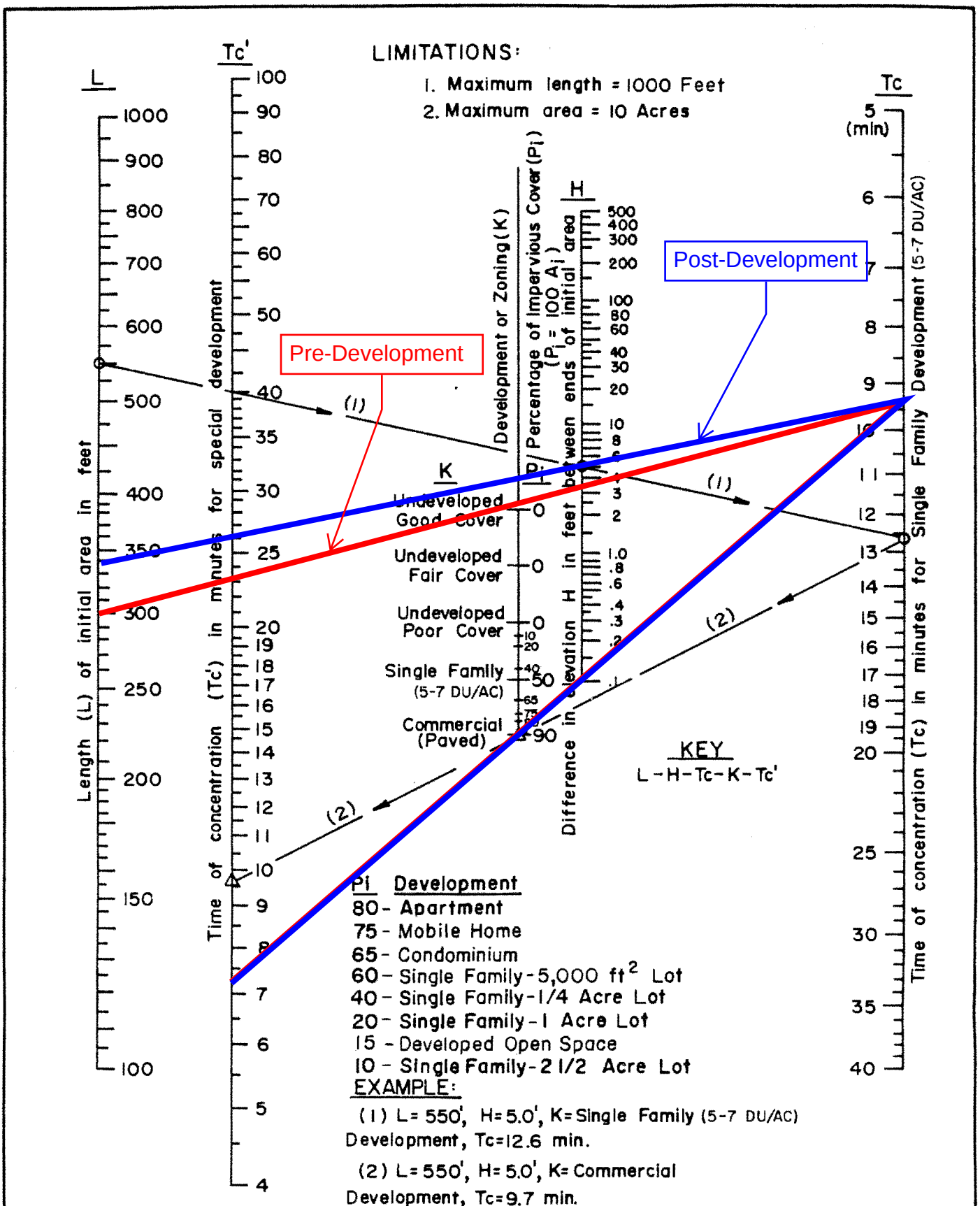
BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA

PROPOSED DRAINAGE CONDITIONS

1 OF 1

APPENDIX D: TIME OF CONCENTRATION AND INTENSITY CALCULATIONS FOR EXISTING CONDITIONS AND PROPOSED CONDITIONS



ORANGE COUNTY

HYDROLOGY MANUAL

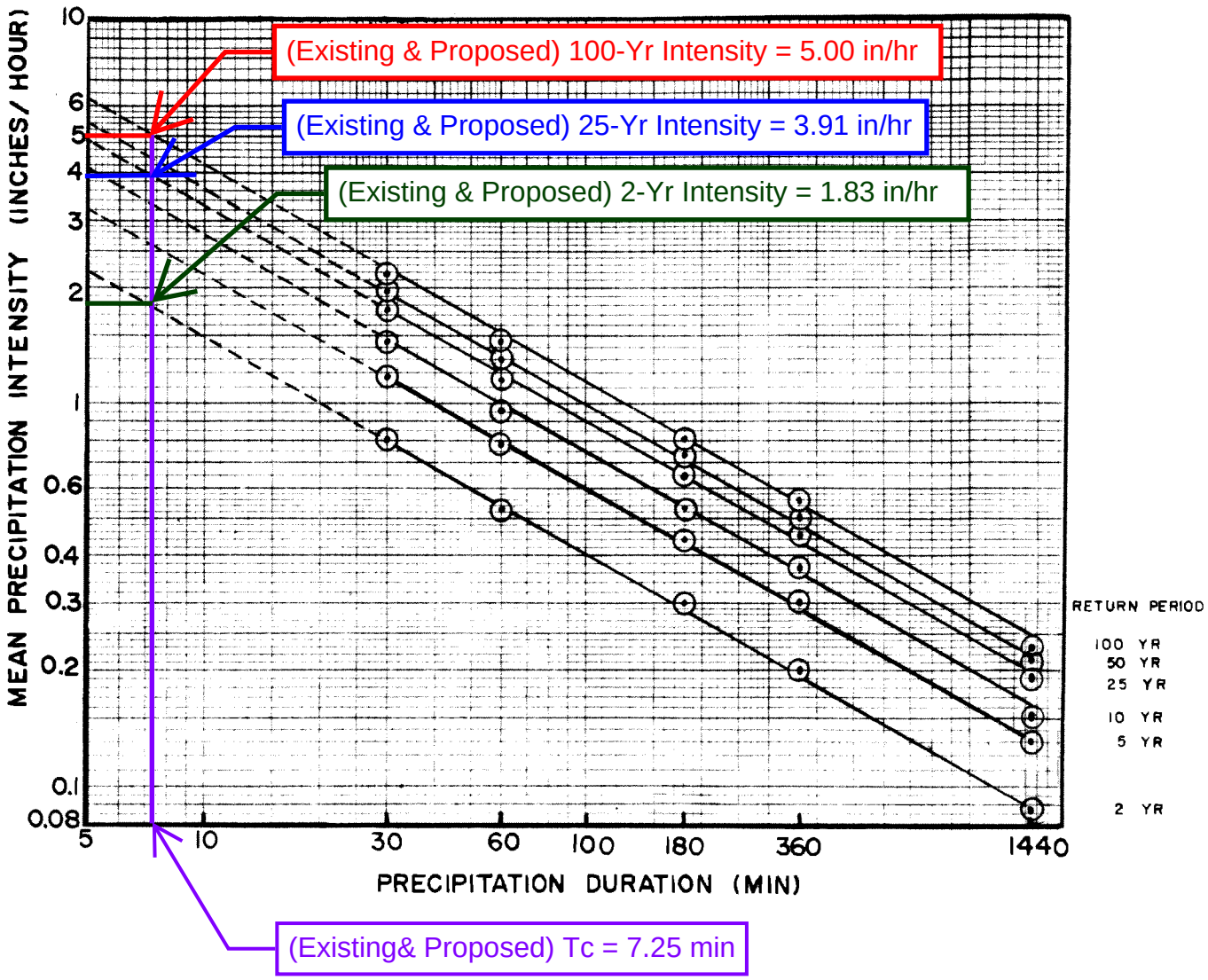
TIME OF CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA

Figure D-1

Regression Equations: $I(t) = at^b$

(I= Intensity in inches/hour, t= duration in minutes)

Return Frequency (years)	a	b
2	5.702	-0.574
5	7.870	-0.562
10	10.209	-0.573
25	11.995	-0.566
50	13.521	-0.566
100	15.560	-0.573



ORANGE COUNTY
HYDROLOGY MANUAL

MEAN PRECIPITATION INTENSITIES FOR NONMOUNTAINOUS AREAS

Figure B-3

APPENDIX E: 2-YEAR STORM ANALYSIS FOR EXISTING CONDITIONS AND PROPOSED CONDITIONS

Brea Gaslight Square

2 Year Runoff using Rational Method per the OC Hydrology Manual

11/2/2022

Exisiting Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	Total
Total Area, sf	19,462	22,114	24,225	15,198	6,993	87,992
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	2.02
Impervious Area, sf	14,079	16,566	19,685	12,493	6,993	69,816
Impervious Area, acres	**0.32**	**0.38**	**0.45**	**0.29**	**0.16**	1.60
Pervious Area, sf	5,383	5,548	4,540	2,705	0	18,176
Pervious Area, acres	**0.12**	**0.13**	**0.10**	**0.06**	**0.00**	0.42
Impervious Area Fraction (a_I)	0.72	0.75	0.81	0.82	1.00	0.79*
Pervious Area Fraction (a_P)	0.28	0.25	0.19	0.18	0.00	
Maximum Los Rates, F_m (in/hr)	0.06	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.25	7.25	7.25	7.25	7.25	
2-year Intensity, I (in/hr)	1.83	1.83	1.83	1.83	1.83	
Runoff Coefficient, C	0.87	0.88	0.88	0.88	0.90	
2-Year Peak Flow Rate Runoff, Q (cfs)	**0.713**	**0.813**	**0.897**	**0.563**	**0.264**	**3.250**

*Average Value

Proposed Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	Total
Total Area, sf	19,462	22,114	24,225	15,198	6,993	87,992
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	2.02
Impervious Area, sf	15,485	16,229	19,685	12,493	6,993	70,885
Impervious Area, acres	**0.36**	**0.37**	**0.45**	**0.29**	**0.16**	1.63
Pervious Area, sf	3,977	5,885	4,540	2,705	0	17,107
Pervious Area, acres	**0.09**	**0.14**	**0.10**	**0.06**	**0.00**	0.39
Impervious Area Fraction (a_I)	0.80	0.73	0.81	0.82	1.00	0.80*
Pervious Area Fraction (a_P)	0.20	0.27	0.19	0.18	0.00	
Maximum Los Rates, $F_{m\ (in/hr)}$	0.04	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.25	7.25	7.25	7.25	7.25	
2-year Intensity, I (in/hr)	1.83	1.83	1.83	1.83	1.83	
Runoff Coefficient, C	0.88	0.87	0.88	0.88	0.90	
2-Year Peak Flow Rate Runoff, Q (cfs)	**0.719**	**0.811**	**0.897**	**0.563**	**0.264**	**3.254**

*Average Value

Differential in Runoff Flowrate, cfs = 0.0044

Post / Pre Runoff = **1.0014** <1.00% Increase

Notes:

1) Rational Method - Peak Flow Rate (Q) = Runoff Coefficient (C) x 100 Year Intensity (in/hr) x Area (acres) - per OC Hydrology Manual section D.1
2) Runoff Coefficient, C (I > Fp) - per OC Hydrology Manual section D.5
3) 2-year rainfall intensity, I(t) = a(t^b) - per OC Hydrology Manual Figure B.3
4) Maximum Loss Rate (in/hr), Fm = apFp (Fp = 0.2 [Soil Type D]) - per OC Hydrology Manual section C.6.5

APPENDIX F: 25-YEAR STORM ANALYSIS FOR EXISTING CONDITIONS AND PROPOSED CONDITIONS

Brea Gaslight Square

25 Year Runoff using Rational Method per the OC Hydrology Manual

11/2/2022

Exisiting Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	Total
Total Area, sf	19,462	22,114	24,225	15,198	6,993	87,992
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	2.02
Impervious Area, sf	14,079	16,566	19,685	12,493	6,993	69,816
Impervious Area, acres	**0.32**	**0.38**	**0.45**	**0.29**	**0.16**	1.60
Pervious Area, sf	5,383	5,548	4,540	2,705	0	18,176
Pervious Area, acres	**0.12**	**0.13**	**0.10**	**0.06**	**0.00**	0.42
Impervious Area Fraction (a_I)	0.72	0.75	0.81	0.82	1.00	0.79*
Pervious Area Fraction (a_P)	0.28	0.25	0.19	0.18	0.00	
Maximum Los Rates, F_m (in/hr)	0.06	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.25	7.25	7.25	7.25	7.25	
25-year Intensity, I (in/hr)	3.91	3.91	3.91	3.91	3.91	
Runoff Coefficient, C	0.89	0.89	0.89	0.89	0.90	
25-Year Peak Flow Rate Runoff, Q (cfs)	**1.550**	**1.763**	**1.938**	**1.216**	**0.565**	**7.031**

*Average Value

Proposed Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	Total
Total Area, sf	19,462	22,114	24,225	15,198	6,993	87,992
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	2.02
Impervious Area, sf	15,485	16,229	19,685	12,493	6,993	70,885
Impervious Area, acres	**0.36**	**0.37**	**0.45**	**0.29**	**0.16**	1.63
Pervious Area, sf	3,977	5,885	4,540	2,705	0	17,107
Pervious Area, acres	**0.09**	**0.14**	**0.10**	**0.06**	**0.00**	0.39
Impervious Area Fraction (a_I)	0.80	0.73	0.81	0.82	1.00	0.80*
Pervious Area Fraction (a_P)	0.20	0.27	0.19	0.18	0.00	
Maximum Los Rates, $F_{m\ (in/hr)}$	0.04	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.25	7.25	7.25	7.25	7.25	
25-year Intensity, I (in/hr)	3.91	3.91	3.91	3.91	3.91	
Runoff Coefficient, C	0.89	0.89	0.89	0.89	0.90	
25-Year Peak Flow Rate Runoff, Q (cfs)	**1.555**	**1.762**	**1.938**	**1.216**	**0.565**	**7.036**

*Average Value

Differential in Runoff Flowrate, cfs = 0.0044

Post / Pre Runoff = **1.0006** <1.00% Increase

Notes:

1) Rational Method - Peak Flow Rate (Q) = Runoff Coefficient (C) x 100 Year Intensity (in/hr) x Area (acres) - per OC Hydrology Manual section D.1
2) Runoff Coefficient, C (I > Fp) - per OC Hydrology Manual section D.5
3) 25-year rainfall intensity, I(t) = a(t^b) - per OC Hydrology Manual Figure B.3
4) Maximum Loss Rate (in/hr), Fm = apFp (Fp = 0.2 [Soil Type D]) - per OC Hydrology Manual section C.6.5

APPENDIX G: 100-YEAR STORM ANALYSIS FOR EXISTING CONDITIONS AND PROPOSED CONDITIONS

Brea Gaslight Square

100 Year Runoff using Rational Method per the OC Hydrology Manual

11/2/2022

Exisiting Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	Total
Total Area, sf	19,462	22,114	24,225	15,198	6,993	87,992
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	2.02
Impervious Area, sf	14,079	16,566	19,685	12,493	6,993	69,816
Impervious Area, acres	**0.32**	**0.38**	**0.45**	**0.29**	**0.16**	1.60
Pervious Area, sf	5,383	5,548	4,540	2,705	0	18,176
Pervious Area, acres	**0.12**	**0.13**	**0.10**	**0.06**	**0.00**	0.42
Impervious Area Fraction (a_I)	0.72	0.75	0.81	0.82	1.00	4.11
Pervious Area Fraction (a_P)	0.28	0.25	0.19	0.18	0.00	0.79*
Maximum Los Rates, F_m (in/hr)	0.06	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.25	7.25	7.25	7.25	7.25	
100-year Intensity, I (in/hr)	5.00	5.00	5.00	5.00	5.00	
Runoff Coefficient, C	0.89	0.89	0.89	0.89	0.90	
100-Year Peak Flow Rate Runoff, Q (cfs)	**1.989**	**2.262**	**2.484**	**1.559**	**0.723**	**9.016**

*Average Value

Proposed Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	Total
Total Area, sf	19,462	22,114	24,225	15,198	6,993	87,992
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	2.02
Impervious Area, sf	15,485	16,229	19,685	12,493	6,993	70,885
Impervious Area, acres	**0.36**	**0.37**	**0.45**	**0.29**	**0.16**	1.63
Pervious Area, sf	3,977	5,885	4,540	2,705	0	17,107
Pervious Area, acres	**0.09**	**0.14**	**0.10**	**0.06**	**0.00**	0.39
Impervious Area Fraction (a_I)	0.80	0.73	0.81	0.82	1.00	0.80*
Pervious Area Fraction (a_P)	0.20	0.27	0.19	0.18	0.00	
Maximum Los Rates, $F_{m\ (in/hr)}$	0.04	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.25	7.25	7.25	7.25	7.25	
100-year Intensity, I (in/hr)	5.00	5.00	5.00	5.00	5.00	
Runoff Coefficient, C	0.89	0.89	0.89	0.89	0.90	
100-Year Peak Flow Rate Runoff, Q (cfs)	**1.994**	**2.261**	**2.484**	**1.559**	**0.723**	**9.021**

*Average Value

Differential in Runoff Flowrate, cfs = 0.0044 5.201

Post / Pre Runoff = **1.0005** <1.00% Increase

Notes:

1) Rational Method - Peak Flow Rate (Q) = Runoff Coefficient (C) x 100 Year Intensity (in/hr) x Area (acres) - per OC Hydrology Manual section D.1
2) Runoff Coefficient, C (I > Fp) - per OC Hydrology Manual section D.5
3) 100-year rainfall intensity, I(t) = a(t^b) - per OC Hydrology Manual Figure B.3
4) Maximum Loss Rate (in/hr), Fm = apFp (Fp = 0.2 [Soil Type D]) - per OC Hydrology Manual section C.6.5

APPENDIX H: PARKWAY DRAIN SIZING

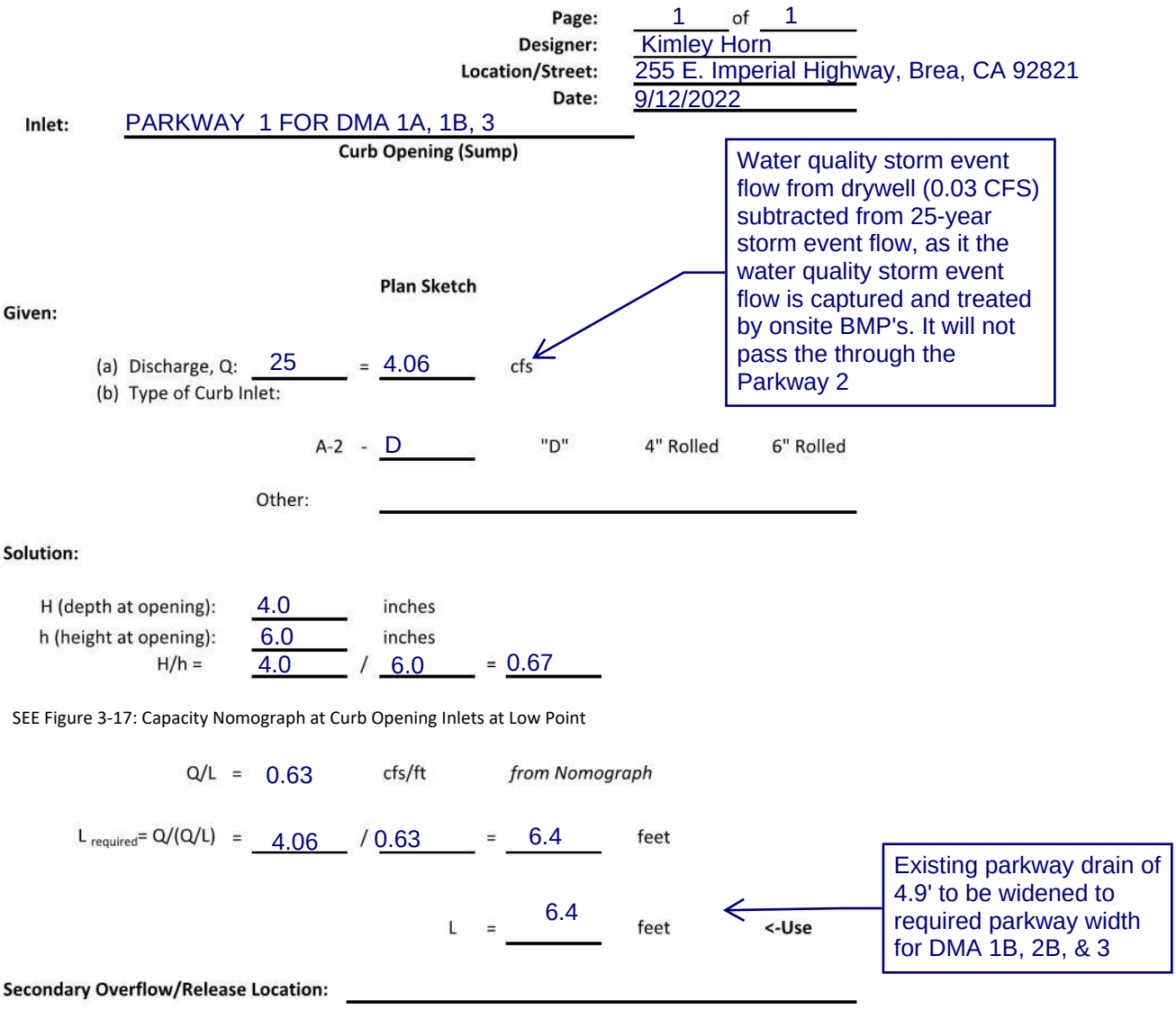


Figure 3-17: Sump Calculation Form

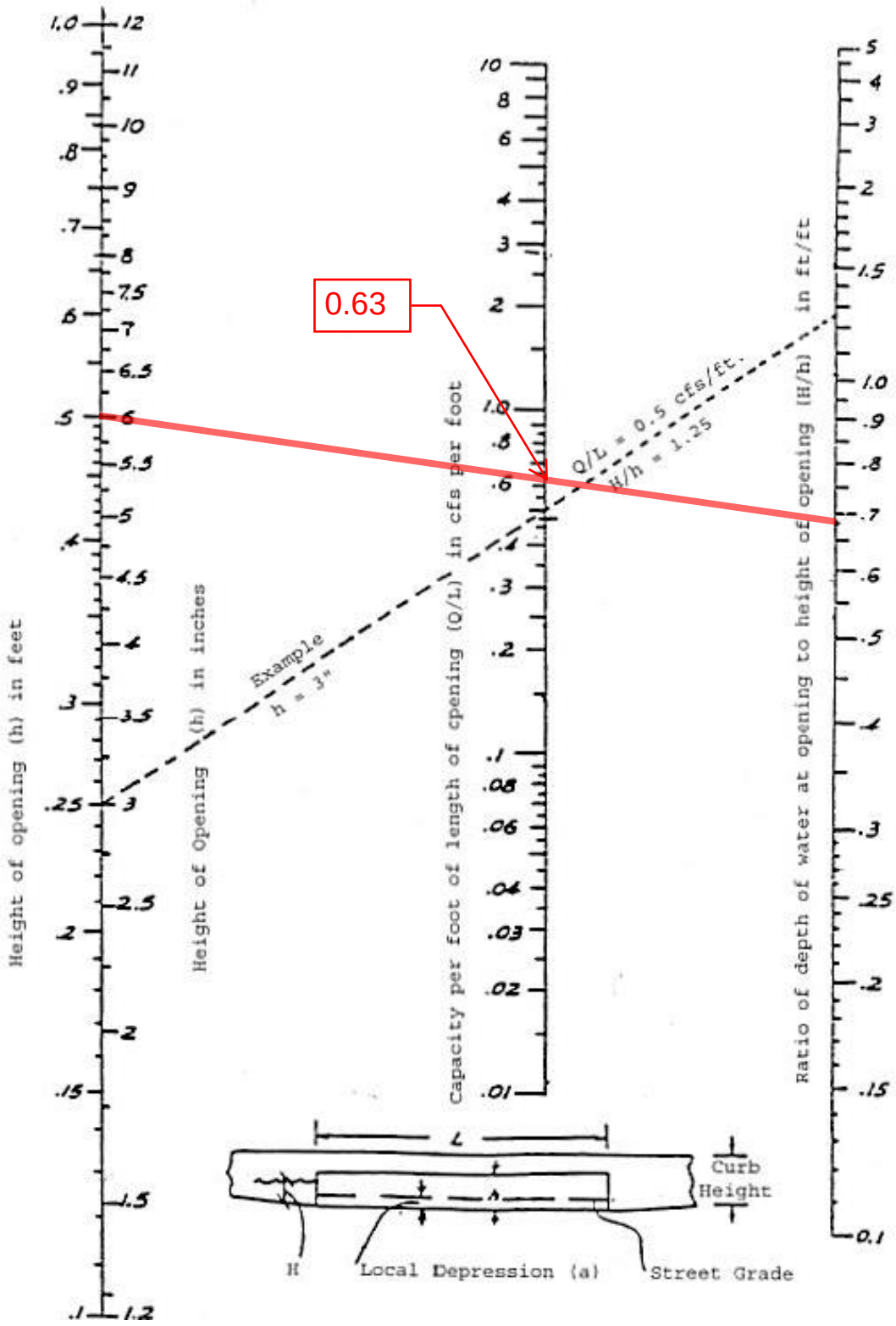


Figure 3-16: Capacity Nomograph at Curb Opening Inlets at Low Points

Page: 1 of 1
Designer: Kimley Horn
Location/Street: 255 E. Imperial Highway, Brea, CA 92821
Date: 9/12/2022

Inlet: PARKWAY 2 FOR DMA 2A & 2B
Curb Opening (Sump)

Water quality storm event flow from drywell (0.03 CFS) subtracted from 25-year storm event flow, as it the water quality storm event flow is captured and treated by onsite BMP's. It will not pass the through the Parkway 2

Plan Sketch

Given:

(a) Discharge, Q: 25 = 2.98 cfs
(b) Type of Curb Inlet:

A-2 - D "D" 4" Rolled 6" Rolled

Other:

Solution:

H (depth at opening): 4.0 inches
h (height at opening): 6.0 inches
H/h = 4.0 / 6.0 = 0.67

SEE Figure 3-17: Capacity Nomograph at Curb Opening Inlets at Low Point

Q/L = 0.63 cfs/ft *from Nomograph*

$L_{required}$ = Q/(Q/L) = 2.98 / 0.63 = 4.7 feet

L = 4.7 feet **<-Use**

Secondary Overflow/Release Location:

Figure 3-17: Sump Calculation Form

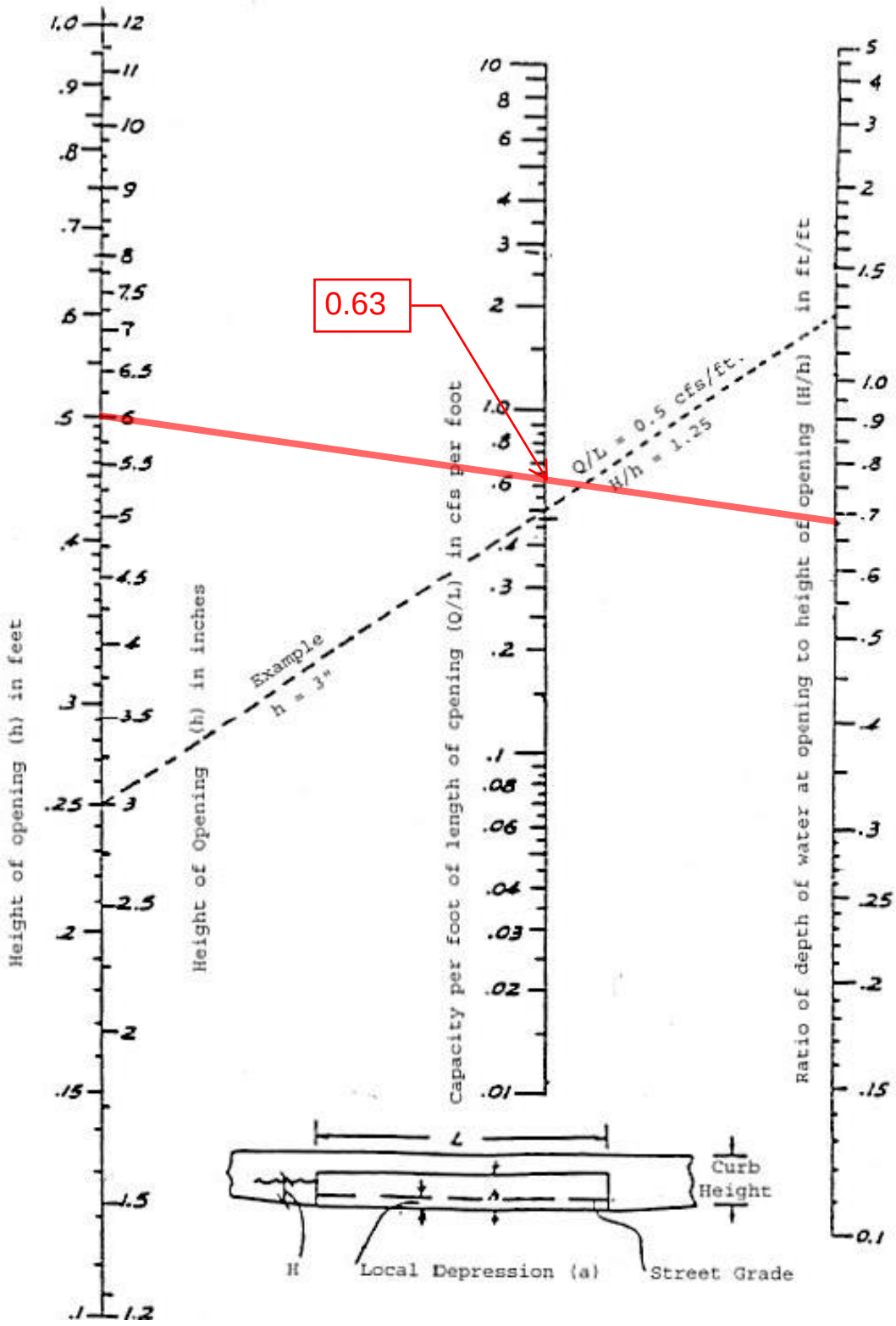


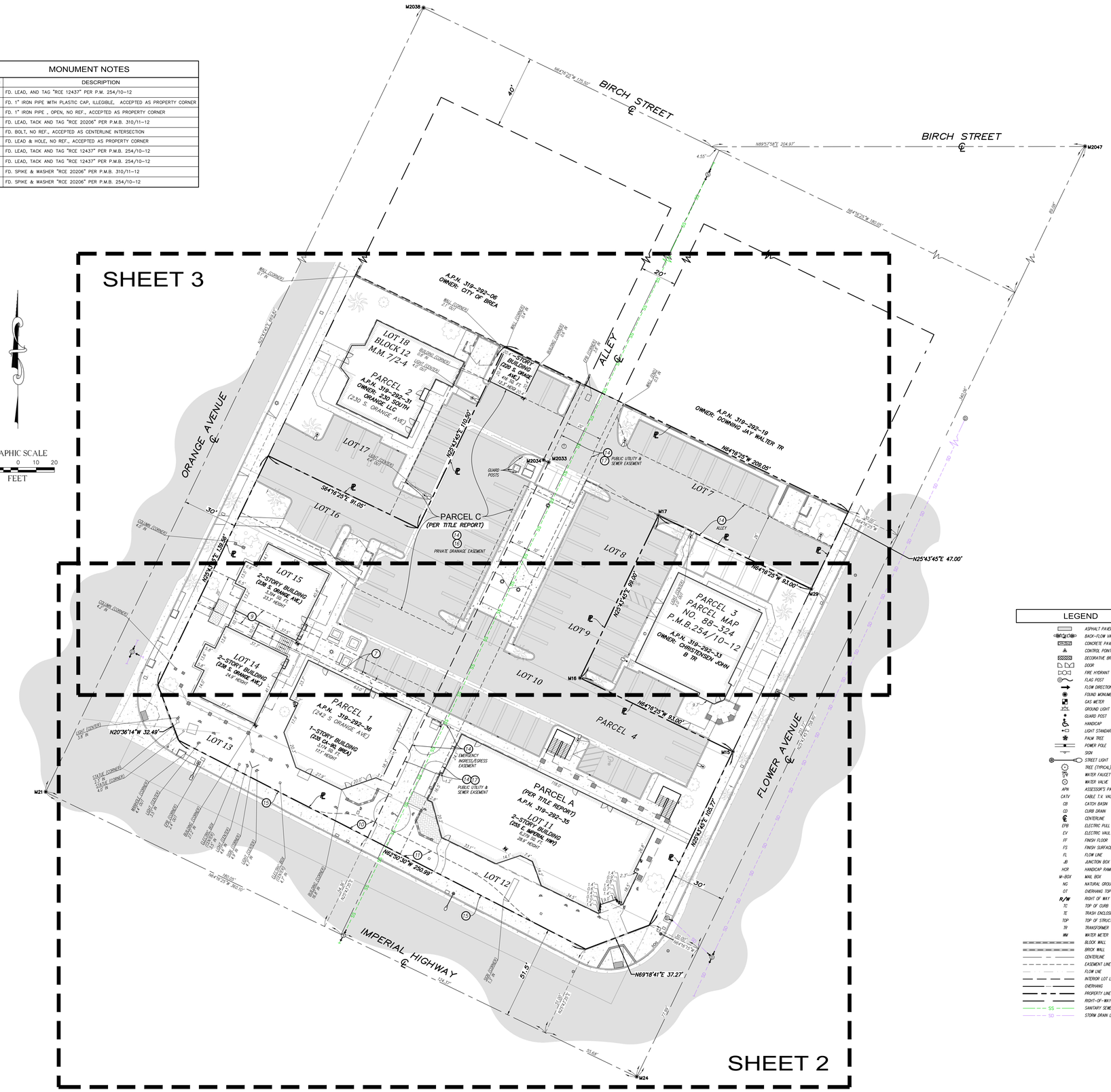
Figure 3-16: Capacity Nomograph at Curb Opening Inlets at Low Points

APPENDIX I: ALTA AND SITE STATISTICS

A.L.T.A./N.S.P.S. LAND TITLE SURVEY

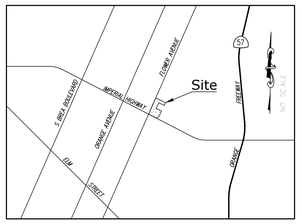
230 & 242 S. ORANGE AVE., 255 E. IMPERIAL HWY., BREA, CA 92821

MONUMENT NOTES	
MON.#	DESCRIPTION
M15	FD. LEAD, AND TAG "RCE 12437" PER P.M. 254/10–12
M16	FD. 1" IRON PIPE WITH PLASTIC CAP, ILLEGIBLE, ACCEPTED AS PROPERTY CORNER
M17	FD. 1" IRON PIPE , OPEN, NO REF., ACCEPTED AS PROPERTY CORNER
M21	FD. LEAD, TACK AND TAG "RCE 20206" PER P.M.B. 310/11–12
M24	FD. BOLT, NO REF., ACCEPTED AS CENTERLINE INTERSECTION
M29	FD. LEAD & HOLE, NO REF., ACCEPTED AS PROPERTY CORNER
M2033	FD. LEAD, TACK AND TAG "RCE 12437" PER P.M.B. 254/10–12
M2034	FD. LEAD, TACK AND TAG "RCE 12437" PER P.M.B. 254/10–12
M2038	FD. SPIKE & WASHER "RCE 20206" PER P.M.B. 310/11–12
M2047	FD. SPIKE & WASHER "RCE 20206" PER P.M.B. 254/10–12



GRAPHIC SCALE
20 0 10 20
FEET

VICINITY MAP



ZONING RESTRICTIONS

NOTE: INDICATED ZONING INFORMATION IS FROM THE CITY OF BREA ZONING ORDINANCES IN EFFECT AS OF THE DATE OF THIS SURVEY. ZONING AND RESTRICTIONS SHOWN HEREON WERE OBTAINED BY A GENERAL REQUEST AT THE PUBLIC COUNTER OF THE ABOVE NAMED DEPARTMENT. NO REPRESENTATION IS MADE FOR THE ACCURACY OR COMPLETENESS OF SAID THIRD PARTY INFORMATION. THIS FIRM IS NOT AN EXPERT IN THE REPRESENTATION OF COMPLEX ZONING ORDINANCES. COMPLIANCE IS BEYOND THE SCOPE OF THIS SURVEY. ANY USER OF SAID INFORMATION IS URGED TO CONTACT THE LOCAL AGENCY DIRECTLY.

ZONE: C–P (COMMERCIAL, ADMINISTRATIVE AND PROFESSIONAL OFFICE ZONE)

MINIMUN SETBACKS: FRONT: 15 FEET
SIDE: 15 FEET
REAR: NONE

HEIGHT RESTRICTIONS: 30 FEET

POSSIBLE ENCROACHMENT NOTES

THIS IS A LISTING OF OBSERVED IMPROVEMENTS THAT CROSS PROPERTY LINES. STATEMENT OF OWNERSHIP OR POSSESSION IS NOT THE INTENT OF THIS LISTING.

NO APPARENT ENCROACHMENTS

ITEMS CORRESPONDING TO TABLE A ITEMS

– ITEM 6(a)
NO ZONING REPORT OR LETTER PROVIDED BY CLIENT.

– ITEM 14
THE NEAREST INTERSECTING STREET TO THE PROPERTY IS IMPERIAL (TO THE SOUTH AS SHOWN HEREON) AND IT IS ±51 FEET.

– ITEM 16
NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

– ITEM 17
NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

SURVEYOR'S NOTES

– THE UTILITIES SHOWN HEREON ARE BASED ON OBSERVED EVIDENCE ONLY. THIS SURVEY WOULD NOT SHOW UTILITIES COVERED BY CARS/TRUCKS OR RECENTLY PAVED ASPHALT/CONCRETE OR OVERGROWN BRUSH, TREES AND SHRUBS.

– THIS SURVEY HAS BEEN PREPARED FOR TITLE INSURANCE PURPOSES ONLY. THIS SURVEY DOES NOT CONTAIN SUFFICIENT DETAIL FOR DESIGN PURPOSES. THE BOUNDARY DATA AND TITLE MATTERS AS SHOWN HEREON HAVE BEEN DEVELOPED FROM THE REFERENCED TITLE REPORT.

– UNLESS THIS PLAN HAS THE SEAL AND SIGNATURE OF THE SURVEYOR AND/OR ENGINEER RESPONSIBLE FOR ITS PREPARATION, THIS IS NOT AN AUTHENTIC COPY OF THE ORIGINAL SURVEY AND SHALL NOT BE DEEMED RELIABLE.

LEGEND

- ASPHALT PAVEMENT
- BACK–FLOW VALVE
- CONCRETE PAVEMENT
- CONTROL POINT
- DECORATIVE BRICK
- DOOR
- FIRE HYDRANT
- FLAG POST
- FLOW DIRECTION
- FOUND MONUMENT AS NOTED
- GAS METER
- GROUND LIGHT
- GUARD POST
- HANDICAP
- LIGHT STANDARD
- PALM TREE
- POWER POLE
- SIGN
- STREET LIGHT
- TREE (TYPICAL)
- WATER FAUCET
- WATER VALVE
- APN ASSESSOR'S PARCEL NUMBER
- CATV CABLE T.V. VAULT
- CB CATCH BASIN
- CD CURB DRAIN
- CENTERLINE
- EPB ELECTRIC PULL BOX
- EV ELECTRIC VAULT
- FF FINISH FLOOR
- FS FINISH SURFACE
- FL FLOW LINE
- JB JUNCTION BOX
- HCR HANDICAP RAMP
- M–BOX MAIL BOX
- NG NATURAL GROUND
- OT OVERHANG TOP
- R/W RIGHT OF WAY
- TC TOP OF CURB
- TE TRASH ENCLOSURE
- TOP TOP OF STRUCTURE
- TR TRANSFORMER
- WM WATER METER
- BLOCK WALL
- BRICK WALL
- CENTERLINE
- EASEMENT LINE
- FLOW LINE
- INTERIOR LOT LINE
- OVERHANG
- PROPERTY LINE
- RIGHT–OF–WAY
- SS SANITARY SEWER LINE
- SD STORM DRAIN LINE

FLOOD NOTE: BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, PANEL NO. 06059C0042J, PANEL DATED 12/3/2009. THIS PROPERTY IS NOT LOCATED IN AN AREA WHERE FLOOD HAZARDS EXIST AS DETERMINED BY FEMA. BY TELEPHONE CALL TO THE NATIONAL FLOOD INSURANCE PROGRAM (800–638–6620) WE HAVE LEARNED THIS COMMUNITY DOES CURRENTLY PARTICIPATE IN THE PROGRAM. NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN CITY OF BREA IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND DESCRIBED AS FOLLOWS:

PARCEL A:
PARCELS 1 AND 4 OF PARCEL MAP NO. 88–324, IN THE CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS AMENDED BY CERTIFICATE OF CORRECTION RECORDED JULY 30, 1991 AS INSTRUMENT NO. 91–401275 OF OFFICIAL RECORDS.

EXCEPT THOSE PORTIONS OF PARCELS 1 AND 4 AS CONVEYED TO THE CITY OF BREA BY THE DEED RECORDED NOVEMBER 29, 1990 AS INSTRUMENT NO. 90–629407 OF OFFICIAL RECORDS.

ALSO EXCEPT ALL COAL, LIGNITE, COAL OIL, PETROLEUM, NAPTHA, ASPHALTUM, BREA, BITUMEN, NATURAL GAS AND OTHER HYDROCARBONS AND LIKE SUBSTANCES WHICH NOW EXIST UPON, IN OR UNDER SAID LOTS, BUT WITH NO RIGHT OF ENTRY UPON THE SURFACE OF SAID LOTS FOR THE TAKING AND DEVELOPING OF SAID SUBSTANCES, AS RESERVED AND EXCEPTED IN DEEDS OF RECORD.

PARCEL B:
A RECIPROCAL NON–EXCLUSIVE EASEMENT FOR PEDESTRIAN AND VEHICULAR TRAFFIC AND FOR THE PARKING OF AUTOMOBILES OVER AND ACROSS THOSE PORTIONS OF PARCELS 2 AND 3 OF SAID PARCEL MAP NO. 88–324 SHOWN AS PARKING AREAS ON EXHIBIT NO. 2 ATTACHED TO DOCUMENT ENTITLED "RECIPROCAL COVENANTS CONDITIONS RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTRUMENT NO. 91–24934 OF OFFICIAL RECORDS OF THE COUNTY OF ORANGE, AND AN AMENDMENT TO RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING, RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099351, OF OFFICIAL RECORDS **(BLANKET IN NATURE OVER ALL PARKING AREAS)**

PARCEL C:
A RECIPROCAL NON–EXCLUSIVE PRIVATE DRAINAGE EASEMENT AS SHOWN ON SAID PARCEL MAP 88–324, OVER THOSE PORTIONS OF PARCELS 2 AND 3 DESIGNATED THEREON.

SCHEDULE B ITEMS

BASED UPON TITLE REPORT NO. 997–3008610–154, DATED JANUARY 28, 2022 AS PREPARED BY FIDELITY NATIONAL TITLE COMPANY.

1. – WATER RIGHTS, CLAIMS OR TITLE TO WATER IN OR UNDER SAID LAND, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS **(NOT A SURVEY MATTER)**.
2. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED NOVEMBER 28, 1910 IN BOOK 194, PAGE 243 OF DEEDS **(NOT A SURVEY MATTER)**.
3. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED JULY 24, 1911 IN BOOK 198, PAGE 55 OF DEEDS **(NOT A SURVEY MATTER)**.
4. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED APRIL 16, 1912 IN BOOK 210, PAGE 210 PAGE 342 OF DEEDS **(NOT A SURVEY MATTER)**.
5. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MARCH 26, 1921 IN BOOK 241, PAGE 109 OF DEEDS **(NOT A SURVEY MATTER)**.
6. – THE FACT THAT SAID LAND IS INCLUDED WITHIN A PROJECT AREA OF THE AB REDEVELOPMENT AGENCY AS DISCLOSED BY A DOCUMENT RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83–592126 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
7. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED OCTOBER 8, 1985 AS INSTRUMENT NO. 85–365428 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
8. – AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED JUNE 20, 1988 AS INSTRUMENT NO. 88–291630, DOCUMENT ENTITLED "QUITCLAIM OF EASEMENT" RECORDED SEPTEMBER 20, 1988 AS INSTRUMENT NO. 88–475713 BOTH OFFICIAL RECORDS **(NOT PLOTTED, QUITCLAIMED TO OWNER)**.
9. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED AUGUST 9, 1988 AS INSTRUMENT NO. 88–390076 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
10. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516400 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
11. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516401 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
12. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "DISPOSITION AND DEVELOPMENT AGREEMENT" RECORDED OCTOBER 26, 1989 AS INSTRUMENT NO. 89–577329 AND INSTRUMENT NO. 89–617773 BOTH OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
13. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MAY 3, 1990 AS INSTRUMENT NO. 90–234461 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
14. AN EASEMENT OR OTHER PROVISIONS FOR THE PURPOSE OF PRIVATE DRAINAGE, PUBLIC UTILITY, SEWER, ALLEY, EMERGENCY INGRESS AND EGRESS AND RIGHTS INCIDENTAL THERETO AS SHOWN ON THE RECORDED PARCEL MAP NO. 88–324, RECORDED JULY 27, 1990 IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS **(PLOTTED HEREON)**.
15. THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE PUBLIC STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED OR SEVERED BY THE MAP OF SAID PARCEL MAP NO. 88–324, WHICH AFFECTS IMPERIAL HWY. **(PLOTTED HEREON)**.
16. PROVISIONS, HEREIN RECITED, OF THE DEDICATION STATEMENT ON THE MAP OF THE TRACT SHOWN ON PARCEL MAP NO. 88–324 PROVISIONS AS FOLLOWS:
WE ALSO HEREBY RESERVE TO OURSELVES, OUR HEIRS, AND ASSIGNS: 1) A RECIPROCAL INGRESS, EGRESS EASEMENT FOR VEHICLES AND PEDESTRIANS BETWEEN PARCELS 1, 2, 3 & 4; 2) A RECIPROCAL PRIVATE DRAINAGE EASEMENT BETWEEN PARCELS 1, 2, 3 & 4 AND THE ALLEY **(RECIPROCAL INGRESS/EGRESS EASEMENT BLANKET IN NATURE OVER PARCELS 1–4, RECIPROCAL PRIVATE DRAINAGE EASEMENT PLOTTED HEREON)**.
17. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF PACIFIC BELL, ITS SUCCESSORS AND ASSIGNS AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 4, 1990 AS INSTRUMENT 90–469325, AFFECTS AS DESCRIBED THEREIN **(PLOTTED HEREON)**.
18. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED " RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTR. # 91–24934, OF OFFICIAL RECORDS.
SAID DOCUMENT WAS MODIFIED BY AN INSTRUMENT RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099351, OF OFFICIAL RECORDS **(BLANKET IN NATURE OVER ALL PARKING AREAS WITHIN PARCEL 1, 2, 3, AND 4 OF PARCEL MAP NO. 88–324)**.
19. – DEED OF TRUST **(NOT A SURVEY MATTER)**.
20. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001309662, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120063506, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301658, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
21. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001309663, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120063506, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301657, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
22. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140003137772, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120063506, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301166, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
23. – DEED OF TRUST **(NOT A SURVEY MATTER)**.
24. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20200000250717, DEED OF TRUST RECORDED JANUARY 31, 2020 AS INSTRUMENT NO. 20200000413404, BOTH OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
25. – DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS WHICH A CORRECT SURVEY WOULD DISCLOSE AND WHICH ARE NOT SHOWN BY THE PUBLIC RECORDS.
IN ORDER TO DELETE THE SURVEY EXCEPTION SHOWN ABOVE, A SATISFACTORY SURVEY OF THE SUBJECT LAND, WHICH COMPLIES WITH THE MINIMUM STANDARDS FOR LAND SURVEYS MADE FOR TITLE INSURANCE PURPOSES, IS TO BE FURNISHED TO THE COMPANY.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS AS DISCLOSED BY THE SURVEY, OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.
26. – ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.
27. – MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.
28. – ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS. **(NOT A SURVEY MATTER)**.
29. – THE TRANSACTION CONTEMPLATED IN CONNECTION WITH THIS REPORT IS SUBJECT TO THE REVIEW AND APPROVAL OF THE COMPANY'S CORPORATE UNDERWRITING DEPARTMENT. THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER SUCH REVIEW. **(NOT A SURVEY MATTER)**.

SURVEYOR'S CERTIFICATE

TO ONE BERRY, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY AND FIDELITY NATIONAL TITLE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 6(a), 7(a), 7(b)(1), 7(c), 8, 9, 10, 13, 14, 16 AND 17 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON FEBRUARY 3, 2022.

DATE OF PLAT OR MAP: FEBRUARY 22, 2022

REVISIONS			
NO.	DATE	REVISIONS	BY
0	12/18/19	SUBMITTAL	AA
1	11/11/20	ADDITIONAL TOPO	CE
2	02/03/22	ADDITIONAL TOPO	VG
3	02/25/22	UPDATED TITLE REPORT	RAS

UTILITY STATEMENT

BURIED UTILITIES AND/OR PIPELINES SHOWN HEREON ARE PER VISIBLE AND APPARENT SURFACE EVIDENCE, RECORD DRAWINGS OF THE CONSTRUCTED UTILITY LINES OBTAINED FROM RELIABLE AND RESPONSIBLE SOURCES NOT CONNECTED WITH CALVADA SURVEYING, INC. OR MARKINGS PROVIDED BY AN INDEPENDENT LOCATING CONTRACTOR. NO GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY OR THOROUGHNESS OF SUCH INFORMATION. IF MORE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES OR PIPE LINES ARE REQUIRED, THE UTILITY OR PIPELINE WILL HAVE TO BE VERIFIED BY FIELD POTHOLING. CALVADA SURVEYING, INC. AND THE SURVEYOR OF RECORD SHALL NOT BE HELD LIABLE FOR THE LOCATION OF OR THE FAILURE TO NOTE THE LOCATION OF NON–VISIBLE UTILITIES OR PIPELINES.

Underground Service Alert
Call: TOLL FREE
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227–2600
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PREPARED FOR

KIMLEY–HORN (ORANGE)
765 THE CITY DRIVE SOUTH, SUITE 200
ORANGE, CA 92868
PHONE: (714) 705–1347

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED UPON THE CENTERLINE OF FLOWER AVENUE, BEING N25°43'45"E PER PARCEL MAP NO. 88–324, RECORDED IN BOOK 254 PAGES 10 THROUGH 12 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.

SITE INFORMATION

SITE NAME: BREA GASLAMP SQUARE
SITE ADDRESS: 230 & 242 S. ORANGE AVE.
255 E. IMPERIAL HWY. BREA, CA 92821

PROPERTY AREA: 1.443 AC. OR 62,843 SQ. FT.

TOTAL GROUND FLOOR AREA OF BUILDINGS: 13,263 SQ. FT.

PARKING COUNT: 55 REGULAR PARKING STALLS
1 HANDICAP PARKING STALLS
56 TOTAL PARKING STALLS

ASSESSOR'S PARCEL NO.: 319–292–35 & 36

SURVEYOR OF RECORD

FIELD COMPLETION DATE: FEBRUARY 3, 2022

REGISTERED LAND SURVEYOR — L.S. 7760 — Date Signed 02/25/2022 — STATE OF CALIFORNIA

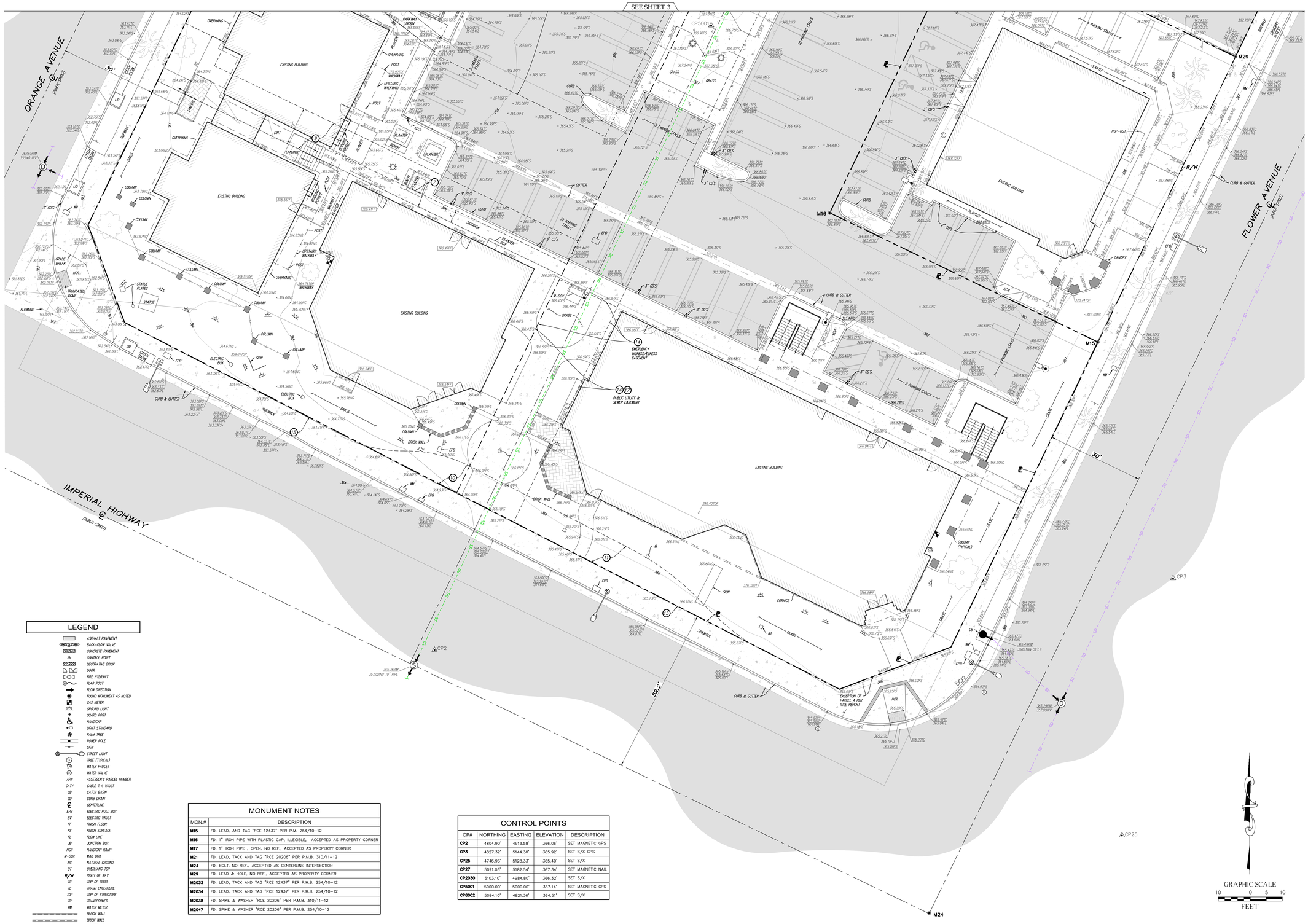
Armando D. DuPont
Registration No. 7780

CAL VADA SURVEYING, INC.
411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951-280-9960 Fax: 951-280-9746
Toll Free: 800-CALVADA www.calvada.com

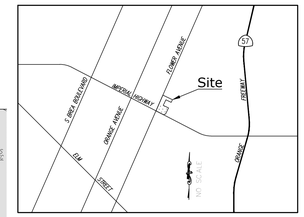
EST. 1989 JOB NO. 19684-2

TOPOGRAPHIC SURVEY

230 & 242 S. ORANGE AVE., 255 E. IMPERIAL HWY., BREA, CA 92821



VICINITY MAP



LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN CITY OF BREA IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND DESCRIBED AS FOLLOWS:

PARCEL A:
PARCELS 1 AND 4 OF PARCEL MAP NO. 88–324, IN THE CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS AMENDED BY CERTIFICATE OF CORRECTION RECORDED JULY 30, 1991 AS INSTRUMENT NO. 91–401275 OF OFFICIAL RECORDS.

EXCEPT THOSE PORTIONS OF PARCELS 1 AND 4 AS CONVEYED TO THE CITY OF BREA BY THE DEED RECORDED NOVEMBER 26, 1990 AS INSTRUMENT NO. 90–629407 OF OFFICIAL RECORDS.

ALSO EXCEPT ALL COAL, LIGNITE, COAL OIL, PETROLEUM, NAPTHA, ASPHALTUM, BREA, BITUMEN, NATURAL GAS AND OTHER HYDROCARBONS AND LIKE SUBSTANCES WHICH NOW EXIST UPON, IN OR UNDER SAID LOTS, BUT WITH NO RIGHT OF ENTRY UPON THE SURFACE OF SAID LOTS FOR THE TAKING AND DEVELOPING OF SAID SUBSTANCES, AS RESERVED AND EXCEPTED IN DEEDS OF RECORD.

PARCEL B:
A RECIPROCAL NON–EXCLUSIVE EASEMENT FOR PEDESTRIAN AND VEHICULAR TRAFFIC AND FOR THE PARKING OF AUTOMOBILES OVER AND ACROSS THOSE PORTIONS OF PARCELS 2 AND 3 OF SAID PARCEL MAP NO. 88–324 SHOWN AS PARKING AREAS ON EXHIBIT NO. 2 ATTACHED TO DOCUMENT ENTITLED 'RECIPROCAL COVENANTS CONDITIONS RESTRICTIONS AND EASEMENT FOR PARKING' RECORDED JANUARY 17, 1991 AS INSTRUMENT NO. 91–24334 OF OFFICIAL RECORDS OF THE COUNTY OF ORANGE, AND AN AMENDMENT TO RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING, RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099301, OF OFFICIAL RECORDS **(ELIMINEST IN NATURE OVER ALL PARKING AREAS)**

PARCEL C:
A RECIPROCAL NON–EXCLUSIVE PRIVATE DRAINAGE EASEMENT AS SHOWN ON SAID PARCEL MAP 88–324, OVER THOSE PORTIONS OF PARCELS 2 AND 3 DESIGNATED THEREON.

SCHEDULE B ITEMS

BASED UPON TITLE REPORT NO. 997–30080610–TS4, DATED JANUARY 28, 2022 AS PREPARED BY FIDELITY NATIONAL TITLE COMPANY.

1. – WATER RIGHTS, CLAIMS OR TITLE TO WATER IN OR UNDER SAID LAND, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS **(NOT A SURVEY MATTER).**
2. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED NOVEMBER 28, 1910 IN BOOK 194, PAGE 243 OF DEEDS **(NOT A SURVEY MATTER).**
3. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED JULY 24, 1911 IN BOOK 198, PAGE 55 OF DEEDS **(NOT A SURVEY MATTER).**
4. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED APRIL 16, 1912 IN BOOK 210, PAGE 210 PAGE 342 OF DEEDS **(NOT A SURVEY MATTER).**
5. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MARCH 26, 1921 IN BOOK 241, PAGE 109 OF DEEDS **(NOT A SURVEY MATTER).**
6. – THE FACT THAT SAID LAND IS INCLUDED WITHIN A PROJECT AREA OF THE AB REDEVELOPMENT AGENCY AS DISCLOSED BY A DOCUMENT RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83–592126 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER).**
7. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED OCTOBER 8, 1985 AS INSTRUMENT NO. 85–385428 OF OFFICIAL RECORDS **(PLOTTED HEREON).**
8. – AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED JUNE 20, 1988 AS INSTRUMENT NO. 88–291630, DOCUMENT ENTITLED "QUITCLAIM OF EASEMENT" RECORDED SEPTEMBER 20, 1988 AS INSTRUMENT NO. 88–476713 BOTH OFFICIAL RECORDS **(NOT PLOTTED, QUITCLAIMED TO OWNER).**
9. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED AUGUST 9, 1989 AS INSTRUMENT NO. 89–390076 OF OFFICIAL RECORDS **(PLOTTED HEREON).**
10. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516400 OF OFFICIAL RECORDS **(PLOTTED HEREON).**
11. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516401 OF OFFICIAL RECORDS **(PLOTTED HEREON).**
12. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "DISPOSITION AND DEVELOPMENT AGREEMENT" RECORDED OCTOBER 26, 1989 AS INSTRUMENT NO. 89–577329 AND INSTRUMENT NO. 89–617713 BOTH OFFICIAL RECORDS **(NOT A SURVEY MATTER).**
13. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MAY 3, 1990 AS INSTRUMENT NO. 90–234461 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER).**
14. AN EASEMENT OR OTHER PROVISIONS FOR THE PURPOSE OF PRIVATE DRAINAGE, PUBLIC UTILITY, SEWER, ALLEY, EMERGENCY INGRESS AND EGRESS AND RIGHTS INCIDENTAL THERETO AS SHOWN ON THE RECORDED PARCEL MAP NO. 88–324, RECORDED JULY 27, 1990 IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS **(PLOTTED HEREON).**
15. THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE PUBLIC STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED OR SEVERED BY THE MAP OF SAID PARCEL MAP NO. 88–324, WHICH AFFECTS IMPERIAL HWY. **(PLOTTED HEREON).**
16. PROVISIONS, HEREIN RECITED, OF THE DEDICATION STATEMENT ON THE MAP OF THE TRACT SHOWN ON PARCEL MAP NO. 88–324 PROVISIONS: AS FOLLOWS:
WE ALSO HEREBY RESERVE TO OURSELVES, OUR HEIRS, AND ASSIGNS: 1) A RECIPROCAL INGRESS, EGRESS EASEMENT FOR VEHICLES AND PEDESTRIANS BETWEEN PARCELS 1, 2, 3 & 4; 2) A RECIPROCAL PRIVATE DRAINAGE EASEMENT BETWEEN PARCELS 1, 2, 3 & 4 AND THE ALLEY **(RECIPROCAL INGRESS/EGRESS EASEMENT BLANKET IN NATURE OVER PARCELS 1–4, RECIPROCAL PRIVATE DRAINAGE EASEMENT PLOTTED HEREON)**
17. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF PACIFIC BELL, ITS SUCCESSORS AND ASSIGNS AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 4, 1990 AS INSTRUMENT 90–463525, AFFECTS AS DESCRIBED THEREIN **(PLOTTED HEREON).**
18. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED " RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTR. # 91–24834, OF OFFICIAL RECORDS.
SAID DOCUMENT WAS MODIFIED BY AN INSTRUMENT RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099301, OF OFFICIAL RECORDS **(BLANKET IN NATURE OVER ALL PARKING AREAS WITHIN PARCEL 1, 2, 3, AND 4 OF PARCEL MAP NO. 88–324)**
19. –DEED OF TRUST **(NOT A SURVEY MATTER).**
20. –SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001303962, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120006135936, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190003015168, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER).**
21. –SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001303963, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120006135906, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190003015167, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER).**
22. –SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001301772, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120006135908, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190003015166, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER).**
23. –DEED OF TRUST **(NOT A SURVEY MATTER).**
24. –SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20200002150717, DEED OF TRUST RECORDED JANUARY 31, 2020 AS INSTRUMENT NO. 20200000143404, BOTH OF OFFICIAL RECORDS **(NOT A SURVEY MATTER).**
25. –DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS WHICH A CORRECT SURVEY WOULD DISCLOSE AND WHICH ARE NOT SHOWN BY THE PUBLIC RECORDS.
IN ORDER TO DELETE THE SURVEY EXCEPTION SHOWN ABOVE, A SATISFACTORY SURVEY OF THE SUBJECT LAND, WHICH COMPLIES WITH THE MINIMUM STANDARDS FOR LAND SURVEYS MADE FOR TITLE INSURANCE PURPOSES, IS TO BE FURNISHED TO THE COMPANY.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS AS DISCLOSED BY THE SURVEY, OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.
26. –ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.
27. –MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.
28. –ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS. **(NOT A SURVEY MATTER)**
29. –THE TRANSACTION CONTEMPLATED IN CONNECTION WITH THIS REPORT IS SUBJECT TO THE REVIEW AND APPROVAL OF THE COMPANY'S CORPORATE UNDERWRITING DEPARTMENT. THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER SUCH REVIEW. **(NOT A SURVEY MATTER).**

LEGEND

- ASPHALT PAVEMENT
- BACK–FLOW VALVE
- CONCRETE PAVEMENT
- CONTROL POINT
- DECORATIVE BRICK
- DOOR
- FIRE HYDRANT
- FLAG POST
- FLOW DIRECTION
- FOUND MONUMENT AS NOTED
- GAS METER
- GROUND LIGHT
- GUARD POST
- HANDICAP
- LIGHT STANDARD
- PALM TREE
- POWER POLE
- SIGN
- STREET LIGHT
- TREE (TYPICAL)
- WATER FAUCET
- WATER VALVE
- APN – ASSESSOR'S PARCEL NUMBER
- CATV – CABLE T.V. VAULT
- CB – CATCH BASIN
- CD – CURB DRAIN
- CL – CENTERLINE
- EPB – ELECTRIC PULL BOX
- EV – ELECTRIC VAULT
- FF – FINISH FLOOR
- FS – FINISH SURFACE
- FL – FLOW LINE
- JB – JUNCTION BOX
- HCR – HANDICAP RAMP
- M–BOX – MAIL BOX
- NG – NATURAL GROUND
- OT – OVERHANG TOP
- R/W – RIGHT OF WAY
- TC – TOP OF CURB
- TE – TRASH ENCLOSURE
- TOP – TOP OF STRUCTURE
- TR – TRANSFORMER
- WM – WATER METER
- BLOCK WALL
- BRICK WALL
- CENTERLINE
- EASEMENT LINE
- FLOW LINE
- INTERIOR LOT LINE
- OVERHANG
- PROPERTY LINE
- RIGHT–OF–WAY
- SANITARY SEWER LINE
- STORM DRAIN LINE

MONUMENT NOTES

MON.#	DESCRIPTION
M15	FD. LEAD, AND TAG "RCE 12437" PER P.M. 254/10–12
M16	FD. 1" IRON PIPE WITH PLASTIC CAP, ILLEGIBLE, ACCEPTED AS PROPERTY CORNER
M17	FD. 1" IRON PIPE , OPEN, NO REF., ACCEPTED AS PROPERTY CORNER
M21	FD. LEAD, TACK AND TAG "RCE 20206" PER P.M.B. 310/11–12
M24	FD. BOLT, NO REF., ACCEPTED AS CENTERLINE INTERSECTION
M29	FD. LEAD & HOLE, NO REF., ACCEPTED AS PROPERTY CORNER
M2033	FD. LEAD, TACK AND TAG "RCE 12437" PER P.M.B. 254/10–12
M2034	FD. LEAD, TACK AND TAG "RCE 12437" PER P.M.B. 254/10–12
M2038	FD. SPIKE & WASHER "RCE 20206" PER P.M.B. 310/11–12
M2047	FD. SPIKE & WASHER "RCE 20206" PER P.M.B. 254/10–12

CONTROL POINTS

CP#	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP2	4804.90'	4913.58'	366.06'	SET MAGNETIC GPS
CP3	4827.32'	5144.30'	365.92'	SET S/X GPS
CP25	4746.93'	5128.33'	365.40'	SET S/X
CP27	5021.03'	5182.54'	367.34'	SET MAGNETIC NAIL
CP2030	5103.10'	4984.80'	366.32'	SET S/X
CP5001	5000.00'	5000.00'	367.14'	SET MAGNETIC GPS
CP8002	5084.10'	4821.36'	364.51'	SET S/X

GRAPHIC SCALE
10 0 5 10
FEET

REVISIONS			
NO.	DATE	REVISIONS	BY
0	12/18/19	SUBMITTAL	AA
1	11/11/20	ADDITIONAL TOPO	CE
2	02/03/22	ADDITIONAL TOPO	VG
3	02/25/22	UPDATED TITLE REPORT	RAS

UTILITY STATEMENT

BURIED UTILITIES AND/OR PIPELINES SHOWN HEREON ARE PER VISIBLE AND APPARENT SURFACE EVIDENCE, RECORD DRAWINGS OF THE CONSTRUCTED UTILITY LINES OBTAINED FROM RELIABLE AND RESPONSIBLE SOURCES NOT CONNECTED WITH CALVADA SURVEYING, INC. OR MARKINGS PROVIDED BY AN INDEPENDENT LOCATING CONTRACTOR. NO GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY OR THOROUGHNESS OF SUCH INFORMATION. IF MORE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES OR PIPE LINES ARE REQUIRED, THE UTILITY OR PIPELINE WILL HAVE TO BE VERIFIED BY FIELD POTHOLING. CALVADA SURVEYING, INC. AND THE SURVEYOR OF RECORD SHALL NOT BE HELD LIABLE FOR THE LOCATION OF OR THE FAILURE TO NOTE THE LOCATION OF NON–VISIBLE UTILITIES OR PIPELINES.

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PREPARED FOR

KIMLEY–HORN (ORANGE)
765 THE CITY DRIVE SOUTH, SUITE 200
ORANGE, CA 92868
PHONE: (714) 705–1347

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED UPON THE CENTERLINE OF FLOWER AVENUE, BEING N25°43'45"E PER PARCEL MAP NO. 88–324, RECORDED IN BOOK 254 PAGES 10 THROUGH 12 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.

BENCHMARK

ELEVATIONS SHOWN HEREON ARE BASED UPON COUNTY OF ORANGE BENCHMARK 2C–113–99, ELEVATION 368.96 FEET (NAVD 88).

DESCRIBED BY OCS 2003 – FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "2C–113–99" SET IN THE TOP OF THE NORTHWEST CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ON THE EASTERLY SIDE OF BREA BOULEVARD 0.1 MILES NORTHERLY OF THE INTERSECTION OF BREA BOULEVARD AND ASH STREET, 23 FT. NORTHERLY OF THE CENTERLINE OF THE RAILROAD TRACKS, 42 FT. SOUTHEASTERLY OF THE CENTERLINE OF BREA BOULEVARD. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

SITE INFORMATION

SITE NAME:	BREA GASLAMP SQUARE
SITE ADDRESS:	230 & 242 S. ORANGE AVE., 255 E. IMPERIAL HWY. BREA, CA 92821
PROPERTY AREA:	1.443 AC. OR 62,843 SQ. FT.
TOTAL GROUND FLOOR AREA OF BUILDINGS:	13,263 SQ. FT.
PARKING COUNT:	55 REGULAR PARKING STALLS 1 HANDICAP PARKING STALLS 56 TOTAL PARKING STALLS
ASSESSOR'S PARCEL NO.:	319–292–35 & 36

SURVEYOR OF RECORD

FIELD COMPLETION DATE: FEBRUARY 3, 2022

LICENSED LAND SURVEYOR — STATE OF CALIFORNIA
L.S.7780
Date Signed: 02/25/2022
Armando D. DuPont
Registration No. 7780

CALVADA SURVEYING, INC.
411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951–280–9960 Fax: 951–280–9746
Toll Free: 800–CALVADA www.calvada.com
EST. 1989 JOB NO.19684–2

TOPOGRAPHIC SURVEY

230 & 242 S. ORANGE AVE., 255 E. IMPERIAL HWY., BREA, CA 92821

GRAPHIC SCALE
10 0 5 10
FEET

CONTROL POINTS				
CP#	NORTHING	EASTING	ELEVATION	DESCRIPTION
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CP3	4827.32'	5144.30'	365.92'	SET S/X GPS
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CP2030	5103.10'	4984.80'	366.32'	SET S/X
CP5001	5000.00'	5000.00'	367.14'	SET MAGNETIC GPS
CP8002	5084.10'	4821.36'	364.51'	SET S/X

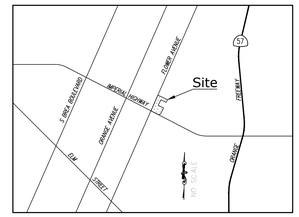


MONUMENT NOTES	
MON.#	DESCRIPTION
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M2047	FD. SPIKE & WASHER "RCE 20206" PER P.M.B. 254/10–12

LEGEND

ASPHALT PAVEMENT
BACK-FLOW VALVE
CONCRETE PAVEMENT
CONTROL POINT
DECORATIVE BRICK
DOOR
FIRE HYDRANT
FLAG POST
FLOW DIRECTION
FOUND MONUMENT AS NOTED
GAS METER
GROUND LIGHT
GUARD POST
HANDICAP
LIGHT STANDARD
PALM TREE
POWER POLE
SIGN
STREET LIGHT
TREE (TYPICAL)
WATER FAUCET
WATER VALVE
ASSESSOR'S PARCEL NUMBER
CABLE T.V. VAULT
CATCH BASIN
CURB DRAIN
CENTERLINE
ELECTRIC PULL BOX
ELECTRIC VAULT
FINISH FLOOR
FINISH SURFACE
FLOW LINE
JUNCTION BOX
HANDICAP RAMP
MAIL BOX
NATURAL GROUND
OVERHANG TOP
RIGHT OF WAY
TOP OF CURB
TRASH ENCLOSURE
TOP OF STRUCTURE
TRANSFORMER
WATER METER
BLOCK WALL
BRICK WALL
CENTERLINE
EASEMENT LINE
FLOW LINE
INTERIOR LOT LINE
OVERHANG
PROPERTY LINE
RIGHT-OF-WAY
SANITARY SEWER LINE
STORM DRAIN LINE

VICINITY MAP



LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN CITY OF BREA IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND DESCRIBED AS FOLLOWS:

PARCEL A:
PARCELS 1 AND 4 OF PARCEL MAP NO. 88–324, IN THE CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS AMENDED BY CERTIFICATE OF CORRECTION RECORDED JULY 30, 1991 AS INSTRUMENT NO. 91–401275 OF OFFICIAL RECORDS.

EXCEPT THOSE PORTIONS OF PARCELS 1 AND 4 AS CONVEYED TO THE CITY OF BREA BY THE DEED RECORDED NOVEMBER 26, 1990 AS INSTRUMENT NO. 90–629407 OF OFFICIAL RECORDS.

ALSO EXCEPT ALL COAL, LIGNITE, COAL OIL, PETROLEUM, NAPTHA, ASPHALTUM, BREA, BITUMEN, NATURAL GAS AND OTHER HYDROCARBONS AND LIKE SUBSTANCES WHICH NOW EXIST UPON, IN OR UNDER SAID LOTS, BUT WITH NO RIGHT OF ENTRY UPON THE SURFACE OF SAID LOTS FOR THE TAKING AND DEVELOPING OF SAID SUBSTANCES, AS RESERVED AND EXCEPTED IN DEEDS OF RECORD.

PARCEL B:
A RECIPROCAL NON–EXCLUSIVE EASEMENT FOR PEDESTRIAN AND VEHICULAR TRAFFIC AND FOR THE PARKING OF AUTOMOBILES OVER AND ACROSS THOSE PORTIONS OF PARCELS 2 AND 3 OF SAID PARCEL MAP NO. 88–324 SHOWN AS PARKING AREAS ON EXHIBIT NO. 2 ATTACHED TO DOCUMENT ENTITLED "RECIPROCAL COVENANTS CONDITIONS RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTRUMENT NO. 91–24434 OF OFFICIAL RECORDS OF THE COUNTY OF ORANGE, AND AN AMENDMENT TO RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING, RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099301, OF OFFICIAL RECORDS **(ELIMINATE IN NATURE OVER ALL PARKING AREAS)**

PARCEL C:
A RECIPROCAL NON–EXCLUSIVE PRIVATE DRAINAGE EASEMENT AS SHOWN ON SAID PARCEL MAP 88–324, OVER THOSE PORTIONS OF PARCELS 2 AND 3 DESIGNATED THEREON.

SCHEDULE B ITEMS

BASED UPON TITLE REPORT NO. 997–30080610–TS4, DATED JANUARY 28, 2022 AS PREPARED BY FIDELITY NATIONAL TITLE COMPANY.

1. – WATER RIGHTS, CLAIMS OR TITLE TO WATER IN OR UNDER SAID LAND, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS **(NOT A SURVEY MATTER)**.
2. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED NOVEMBER 28, 1910 IN BOOK 194, PAGE 243 OF DEEDS **(NOT A SURVEY MATTER)**.
3. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED JULY 24, 1911 IN BOOK 198, PAGE 55 OF DEEDS **(NOT A SURVEY MATTER)**.
4. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED APRIL 16, 1912 IN BOOK 210, PAGE 210 PAGE 342 OF DEEDS **(NOT A SURVEY MATTER)**.
5. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MARCH 26, 1921 IN BOOK 241, PAGE 109 OF DEEDS **(NOT A SURVEY MATTER)**.
6. – THE FACT THAT SAID LAND IS INCLUDED WITHIN A PROJECT AREA OF THE AB REDEVELOPMENT AGENCY AS DISCLOSED BY A DOCUMENT RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83–592126 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
7. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED OCTOBER 8, 1985 AS INSTRUMENT NO. 85–385428 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
8. – AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED JUNE 20, 1988 AS INSTRUMENT NO. 88–291630, DOCUMENT ENTITLED "QUITCLAIM OF EASEMENT" RECORDED SEPTEMBER 20, 1988 AS INSTRUMENT NO. 88–476713 BOTH OFFICIAL RECORDS **(NOT PLOTTED, QUITCLAIMED TO OWNER)**.
9. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED AUGUST 9, 1989 AS INSTRUMENT NO. 89–390076 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
10. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516400 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
11. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516401 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
12. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "DISPOSITION AND DEVELOPMENT AGREEMENT" RECORDED OCTOBER 26, 1989 AS INSTRUMENT NO. 89–577329 AND INSTRUMENT NO. 89–617773 BOTH OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
13. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MAY 3, 1990 AS INSTRUMENT NO. 90–234461 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
14. AN EASEMENT OR OTHER PROVISIONS FOR THE PURPOSE OF PRIVATE DRAINAGE, PUBLIC UTILITY, SEWER, ALLEY, EMERGENCY INGRESS AND EGRESS AND RIGHTS INCIDENTAL THERETO AS SHOWN ON THE RECORDED PARCEL MAP NO. 88–324, RECORDED JULY 27, 1990 IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS **(PLOTTED HEREON)**.
15. THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE PUBLIC STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED OR SEVERED BY THE MAP OF SAID PARCEL MAP NO. 88–324, WHICH AFFECTS IMPERIAL HWY. **(PLOTTED HEREON)**.
16. PROVISIONS, HEREIN RECITED, OF THE DEDICATION STATEMENT ON THE MAP OF THE TRACT SHOWN ON PARCEL MAP NO. 88–324 PROVISIONS AS FOLLOWS:
WE ALSO HEREBY RESERVE TO OURSELVES, OUR HEIRS, AND ASSIGNS: 1) A RECIPROCAL INGRESS, EGRESS EASEMENT FOR VEHICLES AND PEDESTRIANS BETWEEN PARCELS 1, 2, 3 & 4, 2) A RECIPROCAL PRIVATE DRAINAGE EASEMENT BETWEEN PARCELS 1, 2, 3 & 4 AND THE ALLEY **(RECIPROCAL INGRESS/EGRESS EASEMENT BLANKET IN NATURE OVER PARCELS 1–4, RECIPROCAL PRIVATE DRAINAGE EASEMENT PLOTTED HEREON)**.
17. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF PACIFIC BELL, ITS SUCCESSORS AND ASSIGNS AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 4, 1990 AS INSTRUMENT NO. 90–469320, AFFECTS AS DESCRIBED THEREIN **(PLOTTED HEREON)**.
18. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED " RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTR. # 91–24434, OF OFFICIAL RECORDS.
SAID DOCUMENT WAS MODIFIED BY AN INSTRUMENT RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099301, OF OFFICIAL RECORDS **(ELIMINATE IN NATURE OVER ALL PARKING AREAS WITHIN PARCEL 1, 2, 3, AND 4 OF PARCEL MAP NO. 88–324)**.
19. – DEED OF TRUST **(NOT A SURVEY MATTER)**.
20. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001309662, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120004135900, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301658, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
21. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001309663, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120004135906, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301671, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
22. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001317772, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120004135900, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301658, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
23. – DEED OF TRUST **(NOT A SURVEY MATTER)**.
24. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20200002150717, DEED OF TRUST RECORDED JANUARY 31, 2020 AS INSTRUMENT NO. 20200004134O4, BOTH OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
25. – DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS WHICH A CORRECT SURVEY WOULD DISCLOSE AND WHICH ARE NOT SHOWN BY THE PUBLIC RECORDS.
IN ORDER TO DELETE THE SURVEY EXCEPTION SHOWN ABOVE, A SATISFACTORY SURVEY OF THE SUBJECT LAND, WHICH COMPLIES WITH THE MINIMUM STANDARDS FOR LAND SURVEYS MADE FOR TITLE INSURANCE PURPOSES, IS TO BE FURNISHED TO THE COMPANY.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS AS DISCLOSED BY THE SURVEY, OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.
26. – ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.
27. – MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.
28. – ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS. **(NOT A SURVEY MATTER)**.
29. – THE TRANSACTION CONTEMPLATED IN CONNECTION WITH THIS REPORT IS SUBJECT TO THE REVIEW AND APPROVAL OF THE COMPANY'S CORPORATE UNDERWRITING DEPARTMENT. THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER SUCH REVIEW. **(NOT A SURVEY MATTER)**.

REVISIONS			
NO.	DATE	REVISIONS	BY
0	12/18/19	SUBMITTAL	AA
1	11/11/20	ADDITIONAL TOPO	CE
2	02/03/22	ADDITIONAL TOPO	VG
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SITE INFORMATION

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SITE ADDRESS:	230 & 242 S. ORANGE AVE., 255 E. IMPERIAL HWY. BREA, CA 92821
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ASSESSOR'S PARCEL NO.:	319–292–35 & 36

SURVEYOR OF RECORD

FIELD COMPLETION DATE: FEBRUARY 3, 2022

LICENSED LAND SURVEYOR
LS 7780
Date Signed: 02/25/2022
STATE OF CALIFORNIA
Arpanando D. Dudhat
Registration No. 7780

CAL VADA
SURVEYING, INC.
411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951–280–9960 Fax: 951–280–9746
Toll Free: 800–CALVADA www.calvada.com
EST. 1989 JOB NO.19684–2

Brea Gaslight Square Site Statistics
Date: 12/07/2022

	POST CONSTRUCTION					
	DMA#	**Total Drainage Area (SF)**	**Total Drainage Area (AC)**	**Pervious Area (SF)**	**Impervious Area (SF)**	**Imp.**
POST-CONSTR	1A	24,225	0.56	4,540	19,685	0.81
POST-CONSTR	2A	15,198	0.35	2,705	12,493	0.82
UNDEVELOPED TOTAL		39,423	0.91	7,245	32,178	0.82
POST-CONSTR	1B	19,462	0.45	3,977	15,485	0.80
POST-CONSTR	2B	22,114	0.51	5,885	16,229	0.73
DEVELOPED TOTAL		41576	0.95	9,862	31,714	0.76
				23.7%	76.3%	
WHOLE SITE TOTAL		80,999	1.86	17,107	63,892	0.79
POST CONSTRUCTION				21.1%	78.9%	

	PRE CONSTRUCTION					
	DMA#	**Total Drainage Area (SF)**	**Total Drainage Area (AC)**	**Pervious Area (SF)**	**Impervious Area (SF)**	**Imp.**
PRE-CONSTR	1A	24,225	0.56	4,540	19,685	0.81
PRE-CONSTR	2A	15,198	0.35	2,705	12,493	0.82
UNDEVELOPED TOTAL		39,423	0.91	7,245	32,178	0.82
PRE-CONSTR	1B	19,462	0.45	5,383	14,079	0.72
PRE-CONSTR	2B	22,114	0.51	5,548	16,566	0.75
DEVELOPED TOTAL		41576	0.954	10931	30645	0.74
				26.3%	73.7%	
WHOLE SITE TOTAL		80,999	1.86	18,176	62,823	0.78
PRE CONSTRUCTION				22.4%	77.6%	

APPENDIX J: STORMWATER QUALITY CALCULATIONS

Worksheet B: Simple Design Capture Volume Sizing Method DMA 1A & 1B

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.89	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.89	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	1.00	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.81	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.75	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	2,442	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	51.1	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=	2.25	
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=	22.71	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	48	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} x T x (1/12)$	D_{max}=	90.8	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	26.8	sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

*Underground dry well system DW-1 for DMA's 1A and 1B 48-hour drawdown of 5,702 CF exceeds the required Design Capture Volume of 2,442 CF. Refer to Dry Well Sizing Sheet attached hereon for more information.

Worksheet B: Simple Design Capture Volume Sizing Method DMA 2B

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.89	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.89	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.86	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.77	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.73	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	2013	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	51.1	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=	2.25	
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=	22.71	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	48	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} x T x (1/12)$	D_{max}=	90.8	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	22.2	sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

*Underground dry well system DW-2 for DMA's 2A and 2B 48-hour drawdown of 5,702 CF exceeds the required Design Capture Volume of 2,013 CF. Refer to Dry Well Sizing Sheet attached hereon for more information.

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	3	0.75
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1.5
B	Design	Tributary area size	0.25	1	0.25
		Level of pretreatment/ expected sediment loads	0.25	1	0.25
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_B = \Sigma p$			1.5
Combined Safety Factor, $S_{Total} = S_A \times S_B$					2.25
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					51.1
Design Infiltration Rate, in/hr, $K_{DESIGN} = K_{Observed} / S_{Total}$					22.71

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

Infiltration rate provided is based on the 19-25 feet depth percolation test rates observed in the field. Prior to the installation of the underground system the contractor shall perform in-situ testing to verify values presented in this report.

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Dry Well and Underground Storage Vault Calculations

Raising Cane's - Brea
09/12/2022

Dry Well – BMP IDs: (DW-1 AND DB-1)
Field Percolation Rate: 51.1 in/hr
Factor of Safety: 2.25

Design Percolation Rate:
(51.1 in/hr) / 2.25 = **22.71 in/hr**
22.71 in/hr x (1hr/3600s) x (1ft/12in) = **0.0005257 ft/s**

Drywell Percolation Rate:
Percolation occurs between 21 feet and 25 feet below grade. This provides 4 feet of infiltration depth in addition to the bottom area:

Surface Area of drywell shaft – 4' diameter drywell
3.14 x 2^2 x 4' = **50.24 sf**

Bottom Area – total is equivalent to a 4' diameter circle
3.14 x 2^2 = **12.56 sf**

The Total Percolation Surface Area Available
12.56 sf + 125.66 sf = **62.80 sf**

Total Available Percolation Flowrate:
Design Percolation Rate * Percolation Surface Area Available
0.0005257 ft/s * 62.80 sf = **0.033 cfs**

48-Hour Drawdown Volume Available per drywell
Available Percolation Flowrate (3600 s / 1 hr) (48 hours per storm event)
0.033 cfs*(3600 s/1 hr)*(48 hr) = **5,702.4 CF per drywell**

Static Storage DCV

Drywell storage, DW-1
Settling chamber = 12.57 SF x 16' = 201.1 CF
Gravel area = (7' x 12.57 SF x 0.4 porosity) + (2' x 28.27 SF x 0.4 porosity) = 58.5 CF
Total available storage available from storage = 201.1 CF + 58.5 CF = **259 CF**

Detention vault storage, DB-1
Inner dimensions: length 24.00' x 32.00' x 3.35' = **2,572 CF**

DMAs 1A & 1B
Due to the high percolation rates available at this site, the drywell, DW-1, 48-hour drawdown volume available of 5,702 CF, exceeds DMA 1A & 1B DCV of 2,442 CF. The drywell stores 259 CF of the 2,442 CF DCV. The remaining 2,183 CF will be held in an underground detention vault, DB-1. The total provided BMP treatment capacity of DW-1 and DB-1 is 2,831 CF.

Dry Well – BMP IDs: (DW-2 AND DB-2)
Field Percolation Rate: 51.1 in/hr
Factor of Safety: 2.0

Design Percolation Rate:
(51.1 in/hr) / 2.25 = **22.71 in/hr**
22.71 in/hr x (1hr/3600s) x (1ft/12in) = **0.0005257 ft/s**

Drywell Percolation Rate:
Percolation occurs between 21 feet and 25 feet below grade. This provides 4 feet of infiltration depth in addition to the bottom area:

Surface Area of drywell shaft – 4' diameter drywell
3.14 x 2^2 x 4' = **50.24 sf**

Bottom Area – total is equivalent to a 4' diameter circle
3.14 x 2^2 = **12.56 sf**

The Total Percolation Surface Area Available
12.56 sf + 125.66 sf = **62.80 sf**

Total Available Percolation Flowrate:
Design Percolation Rate * Percolation Surface Area Available
0.0005257 ft/s * 62.80 sf = **0.033 cfs**

48-Hour Drawdown Volume Available per drywell
Available Percolation Flowrate (3600 s / 1 hr) (48 hours per storm event)
0.033 cfs*(3600 s/1 hr)*(48 hr) = **5,702.4 CF per drywell**

Static Storage DCV

Drywell storage, DW-1
Settling chamber = 12.57 SF x 16' = 201.1 CF
Gravel area = (7' x 12.57 SF x 0.4 porosity) + (2' x 28.27 SF x 0.4 porosity) = 58.5 CF
Total available storage available from storage = 201.1 CF + 58.5 CF = **259 CF**

Detention vault storage, DB-2
Inner dimensions: length 24.0' x 16.0' x 5.1' = **1,958 CF**

DMA 2A & 2B
Due to the high percolation rates available at this site, the drywell, DW-2, 48-hour drawdown volume available of 5,702 CF, exceeds DMA 2A & 2B DCV of 2,013 CF. The drywell stores 259 CF of the 2,013 CF DCV. The remaining 1,754 CF will be held in an underground detention vault, DB-2. The total provided BMP treatment capacity of DW-2 and DB-2 is 2,217 CF.

Brea Gaslight Square Detention Vault Sizing
Date: 10/25/2022

Retention Vault Sizing								
BMP ID	DMA	Volume (CF)	Length (FT)	Width (FT)	Required Depth	Top of Basin	Bottom of Basin	Provided Depth
DB-1	DMAs 1A and 1B	2183	24	32	2.84	360.86	357.51	3.35
DB-2	DMAs 2A and 2B	1754	24	16	4.57	361.13	356.03	5.10

PLN-2022-00011

Preliminary
County of Orange/Santa Ana Region
Priority Project
Water Quality Management Plan
(WQMP)

Project Name:

Brea Gaslight Square

PLAN REVIEW NO. PLN-2022-00011

BLD XXXX-XXXXX

255 E. IMPERIAL HIGHWAY, BREA, CA 92821

PARCEL 4 OF PARCEL MAP NO. 88-324

APN: 319-292-35

238 S. ORANGE AVENUE, BREA, CA 92821 & 242 S. ORANGE AVENUE, BREA, CA 92821

PARCEL 1 OF PARCEL MAP NO. 88-324

APN: 319-292-36

Prepared for:

One Berry, LLC - Dwight Manley

330 W Birch Street, Suite E201

Brea, CA 92821

(714) 990-8748 | dmanleyinc@aol.com

Prepared by:

Kimley Horn and Associates, Inc.

John Pollock, P.E. - RCE No. 86160

3880 Lemon Street, Suite 420, Riverside, CA 92501

(951) 346-2807 | john.pollock@kimley-horn.com

December 7, 2022

Project Owner's Certification			
Planning Application No. (If applicable)	PLN-2022-00011	Grading Permit No.	BLD-XXXX-XXXXX
Tract/Parcel Map and Lot(s) No.	Parcel 4 of Parcel Map No. 88-324 Parcel 1 of Parcel Map No. 88-324	Building Permit No.	BLD-XXXX-XXXXX
Address of Project Site and APN (If no address, specify Tract/Parcel Map and Lot Numbers)			255 E. Imperial Highway Brea, CA 92821 APN: 319-292-35 238 S. Orange Avenue, Brea, CA 92821 242 S. Orange Avenue, Brea, CA 92821 APN: 319-292-36

This Final Water Quality Management Plan (WQMP) has been prepared for One Berry, LLC - Dwight Manley by Kimley Horn and Associates, Inc. The WQMP is intended to comply with the requirements of the County of Orange NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan , including the ongoing operation and maintenance of all best management practices (BMPs), and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner:			
Title	Owner - Dwight Manley		
Company	One Berry, LLC		
Address	330 W Birch Street, Suite E201, Brea, CA 92821		
Email	dmanleyinc@aol.com		
Telephone #	(714) 990-8748		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Owner Signature		Date	

Preparer (Engineer):			
Title	Engineer of Record / Associate	PE Registration #	86160
Company	Kimley Horn and Associates, Inc.		
Address	3880 Lemon Street, Suite 420, Riverside, CA 92501		
Email	john.pollock@kimley-horn.com		
Telephone #	951-346-2807		
I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.			
Preparer Signature		Date	09/12/2022
Place Stamp Here			

Contents

Page No.

Section I **Permit(s) and Water Quality Conditions of Approval or Issuance.....1**
Section II **Project Description 3**
Section III **Site Description 8**
Section IV **Best Management Practices (BMPs) 10**
Section V **Inspection/Maintenance Responsibility for BMPs.....24**
Section VI **BMP Exhibit (Site Plan) 25**
Section VII **Educational Materials.....26**

Attachments

Attachment A.. .....Watershed Area
Attachment B.. .....Conceptual WQMP Site Plan
Attachment C.. .....Soil and Rainfall Maps
Attachment D . .....Groundwater Feasibility
Attachment E.. ..... Geotechnical Report
Attachment F.. ..... LID Calculations
Attachment G . ..... Educational Materials

Section I Permit(s) and Water Quality Conditions of Approval or Issuance

Provide discretionary or grading/building permit information and water quality conditions of approval, or permit issuance, applied to the project. If conditions are unknown, please request applicable conditions from staff. *Refer to Section 2.1 in the Technical Guidance Document (TGD) available on the OC Planning website (ocplanning.net).*

Project Infomation			
Permit/Application No. (If applicable)	PLN-2022-00011	Grading or Building Permit No. (If applicable)	BLD-XXXX-XXXXX (Building) BLD-XXXX-XXXXX (Grading)
Address of Project Site (or Tract Map and Lot Number if no address) and APN	255 E. Imperial Highway Brea, CA 92821 APN: 319-292-35 238 S. Orange Avenue, Brea, CA 92821 242 S. Orange Avenue, Brea, CA 92821 APN: 319-292-36 Offsite run-on: 235 S Flower Avenue, Brea, CA 92821 APN: 319-292-33 230 S. Orange Avenue, Brea, CA 92821 APN: 319-292-31		
Water Quality Conditions of Approval or Issuance			
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	Prior to issuance of any building permits, the Applicant shall submit a final Water Quality Management Plan (WQMP) for review and approval.		

Conceptual WQMP	
Was a Conceptual Water Quality Management Plan previously approved for this project?	N/A
Watershed-Based Plan Conditions	
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	The project lies within the Coyote Creek Watershed (Attachment A). Per the hydromodification susceptibility map, the project area is within an area with potential for erosion, habitat, & physical structure susceptibility. The project area discharges storm water to an existing on-site private sidewalk parkway drain that conveys run-off to a curb and gutter along Orange Ave and then to a curb inlet catch basin on Flower Ave where it enters the public storm drain system. The storm drain system conveys flows south-west where it will discharge into the Artesia-Norwalk Drain which will convey flows further south-west and discharge into Coyote Creek and drain to San Gabriel River Estuary before discharging into the Pacific Ocean. Artesia-Norwalk Drain has Selenium and Indicator Bacteria listed on the 303(d) List. Coyote Creek, which is downstream of Artesia-Norwalk Drain, has copper, dissolved, pH, toxicity, indicator bacteria, Malathion and Iron on the 303(d) list. San Gabriel River Estuary, which is downstream of Coyote Creek, has nickel, oxygen, dissolved, copper, dioxin and indicator bacteria on the 303(d) list. From Table 2.4 "Summary of the Status of TMDLs for Waterbodies in Region 8 and 9 of the TGD the following pollutants affect Coyote Creek / San Gabriel River: Metals (technical TMDLs). The State Water Resources Control Board trash amendments requires full capture of trash.

Section II Project Description

II.1 Project Description

Provide a detailed project description including:

- Project areas;
- Land uses;
- Land cover;
- Design elements;
- A general description not broken down by drainage management areas (DMAs).

Include attributes relevant to determining applicable source controls. *Refer to Section 2.2 in the Technical Guidance Document (TGD) for information that must be included in the project description.*

Description of Proposed Project				
Development Category (From Model WQMP, Table 7.11-2; or -3):	Priority Project per Category 3: Restaurants where the land area of development is 5,000 square feet or more including parking area. This category is defined as facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. The project will disturb 68.0% of the property, a total of 0.95-acres within a total of 1.44-acres, consisting of 2 parcels owned by One Berry, LLC. Because over 50.0% of the property is disturbed, the stormwater for the water quality event of the entire property will be treated.			
Project Area (ft^2): 80,999	Number of Dwelling Units: N/A		SIC Code: 5812, 5999, 8011	
Project Area	Pervious		Impervious	
	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
Pre-Project Conditions	18,176 sf	22.5%	62,823 sf	77.6%
Post-Project Conditions	17,107 sf	21.1%	63,892 sf	78.9%
Drainage Patterns/Connections	In the existing condition, storm water runoff from the building roofs, parking lot area, and landscape areas drain via surface flow from the northeast southeast corners of the site to an existing sidewalk parkway drain in the southwest corner of the site via a valley gutter that conveys run-off to a curb and gutter along Orange Ave and then to a curb inlet			

	catch basin on Flower Ave where it enters the public storm drain system The storm drain system conveys flows south-west where it will discharge into the Artesia-Norwalk Drain. From there, stormwater is conveyed further south-west and discharges into Coyote Creek, which drain to San Gabriel River Estuary before discharging into the Pacific Ocean.

Narrative Project Description: (Use as much space as necessary.)	One Berry, LLC proposes to construct and operate a new 2,000 S.F. drive-thru restaurant, 2,400 S.F. restaurant, and 3,600 S.F. retail/medical space at the shopping center at the corner of Imperial Highway and Flower Ave (255 E Imperial Highway, Brea, CA 92821). The existing project site is a 2-story office building and a 1-story office building and associated parking lot. The existing buildings and a portion of the parking lot will be demolished and replaced with a new drive-thru restaurant, restaurant, medical/retail space, and associated parking lot. The project site will disturb a total of 0.95-acres within the 1.44-acre project site which currently consists of two (2) existing buildings, paved area, as well as landscaped areas. The site currently sheet flows from the north-eastern and south eastern corners of the site and is captured by a sidewalk parkway drain on the western portion of the site. The proposed drive-thru building will be a rectangle-oriented West to East with entrances on the South, East, and West faces of the building. The drive-thru approach will be on the South-West side of the building and circulation is counter-clockwise. The drive-thru exit will be to the North-West side of the building. The building will have a roof drain system that discharges to the surface drive thru area will therefore be included in drainage calculations. The proposed restaurant and medical/retail space is positioned on the south west corner of the lot. Entrances to the building are on the north face, and the west face of the building. The drive-thru exit will be to the North-West side of the building. The building will have a roof drain system that discharges to the surface drive thru area will therefore be included in drainage calculations. For onsite DMA 2B, runoff from the proposed development, as well as run-on from offsite DMA 2A, will sheet flow to three (3) catch basins strategically placed, via a valley gutter and curb and gutters. The drop inlets will capture the runoff for the 24-hour 85th percentile storm and discharge it into an underground storage detention system to hold the static DCV Volume. Storm water is then conveyed to a proprietary Drywell system, sized to treat and percolate the disturbed area design runoff volume of the DMA 2A and 2B. All drop inlets will be fitted with Old Castle FloGuard Catch Basin Filter Inserts for full trash capture. For storm events greater than the 85th percentile storm event, storm water will flow from the eastern-most catch basin by a pipe to a velocity-reducing manhole. Stormwater will then be conveyed via a proposed parkway drain which will spill out onto the curb and gutter along

	Flower Avenue, flowing south to the existing catch basin just south of the parkway drain outlet, ultimately discharging onto the public storm drain system and matching existing conditions. For onsite DMA 1B, runoff from the proposed development, as well as run-on from offsite DMA 1A, will sheet flow to two (2) catch basins strategically placed, via a valley gutter and curb and gutters or vegetated swale. The drop inlets will capture the runoff for the 24-hour 85th percentile storm and discharge it into an underground storage detention system to hold the static DCV Volume. Storm water is then conveyed to a proprietary Drywell system, sized to treat and percolate the disturbed area design runoff volume of DMA 1A and 1B. The drop inlets will be fitted with an Old Castle FloGuard Catch Basin Filter Inserts for full trash capture. For storm events greater than the 85th percentile storm event, storm water will flow from the western-most catch basin by a pipe to a velocity-reducing manhole. Stormwater will then be conveyed by a parkway drain, ultimately discharging onto the public storm drain system and matching existing conditions. Refer to Attachment B for DMA delineation and the WQMP Site Plan. Land use at the proposed site will include indoor food preparation, cooking, indoor and outdoor eating areas, a drive-thru, and improvements to the surface parking and landscaping design. A covered trash enclosure is proposed at the eastern side of the site adjacent to the proposed drive-thru restaurant. Another trash enclosure is proposed just northwest of the proposed retail/medical and restaurant building. Expected wastes will be food waste, grease from cooking, trash and debris.

II.2 Potential Stormwater Pollutants

Determine and list expected stormwater pollutants based on land uses and site activities. *Refer to Section 2.2.2 and Table 2.1 in the Technical Guidance Document (TGD) for guidance.*

Pollutants of Concern			
Pollutant	Check One for each: E=Expected to be of concern N=Not Expected to be of concern		Additional Information and Comments
Suspended-Solid/ Sediment	E ☒	N ☐	
Nutrients	E ☒	N ☐	
Heavy Metals	E ☒	N ☐	TMDL
Pathogens (Bacteria/Virus)	E ☒	N ☐	303(d)
Pesticides	E ☒	N ☐	303(d)
Oil and Grease	E ☒	N ☐	
Toxic Organic Compounds	E ☐	N ☒	
Trash and Debris	E ☒	N ☐	TMDL

II.3 Hydrologic Conditions of Concern

Determine if streams located downstream from the project area are potentially susceptible to hydromodification impacts. *Refer to Section 2.2.3.1 in the Technical Guidance Document (TGD) for North Orange County or Section 2.2.3.2 for South Orange County.*

☐ No – Show map

☒ Yes – Describe applicable hydrologic conditions of concern below. *Refer to Section 2.2.3 in the Technical Guidance Document (TGD).*

As shown in Attachment C, the site falls within the potential areas of erosion, habitat and physical structure susceptibility. However, given the infiltration BMPs implemented, the disturbed area (0.95 ac) post development run-off volume and time of concentration for the 2-yr, 24 hr storm event is within 5% the pre-development runoff volume for the 2-yr, 24 hr storm event. Refer to Summary Table below for more information and Attachment F for full calculations. Therefore, Hydrologic Conditions of Concern are not applicable for this development.

	Pre-Development	Post-Development	Delta Runoff
Runoff Flowrate (Q2)	2.986 cfs	2.989 cfs	0.003 cfs increase (<5.0%)
Time of Concentration (T_c)	7.25 min	7.25 min	0.00 min increase (<5.0%)
Runoff Volume (V_2)	4,396 cu. ft.	4,455 cu.ft.	59 cu. ft. increase (<5.0%)

II.4 Post Development Drainage Characteristics

Describe post development drainage characteristics. *Refer to Section 2.2.4 in the Technical Guidance Document (TGD).*

In the proposed condition the existing drainage patterns will be maintained, connecting to the existing public stormwater system. That is, storm water runoff from the building roof, parking lot area, drive through area, and landscape areas drain via surface flow from either of the following:

1) The northeast corner of the site to the southwest to two (2) proposed inlets, one (1) underground storage vault, and one (1) proprietary dry well system.
2) A northern high point of the site to the southeast to three (3) proposed inlets, one (1) underground storage vault, and one (1) proprietary dry well system.

II.5 Property Ownership/Management

Describe property ownership/management. *Refer to Section 2.2.5 in the Technical Guidance Document (TGD).*

The One Berry, LLC is the current and forthcoming owner of the site. The proposed development and BMPs will be maintained by One Berry, LLC. The operation and maintenance costs of the BMPs will be incorporated with the operating budget for the onsite properties.

Section III Site Description

III.1 Physical Setting

Fill out table with relevant information. *Refer to Section 2.3.1 in the Technical Guidance Document (TGD).*

Name of Planned Community/Planning Area (if applicable)	Commercial
Location/Address	255 E. Imperial Highway 238 & 242 S. Orange Avenue
	Brea, CA 92821
General Plan Land Use Designation	Commercial
Zoning	C-P (PD) (Commercial, Administrative, and Professional)
Acreage of Project Site	0.95
Predominant Soil Type	D

III.2 Site Characteristics

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.2 in the Technical Guidance Document (TGD).*

Site Characteristics	
Precipitation Zone	85th percentile depth is 0.89 inches
Topography	Site is relatively flat (slopes range from 0.5% to 2.5%)

Drainage Patterns/Connections	For onsite DMA 2B, runoff from the proposed development, as well as run-on from offsite DMA 2A, will sheet flow to three (3) catch basins strategically placed, via a valley gutter and curb and gutters. The drop inlets will capture the runoff for the 24-hour 85th percentile storm and discharge to an underground storage detention system to hold the static DCV Volume. Storm water is then conveyed to a proprietary Drywell system, sized to treat and percolate the disturbed area design runoff volume of the DMA 2A and 2B. All drop inlets will be fitted with Old Castle FloGuard Catch Basin Filter Inserts for full trash capture. For storm events greater than the 85th percentile storm event, storm water will flow from the eastern-most catch basin by a pipe to a velocity-reducing manhole. Stormwater will then be conveyed via a proposed parkway drain which will spill out onto the curb and gutter along Flower Avenue, flowing south to the existing catch basin just south of the parkway drain outlet, ultimately discharging onto the public storm drain system and matching existing conditions. For onsite DMA 1B, runoff from the proposed development, as well as run-on from offsite DMA 1A, will sheet flow to two (2) catch basins strategically placed, via a valley gutter and curb and gutters or vegetated swale. The drop inlets will capture the runoff for the 24-hour 85th percentile storm and discharge to an underground storage detention system to hold the static DCV Volume. Storm water is then conveyed to a proprietary Drywell system, sized to treat and percolate the disturbed area design runoff volume of the DMA 1A and 1B. All drop inlets will be fitted with an Old Castle FloGuard Catch Basin Filter Inserts for full trash capture. For storm events greater than the 85th percentile storm event, storm water will flow from the western-most catch basin by a pipe to a velocity-reducing manhole. Stormwater will then be conveyed by a parkway drain, ultimately discharging onto the public storm drain system and matching existing conditions. Refer to Attachment B for DMA delineation and the WQMP Site Plan. The storm drain system conveys flows south-west where it will discharge into the Artesia-Norwalk Drain which will convey flows further south-west and discharge into Coyote Creek and drain to San Gabriel River Estuary before discharging into the Pacific Ocean.

Soil Type, Geology, and Infiltration Properties	A geotechnical and site analysis was conducted, and the results of the analysis is included in Attachment E. It is expected that the fills that will be encountered between a depth of 2-5 feet will be predominantly engineered fills as the site is currently developed. Two (2) in-situ percolation tests were performed to approximate depths of 6 to 25 feet bgs. The measured percolation rates were found to be 1 in/hr at 1ft to 6 ft and 51.1 in/hr at 19 to 25 ft. For analysis, the 51.1 in/hr rate was used as the proposed drywell units will percolate flows no more than 25 ft below the finished surface. A design a factor of safety of 2.25 was applied to the 51.1 in/hr correlated infiltration rate and the product (design infiltration rate) of 22.71 in/hr was used to size the proposed BMPs.
Hydrogeologic (Groundwater) Conditions	Based on the project Geotechnical Report dated May 12th, 2022, ground water was found at 47 feet below finish grade.
Geotechnical Conditions (relevant to infiltration)	There are no geotechnical conditions that would prohibit the development from implementing infiltration as a form of storm water treatment. A geotechnical report and site analysis is included in Attachment E of this Report. There are no active LUST cleanup sites within 250 feet of the project.
Off-Site Drainage	The disturbed are of the project is surrounded by existing (non-disturbed) area which drains north to south towards the existing sidewalk parkway drain. In the proposed condition, onsite flows from DMA 1B and off-site flows from DMA 1A will be captured by the proposed catch basins, detention system, and proprietary dry well system in DMA 1B. Similarly, onsite flows from DMAs 2B and off-site flows from DMA 2A will be captured by the proposed catch basins, detention system, and proprietary dry well system in DMA 2A. Therefore, the run-off from off-site DMAs 1A and 2A are included in the calculations to size the onsite BMPs.
Utility and Infrastructure Information	Water, gas, sewer, electrical, and communication lines are located on-site and existing 20' water and sewer easement runs north to south through the site. As part of the demolition of the existing development, existing building connections will be removed, and new connections will be made to all utilities as part of these improvements.

III.3 Watershed Description

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.3 in the Technical Guidance Document (TGD).*

Receiving Waters	Artesia-Norwalk Drain, Coyote Creek, and San Gabriel River Estuary
303(d) Listed Impairments	Artesia-Norwalk Drain: selenium and indicator bacteria Coyote Creek: copper, dissolved, pH, toxicity, indicator bacteria, Malathion and Iron San Gabriel River Estuary: oxygen, dissolved, copper, dioxin and indicator bacteria (refer to itemized list attached hereon for more information).
Applicable TMDLs	Metals/metalloids, miscellaneous, toxicity, fecal indicator bacteria, nutrients, other organic and pesticides (refer to itemized list attached hereon for more information).
Pollutants of Concern for the Project	Metals/metalloids, miscellaneous, toxicity, fecal indicator bacteria, nutrients, other organic and pesticides (refer to itemized list attached hereon for more information).
Environmentally Sensitive and Special Biological Significant Areas	N/A

Section IV Best Management Practices (BMPs)

IV. 1 Project Performance Criteria

Describe project performance criteria. Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used, and the project can evaluate participation in the approved regional or sub-regional opportunities. (Please ask your assigned planner or plan checker regarding whether your project is part of an approved WIHMP or equivalent.)
- Determine applicable hydromodification control performance criteria. *Refer to Section 7.II-2.4.2.2 of the Model WQMP.*
- Determine applicable LID performance criteria. *Refer to Section 7.II-2.4.3 of the Model WQMP.*
- Determine applicable treatment control BMP performance criteria. *Refer to Section 7.II-*3.2.2 *of the Model WQMP.*
- Calculate the LID design storm capture volume for the project. *Refer to Section 7.II-2.4.3 of the Model WQMP.*

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?	YES ☐	NO ☒
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.	The project lies within the Coyote Creek-San Gabriel River Watershed (Attachment A). Per the hydromodification susceptibility map, the project area is within an area with potential for erosion, habitat, & physical structure susceptibility. The project area discharges storm water to an existing on-site private sidewalk parkway drain that conveys run-off to a curb and gutter along Orange Ave and then to a curb inlet catch basin on Flower Ave where it enters the public storm drain system. The storm drain system conveys flows south-west where it will discharge into the Artesia-Norwalk Drain which will convey flows further south-west and discharge into Coyote Creek and drain to San Gabriel River Estuary before discharging into the Pacific Ocean. Artesia-Norwalk Drain has Selenium and Indicator Bacteria listed on the 303(d) List. Coyote Creek, which is downstream of Artesia-Norwalk Drain, has copper, dissolved, pH, toxicity, indicator bacteria, Malathion and Iron on the 303(d) list. San Gabriel River Estuary, which is downstream of Coyote Creek, has nickel, oxygen,	

	dissolved, copper, dioxin and indicator bacteria on the 303(d) list. A Model WIHMP has been developed for the Coyote-Creek-San Gabriel River watershed and has been submitted to the Executive Officer for approval but has not yet been approved.

Project Performance Criteria	
If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)	Hydrologic Conditions of Concerns (HCOCs) are considered to exist if any streams located downstream from the project are determined to be potentially susceptible to hydromodification impacts and either of the following conditions exists: Post-development runoff volume for the 2-yr, 24-hr storm exceeds that of the pre- development condition by more than 5 percent ***OR*** Time of concentration of post-development runoff for the 2-yr, 24-hr storm event is greater than the time of concentration of the pre-development condition by more than 5 percent. As shown in Attachment C, the site falls within the potential areas of erosion, habitat and physical structure susceptibility. However, given the infiltration BMPs implemented, the runoff volume and time of concentration criteria are met for this project, refer to Attachment F for full calculations. Therefore, Hydrologic Conditions of Concern are not applicable for this development.

List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)	Priority projects must infiltrate, harvest and use, evapotranspire, or biotreat / biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume)
List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)	If not feasible to meet the LID performance criteria though retention and / or biotreatment provided on-site or at a sub-regional / regional scale, then treatment control BMPs shall be provided on-site or off-site prior to discharge to waters of the US. Sizing of treatment control BMP(s) shall be based on either the unmet volume after claiming applicable water quality credits, if appropriate (see Section 7.II-3.1 Water Quality Credits) and as calculated in TGD Appendix VI. If treatment control BMPs can treat all the remaining unmet volume and have a medium to high effectiveness for reducing the primary POCs, the project is in compliance; a waiver application and participation in an alternative program is not required.
Calculate LID design storm capture volume for Project.	The minimum applicable/onsite Design Capture Volume (DCV) for the project is: 2,442 cubic feet = DMA 1A (1,364) & DMA 1B (1,078) 2,013 cubic feet = DMA 2A (864) & DMA 2B (1,149) Total DCV: 4,455 Design Capture Volume Calculations: Design Storm Depth: 0.89 in HSCs (d_{HSC}) : 0 in Remaining Storm Depth ($d_{remainder}$): 0.89 in Project Tributary Area: 0.95 Acres - (DMAs 1A & 1B) DMA 1A DCV: Area = 0.56 ac Impervious (imp): 0.81 unitless Runoff Coefficient: 0.76 unitless (C = 0.75 x imp) + 0.15 Runoff Volume: 1,364 cf (DCV = C x $d_{remainder}$ x A x 43560 x (1/12))

DMA 1B DCV:

Area = 0.45 ac

Impervious (imp): 0.80 unitless

Runoff Coefficient: 0.75 unitless (C = 0.75 x imp) + 0.15

Runoff Volume: 1,078 cf (DCV = C x $d_{remainder}$ x A x 43560 x (1/12))

DMA 2A DCV:

Area = 0.35 ac

Impervious (imp): 0.82 unitless

Runoff Coefficient: 0.77 unitless (C = 0.75 x imp) + 0.15

Runoff Volume: 864 cf (DCV = C x $d_{remainder}$ x A x 43560 x (1/12))

DMA 2B DCV:

Area = 0.51 ac

Impervious (imp): 0.73 unitless

Runoff Coefficient: 0.70 unitless (C = 0.75 x imp) + 0.15

Runoff Volume: 1,149 cf (DCV = C x $d_{remainder}$ x A x 43560 x (1/12))

The project is utilizing two (2) proprietary underground dry well systems (DW-1 & DW-2) to infiltrate the DCV. Dry well system DW-1 treats the DCV for DMA 1A and DMA 1B, while dry well system DW-2 treats the DCV for DMA 2A and DMA 2B. The effective infiltration depth is limited to 25 feet. The system selected will meet the required drawdown criteria. See Attachment F for LID BMP Calculations.

In addition, static storage not contained by the drywells of the DCV is met by underground storage vaults upstream of the drywells. Detention basin DB-1 offsets storage capacity of DW-1 for DMA 1A and DMA 1B. Detention basin DB-2 offsets storage capacity of DW-2 for DMA 2A and DMA 2B. See Attachment F for LID BMP Calculations.

In addition, in order to meet the full trash capture requirement, the project is utilizing full trash capture catch basin filter inserts at each of the drop inlets prior to the underground drywell systems and underground storage vault.

IV.2. Site Design and Drainage

Describe site design and drainage including

- A narrative of site design practices utilized or rationale for not using practices;
- A narrative of how site is designed to allow BMPs to be incorporated to the MEP
- A table of DMA characteristics and list of LID BMPs proposed in each DMA.
- Reference to the WQMP "BMP Exhibit."
- Calculation of Design Capture Volume (DCV) for each drainage area.
- A listing of GIS coordinates for LID and Treatment Control BMPs.

Refer to Section 2.4.2 in the Technical Guidance Document (TGD).

The project will demolish the existing buildings and associated parking lot and construct a new drive-thru restaurant, restaurant, retail/medical space, and associated parking lot with the addition of multiple landscape areas. Landscape will be a variety of trees, shrubs, and ground covered of drought tolerant native species.

In the proposed condition, the project site has been separated into 2 DMA's (DMA 1B and DMA 2B) as well as offsite run-on tributary areas delineated as DMA 1A and DMA 2A.

During low flow storm events (design storm event – 85th percentile), DMA 1A (off-site run-on) will sheet flow from north to south and be captured by a valley gutter and curb and gutter and conveyed to a proposed catch basin located north west of the proposed buildings. Flows south and west of the proposed buildings will flow be vegetated swale to a proposed catch basin. Flows will then be conveyed to a underground detention vault (DB-1) prior to being conveyed to a subsurface dry well system (DW-1), located in DMA 1B to treat and percolate low flows.

During large storm events (larger than the design storm event – 85th percentile) storm water runoff will overcharge the proposed underground dry well system and flow out of the westernmost proposed catch basin on the northwest corner of the proposed development. Storm water will be conveyed by pipe to a velocity reducing manhole and spill out into a sidewalk parkway drain, entering the public storm drain system, matching the existing drainage patterns of the site.

During low flow storm events (design storm event – 85th percentile), DMA 2A (off-site run-on) will sheet flow away from the north and be captured by a valley gutter and curb and gutters and conveyed to a three (3) proposed catch basins located at the north, the west, and east sides of the proposed building. Flows will then be conveyed to a underground detention vault (DB-2) prior to being conveyed to a subsurface dry well system (DW-2), located in DMA 1B to treat and percolate low flows.

During large storm events (larger than the design storm event – 85th percentile) storm water runoff will overcharge the proposed underground dry well system and storage vault and flow out of the easternmost proposed catch basin. Storm water will be conveyed by pipe to a velocity reducing

manhole and spill out into a sidewalk parkway drain to the existing curb and gutter and ultimately the existing public catch basin along Flower Ave, where it will enter the public storm drain system, matching the existing drainage patterns of the site.

All catch basins will be fitted with Old Castle FloGuard Catch Basin Filter Inserts. Refer to Attachment B – Final WQMP Site Plan for more information.

BMP ID	COORDINATES
DW-1	LAT: 25.961402 LONG: 136.167091
DB-1	LAT: 25.961401 LONG: 136.167229
DW-2	LAT: 25.961286 LONG: 136.166574
DB-2	LAT: 25.961281 LONG: 136.166695

IV.3 LID BMP Selection and Project Conformance Analysis

Each sub-section below documents that the proposed design features conform to the applicable project performance criteria via check boxes, tables, calculations, narratives, and/or references to worksheets. *Refer to Section 2.4.2.3 in the Technical Guidance Document (TGD) for selecting LID BMPs and Section 2.4.3 in the Technical Guidance Document (TGD) for conducting conformance analysis with project performance criteria.*

IV.3.1 Hydrologic Source Controls (HSCs)

If required HSCs are included, fill out applicable check box forms. If the retention criteria are otherwise met with other LID BMPs, include a statement indicating HSCs not required.

Name	Included?
Localized on-lot infiltration	☐
Impervious area dispersion (e.g. roof top disconnection)	☐
Street trees (canopy interception)	☐
Residential rain barrels (not actively managed)	☐
Green roofs/Brown roofs	☐
Blue roofs	☐
Impervious area reduction (e.g. permeable pavers, site design)	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐

LID requirements are met with infiltration BMPs (drywells) as shown in section IV.3.2. Therefore, HSCs are not required per section 2.4.2.3 in the North OC TGD.

IV.3.2 Infiltration BMPs

Identify infiltration BMPs to be used in project. If design volume cannot be met, state why.

Name	Included?
Bioretention without underdrains	☐
Rain gardens	☐
Porous landscaping	☐
Infiltration planters	☐
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☒
Subsurface infiltration galleries	☐
French drains	☐
Permeable asphalt	☐
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Strom Capture Volume can be met with infiltration BMPs. If not, document how much can be met with infiltration and document why it is not feasible to meet the full volume with infiltration BMPs.

Drywell calculations below, as also depicted in Appendix F:

Dry Well – BMP IDs: (DW-1 AND DB-1)
Field Percolation Rate: 51.1 in/hr
Factor of Safety: 2.25

Design Percolation Rate:
(51.1 in/hr) / 2.25 = **22.71 in/hr**
22.71 in/hr x (1hr/3600s) x (1ft/12in) = **0.0005257 ft/s**

Drywell Percolation Rate:
Percolation occurs between 21 feet and 25 feet below grade. This provides 4 feet of infiltration depth in addition to the bottom area:

Surface Area of drywell shaft – 4' diameter drywell
3.14 x 2^2 x 4' = **50.24 sf**

Bottom Area – total is equivalent to a 4' diameter circle
3.14 x 2^2 = **12.56 sf**

The Total Percolation Surface Area Available
12.56 sf + 125.66 sf = **62.80 sf**

Total Available Percolation Flowrate:
Design Percolation Rate * Percolation Surface Area Available
0.0005257 ft/s * 62.80 sf = **0.033 cfs**

48-Hour Drawdown Volume Available per drywell
Available Percolation Flowrate (3600 s / 1 hr) (48 hours per storm event)
0.033 cfs*(3600 s/1 hr)*(48 hr) = **5,702.4 CF per drywell**

Static Storage DCV

Drywell storage, DW-1
Settling chamber = 12.57 SF x 16' = 201.1 CF
Gravel area = (7' x 12.57 SF x 0.4 porosity) + (2' x 28.27 SF x 0.4 porosity) = 58.5 CF
Total available storage available from storage = 201.1 CF + 58.5 CF = **259 CF**

Detention vault storage, DB-1
Inner dimensions: length 24' x 32' x 2.9' = **2,227CF**

(DW-1) – DMAs 1A & 1B
Due to the high percolation rates available at this site, the drywell, DW-1, 48-hour drawdown volume available of 5,702 CF, exceeds DMA 1A & 1B DCV of 2,442 CF. The drywell stores 259 CF of the 2,442 CF DCV. The remaining 2,183 CF will be held in an underground detention vault, DB-1.

Dry Well – BMP IDs: (DW-2 AND DB-2)
Field Percolation Rate: 51.1 in/hr
Factor of Safety: 2.0

Design Percolation Rate:
(51.1 in/hr) / 2.25 = **22.71 in/hr**

22.71 in/hr x (1hr/3600s) x (1ft/12in) = **0.0005257 ft/s**

Drywell Percolation Rate:
Percolation occurs between 21 feet and 25 feet below grade. This provides 4 feet of infiltration depth in addition to the bottom area:

Surface Area of drywell shaft – 4' diameter drywell
3.14 x 2^2 x 4' = **50.24 sf**

Bottom Area – total is equivalent to a 4' diameter circle
3.14 x 2^2 = **12.56 sf**

The Total Percolation Surface Area Available
12.56 sf + 125.66 sf = **62.80 sf**

Total Available Percolation Flowrate:
Design Percolation Rate * Percolation Surface Area Available
0.0005257 ft/s * 62.80 sf = **0.033 cfs**

48-Hour Drawdown Volume Available per drywell
Available Percolation Flowrate (3600 s / 1 hr) (48 hours per storm event)
0.033 cfs*(3600 s/1 hr)*(48 hr) = **5,702.4 CF per drywell**

Static Storage DCV

Drywell storage, DW-1
Settling chamber = 12.57 SF x 16' = 201.1 CF
Gravel area = (7' x 12.57 SF x 0.4 porosity) + (2' x 28.27 SF x 0.4 porosity) = 58.5 CF
Total available storage available from storage = 201.1 CF + 58.5 CF = **259 CF**

Detention vault storage, DB-2
Inner dimensions: length 24' x 16' x 4.6' = **1,767 CF**

(DW-2) – DMA 2A & 2B
Due to the high percolation rates available at this site, the drywell, DW-2, 48-hour drawdown volume available of 5,702 CF, exceeds DMA 2A & 2B DCV of 2,013 CF. The drywell stores 259 CF of the 2,013 CF DCV. The remaining 1,754 CF will be held in an underground detention vault, DB-2.

IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, describe any evapotranspiration and/or rainwater harvesting BMPs included.

Name	Included?
All HSCs; *See Section IV.3.1*	☐
Surface-based infiltration BMPs	☐
Biotreatment BMPs	☐
Above-ground cisterns and basins	☐
Underground detention	☐
Other:	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with evapotranspiration and/or rainwater harvesting BMPs in combination with infiltration BMPs. If not, document below how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

Evapotranspiration, Rainwater Harvesting BMP's are not required as the full Design Storm Capture Volume is met with infiltration BMP's.

IV.3.4 Biotreatment BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, and/or evapotranspiration and rainwater harvesting BMPs, describe biotreatment BMPs included. Include sections for selection, suitability, sizing, and infeasibility, as applicable.

Name	Included?
Bioretention with underdrains	☐
Stormwater planter boxes with underdrains	☐
Rain gardens with underdrains	☐
Constructed wetlands	☐
Vegetated swales	☐
Vegetated filter strips	☐
Proprietary vegetated biotreatment systems	☐
Wet extended detention basin	☐
Dry extended detention basins	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with infiltration, evapotranspiration, rainwater harvesting and/or biotreatment BMPs. If not, document how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

Biotreatment BMP's are not required as the full Design Storm Capture Volume is met with infiltration BMP's.

IV.3.5 Hydromodification Control BMPs

Describe hydromodification control BMPs. *See Section 5 of the Technical Guidance Document (TGD).* Include sections for selection, suitability, sizing, and infeasibility, as applicable. Detail compliance with Prior Conditions of Approval (if applicable).

Hydromodification Control BMPs	
BMP Name	**BMP Description**

IV.3.6 Regional/Sub-Regional LID BMPs

Describe regional/sub-regional LID BMPs in which the project will participate. *Refer to Section 7.II-2.4.3.2 of the Model WQMP*.

Regional/Sub-Regional LID BMPs
Not applicable to this project.

IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs. Describe treatment control BMPs including sections for selection, sizing, and infeasibility, as applicable.

Treatment Control BMPs	
BMP Name	**BMP Description**
Old Castle Inlet Filter	Old Castle inlet filters will be installed at all on-site catch basins to meet the State Board full trash capture requirements. Refer to Attachment F for BMP sizing calculations.

IV.3.8 Non-structural Source Control BMPs

Fill out non-structural source control check box forms or provide a brief narrative explaining if non-structural source controls were not used.

Non-Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☒	☐	
N6	Local Industrial Permit Compliance	☐	☒	Not fuel dispensing or other area of concern to public property.
N7	Spill Contingency Plan	☐	☐	
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks proposed
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous materials on-site.
N10	Uniform Fire Code Implementation	☒	☐	
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	No loading docks.
N14	Common Area Catch Basin Inspection	☒	☐	
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	No gasoline outlets.

IV.3.9 Structural Source Control BMPs

Fill out structural source control check box forms or provide a brief narrative explaining if structural source controls were not used.

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☒	☐	
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	No slopes / channels to be disturbed as part of this project.
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☒	☐	
S6	Dock areas	☐	☒	No dock areas proposed
S7	Maintenance bays	☐	☒	No maintenance bays proposed
S8	Vehicle wash areas	☐	☒	No vehicle wash areas proposed
S9	Outdoor processing areas	☐	☒	No outdoor processing areas proposed
S10	Equipment wash areas	☐	☒	No equipment wash areas proposed
S11	Fueling areas	☐	☒	No fueling areas proposed
S12	Hillside landscaping	☐	☒	No hillside landscaping proposed
S13	Wash water control for food preparation areas	☒	☐	Wash water for food preparation areas will be discharged to the on-site grease interceptor.
S14	Community car wash racks	☐	☒	No community car wash racks proposed

IV.4 Alternative Compliance Plan (If Applicable)

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the WQMP.*

IV.4.1 Water Quality Credits

Determine if water quality credits are applicable for the project. *Refer to Section 3.1 of the Model WQMP for description of credits and Appendix VI of the Technical Guidance Document (TGD) for calculation methods for applying water quality credits.*

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td colspan="5">Project Types that Qualify for Water Quality Credits (Select all that apply):</td></tr>
<tr><td colspan="2">☐Redevelopment projects that reduce the overall impervious footprint of the project site.</td><td colspan="2">☐Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.</td><td>☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).</td></tr>
<tr><td colspan="2">☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).</td><td colspan="2">☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned</td><td>☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).</td></tr>
<tr><td>☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.</td><td>☐ Developments in a city center area.</td><td>☐ Developments in historic districts or historic preservation areas.</td><td>☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.</td><td>☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.</td></tr>
</table>

Calculation of Water Quality Credits (if applicable)	N/A

IV.4.2 Alternative Compliance Plan Information

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the Model WQMP.*

N/A

Section V Inspection/Maintenance Responsibility for BMPs

Fill out information in table below. Prepare and attach an Operation and Maintenance Plan. Identify the funding mechanism through which BMPs will be maintained. Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agencies. *Refer to Section 7.II 4.0 in the Model WQMP.*

BMP Inspection/Maintenance			
BMP	**Reponsible Party(s)**	**Inspection/ Maintenance Activities Required**	**Minimum Frequency of Activities**
Old Castle Catch Basin Filter Insert (6)	One Berry, LLC	Refer to Operations and Maintenance in Appendix J	Quarterly and at least once before the beginning of the raining season (October 1st)
Underground Drywell System (2)	One Berry, LLC	Refer to MaxWell Plus Operations and Maintenance in Appendix G	Quarterly and at least once before the beginning of the raining season (October 1st)
Underground Stormwater Storage Vault (2)	One Berry, LLC	Refer to BioClean UrbanPond Inspection & Maintenance Manual in Appendix G	Quarterly and at least once before the beginning of the raining season (October 1st)
"No Dumping" Storm Drain Stencil	One Berry, LLC	Replace existing stencilling	Inspect annually and additionally, as-needed.
Nl - Education for Property Owners, Tenants and Occupants	One Berry, LLC	The owner shall employ an educational program to staff encompassing importance of stormwater management and BMP implementation.	Upon initial employment, Annually thereafter

N2 – Activity Restrictions	One Berry, LLC	The Project will establish the following policies prohibiting activities during operations. • Prohibit discharge of fertilizer, pesticide, or animal waste to street or storm drain. • Prohibit blowing or sweeping of debris (leaf litter, grass clippings, litter, etc.) into street or storm drain. • Require dumpster lid to be closed at all times. • Prohibit discharge of paint or masonry waste to street or storm drain • Prohibit vehicle washing, maintenance, or repair on premises.	Ongoing Varies by BMP
N3 - Common Area Landscape Management	One Berry, LLC	The owner shall direct maintenance staff to employ landscaping practices be consistent with the City of Santa Ana requirements for use of fertilizer, pesticides, and City ordinances for water conservation.	Quarterly, as seasons change
N4-BMP Maintenance	One Berry, LLC	The following BMPs and practices shall be employed and regularly maintained: Site Design BMPs • SD-10 Site Design & Landscape Planning • SD-12 Efficient Irrigation • SD-13 Storm Drain Signage • SD-32 Trash Storage Areas Source Control BMPs • SC-10 Non-Stormwater Discharges • SC-11 Spill Prevention, Control and Cleanup • SC-41 Building and Grounds Maintenance • SC-44 Drainage System Maintenance	Varies by BMP
N10 Uniform Fire Code Implementation	One Berry, LLC	• Fire riser is located at the northwest corner of the building. • Sewer cleanout is located on the	Regularly (2 times a year minimum) or as determined necessary.

		north face of the building. • During a fire sprinkler test, the fire riser discharge shall be connected by a hose to the sewer cleanout. • See the note in Fact Sheet SC-41 "Building and Ground Maintenance"	
N12 Employee Training	One Berry, LLC	The owner shall employ an educational program to staff encompassing importance of stormwater management and BMP implementation.	Upon initial employment, Annually thereafter
N12 Common Area Catch Basin Inspection	One Berry, LLC	• Immediate repair of any deterioration threatening structural integrity. • Cleaning as frequently as necessary to prevent from reaching 40% full • Inspect and repair/replace stenciling as necessary • Clean catch basins/inlets before wet season to remove sediments and debris accumulated during the summer • Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed. • Keep accurate logs of the number of catch basins cleaned • Store waste collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain • Dewater the wastes if necessary. Properly dispose of de-watered material.	Quarterly, as seasons change

N15 Street Sweeping Private Streets and Parking Lots	One Berry, LLC	• Plaza, sidewalks, and parking lots shall be swept regularly to prevent accumulation of litter and debris • All paved surfaces must be power cleaned at least one time a year or more as required to prevent polluted runoff. • Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain. • See Fact Sheets SC-43 "Parking/Storage Area Maintenance" and SC-70 "Road and Street Maintenance"	Daily sweeping, annual power cleaning

Section VI BMP Exhibit (Site Plan)

VI.1 BMP Exhibit (Site Plan)

Include a BMP Exhibit (Site Plan), at a size no less than 24" by 36," which includes the following minimum information:

- Insert in the title block (lower right hand corner) of BMP Exhibit: the WQMP Number (assigned by staff) and the grading/building or Planning Application permit numbers
- Project location (address, tract/lot number(s), etc.)
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural BMP locations
- Drainage delineations and flow information
- Delineate the area being treated by each structural BMP
- GIS coordinates for LID and Treatment Control BMPs
- Drainage connections
- BMP details
- Preparer name and stamp

Please do not include any areas outside of the project area or any information not related to drainage or water quality. The approved BMP Exhibit (Site Plan) shall be submitted as a plan sheet on all grading and building plan sets submitted for plan check review and approval. The BMP Exhibit shall be at the same size as the rest of the plan sheets in the submittal and shall have an approval stamp and signature prior to plan check submittal.

VI.2 Submittal and Recordation of Water Quality Management Plan

Following approval of the Final Project-Specific WQMP, three copies of the approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be submitted. In addition, these documents shall be submitted in a PDF format.

Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

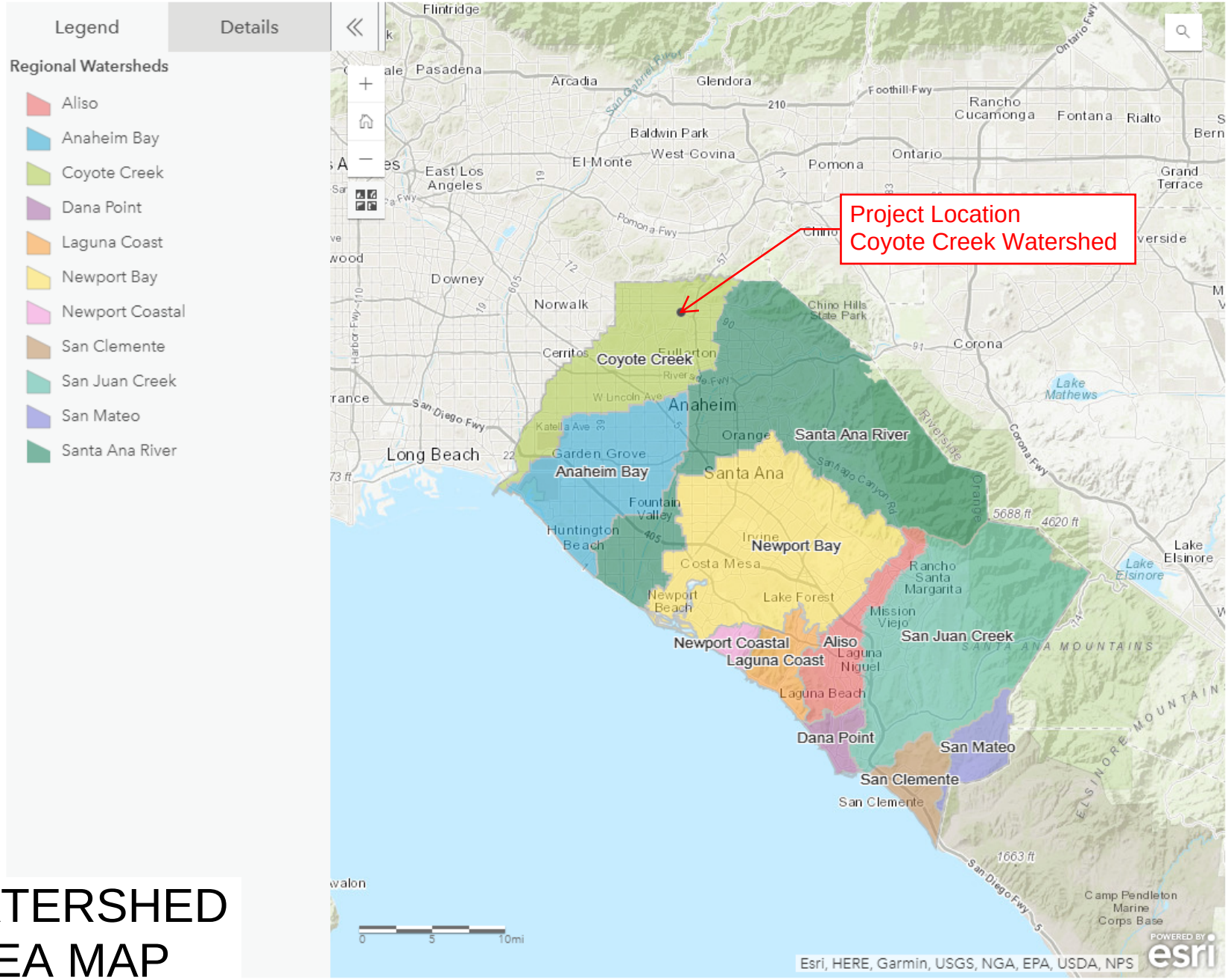
Section VII Educational Materials

Refer to the Orange County Stormwater Program (ocwatersheds.com) for a library of materials available. Please only attach the educational materials specifically applicable to this project. Other materials specific to the project may be included as well and must be attached.

Education Materials			
Residential Material (http://www.ocwatersheds.com)	**Check If Applicable**	**Business Material (http://www.ocwatersheds.com)**	**Check If Applicable**
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☒
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☒
Homeowners Guide for Sustainable Water Use	☐	Proper Maintenance Practices for Your Business	☒
Household Tips	☐	**Other Material**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☐		
Recycle at Your Local Used Oil Collection Center (North County)	☐	IC 7 - Tips for Landscape Maintenance	☒
Recycle at Your Local Used Oil Collection Center (Central County)	☐	IC 15 - Tips for Parking and Storage Area Maintenance	☒
Recycle at Your Local Used Oil Collection Center (South County)	☐	IC 21 - Waste Handling and Disposal	☒
Tips for Maintaining a Septic Tank System	☐	IC 22 – Eating and Drinking Establishments	☒
Responsible Pest Control	☐	IC 23 – Fire Sprinkler Testing	☒
Sewer Spill	☐		☐
Tips for the Home Improvement Projects	☐		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☐		☐
Tips for Pet Care	☐		☐
Tips for Pool Maintenance	☐		☐
Tips for Residential Pool, Landscape and Hardscape Drains	☐		☐
Tips for Projects Using Paint	☐		☐

ATTACHMENT A

Watershed Area



WATERSHED AREA MAP

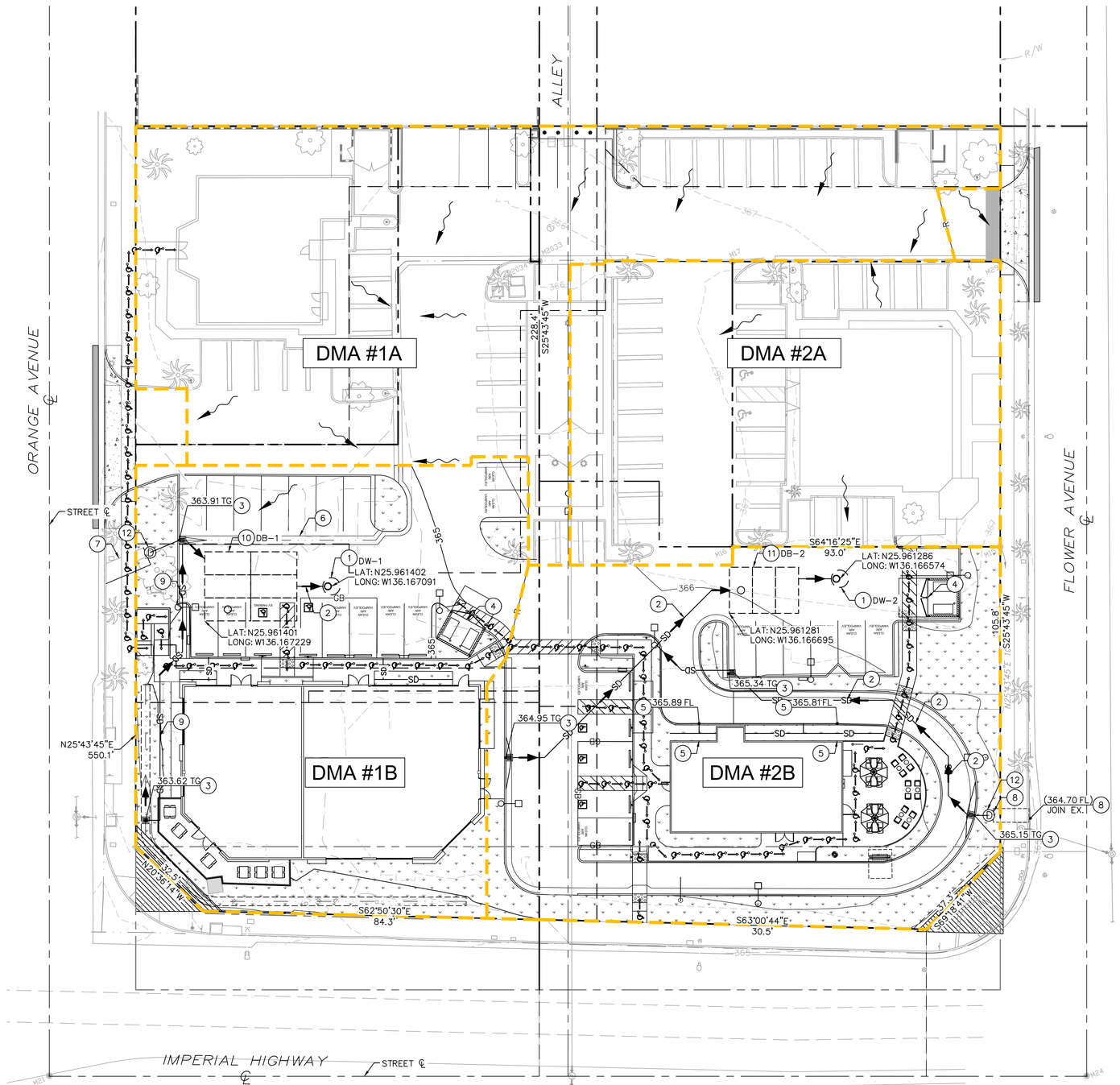
Kimley»Horn

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765 THE CITY DRIVE, SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030 FAX: 714-938-9488

ATTACHMENT B

Conceptual WQMP Site Plan



CONCEPTUAL WQMP NOTES

1. PROPOSED UNDERGROUND DRY WELL AND SETTLING CHAMBER SYSTEM. REFER TO SHEET 2 FOR MORE INFORMATION.
2. 6" SDR-35 PVC STORM DRAIN PIPE SLOPED AT 0.5% MIN.
3. 24" X 24" JENSEN PRECAST DROP INLET WITH CATCH BASIN FILTER INSERT FOR TRASH CAPTURE. ALL CATCH BASINS SHALL HAVE "NO DUMPING-DRAINS TO OCEAN" PAINTED ON THE ADJACENT CURB. REFER TO SHEET 2 FOR MORE INFORMATION.
4. TRASH ENCLOSURE DRAIN WITH ACCESSIBLE GRATE. DRAIN TO SEWER.
5. ROOF DOWNSPOUTS. CONNECT TO 4" SDR-35 PVC STORM DRAIN PIPE AND DRAIN THRU CURB FACE.
6. 3' WIDE VALLEY GUTTER
7. EXISTING PARKWAY DRAIN TO BE WIDENED TO 6.4'.
8. PROPOSED 57" X 4" PARKWAY DRAIN PER SPPWC STANDARD PLAN 151-2.
9. PROPOSED 4" SDR-26 PVC STORM DRAIN PIPE AT 0.5% MIN.
10. BIOCLEAN URBANPOND UNDERGROUND STORAGE VAULT (DB-1) WITH 2,183 CF CAPACITY FOR STORM WATER MANAGEMENT. MINIMUM VAULT DIMENSIONS 24.0'X32.0'X3.35'. REFER TO SHEET 3 FOR MORE INFORMATION.
11. BIOCLEAN URBANPOND UNDERGROUND STORAGE VAULT (DB-2) WITH 1,754 CF CAPACITY FOR STORM WATER MANAGEMENT. MINIMUM VAULT DIMENSIONS 24.0'X16.0'X5.10'. REFER TO SHEET 3 FOR MORE INFORMATION.
12. STORM DRAIN MANHOLE PER SPPWC STANDARD PLAN 321-2. PRESSURE RATED LID ON MANHOLE BOLTED DOWN. MANHOLE TO INCLUDE WEEPHOLES.

LEGEND

- CENTER LINE
- PROPERTY LINE
- EASEMENT LINE
- APPROXIMATE LIMITS OF DISTURBANCE
- DMA LIMITS
- CORNER CUT-OFF AREA
- R — PROPOSED RIDGE LINE
- GB — PROPOSED GRADE BREAK LINE
- PROPOSED FLOW LINE
- SD — PROPOSED STORM DRAIN LINE
- SD — EXISTING STORM DRAIN LINE
- FLOW DIRECTION
- PROPOSED STORM DRAIN PIPE FLOW DIRECTION

WQMP DMAs

DMA #	TOTAL DRAINAGE AREA (SF)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	DESIGN CAPTURE VOLUME (CF)	STRUCTURAL BMP ID#	BMP TYPE
1A (OFFSITE RUN-ON)	24,225	19,685	4,540	1,364	DW-1, DB-1	DRYWELL, DETENTION BASIN
1B	19,462	15,485	3,977	1,078	DW-1, DB-1	DRYWELL, DETENTION BASIN
2A (OFFSITE RUN-ON)	15,198	12,493	2,705	864	DW-2, DB-2	DRYWELL, DETENTION BASIN
2B	22,114	16,229	5,885	1,149	DW-2, DB-2	DRYWELL, DETENTION BASIN
TOTAL	80,999	63,892	17,107	4,455	DW-1, DW-2, DB-1, DB-2	DRYWELL, DETENTION BASIN

SELF-CERTIFICATION FROM A STATE LICENSED PROFESSIONAL ENGINEER OR THIRD-PARTY CERTIFICATIONS ARE REQUIRED OF ALL BMPS CONSTRUCTED ON THIS PLAN OR FINAL CERTIFICATE OF OCCUPANCY WILL NOT BE GRANTED FROM THE CITY.

SOURCE CONTROL BMPS	
BMP ID	BMP DESCIRPTION
SC-1	PREVENT ILLICIT DISCHARGE INTO MS4 → ALL LANDSCAPE AREAS (TYP.)
SC-2	STORM DRAIN STENCILING AND SIGNAGE → ALL SD GRATED INLETS, CURB CUTS (TYP.)
SC-5	TRASH AND STORAGE AREAS
SC-6	ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS
A.	ON-SITE STORM DRAIN INLETS
D.	NEED FOR FUTURE INDOOR AND SOURCE CONTROL
E.	LANDSCAPE / OUTDOOR PESTICIDE USE
G.	FOOD PREPARATION AND / OR SERVICE
H.	REFUSE / TRASH COLLECTION AREAS
O.	FIRE SPRINKLER TEST WATER AND RELIEF POINT
P.	MISCELLANEOUS DRAIN OR WASH DOWN AREAS
Q.	PLAZA, SIDEWALKS, PARKING LOTS

SITE DESIGN BMPS	
BMP ID	BMP DESCIRPTION
SD-2	CONSERVE NATURAL AREAS, SOILS, AND VEGETATION
SD-3	MINIMIZE IMPERVIOUS AREAS
SD-4	MINIMIZE SOIL COMPACTION
SD-7	LANDSCAPING WITH NATIVE OR DROUGHT TOLERANT LANDSCAPING.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

811 Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

TB
DRAWN BY
JP
CHECKED BY
TH
RECOMMENDED

ENGINEERS SEAL
JOHN A. POLLOCK No. 86160 REGISTERED PROFESSIONAL ENGINEER CIVIL STATE OF CALIFORNIA

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
JOHN POLLOCK R.C.E. NO. 86160
DATE: 12/8/2022
EXP. 12/31/2022

BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA

CONCEPTUAL WQMP PLAN

1 OF 3

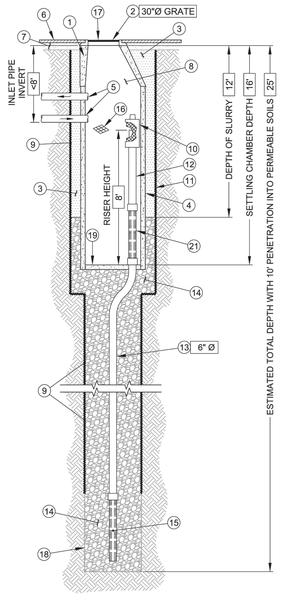
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The MaxWell® IV

DRAINAGE SYSTEM DETAILS AND SPECIFICATIONS

Brea Gaslight Square - DMA 1A-1B

Brea, CA



AZ Lic. ROC070465 A, ROC047087 B-4, ADWR 383
CA Lic. 886759, C-42, C-57, HAZ
Also licensed in the following states: MT, NM, NV, OR, TX, UT, and WA.
U.S. Patent No. 4,823,330 - ™ Trademark 1974, 1990, 2004

DETAIL:	IV-4-SS-OC	REVISED BY:	RJA	
DRAWN ON:	08-28-19	REVISED DATE:	09-16-22	SCALE: N.T.S

Manufactured and Installed by TORRENT RESOURCES
An evolution of McGuckin Drilling
www.torrentresources.com
CALIFORNIA 909-829-0740
ARIZONA 602-268-0785

ITEM NUMBERS

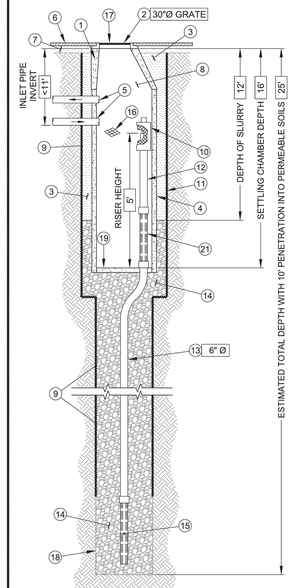
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2. **BOLTED RING & GRATE/COVER** - DIAMETER & TYPE AS SHOWN. CLEAN CAST IRON WITH WORDING **"STORM WATER ONLY"** IN RAISED LETTERS. **BOLTED IN 2 LOCATIONS** AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.
3. **STABILIZED BACKFILL** - TWO-SACK SLURRY MIX FROM BOTTOM OF SLURRY TO 5' BELOW GRADE AROUND CHAMBER. SIX-SACK SLURRY MIX FROM 5' BELOW GRADE TO GRADE AROUND CHAMBER.
4. **PRE-CAST LINER -** 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS **TO MAXIMIZE BEARING SURFACE.**
5. **INLET PIPE/OUTLET PIPE (BY OTHERS).** SEE SEPARATE PLAN FOR INVERT ELEVATIONS.
6. **GRADED BASIN OR PAVING** (BY OTHERS).
7. **COMPACTED BASE MATERIAL**, IF REQUIRED (BY OTHERS).
8. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE SETTLING CHAMBER DEPTH AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE RISER PIPE.
9. **NON-WOVEN GEOTEXTILE SLEEVE** - MIRAFI 140 NL. MIN. 6 FT Ø. HELD APPROX. 10 FEET OFF THE BOTTOM OF EXCAVATION.
10. **PUREFLO® DEBRIS SHIELD** - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL 0.265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED**.
11. **MIN. 6' Ø DRILLED SHAFT.**
12. **RISER PIPE** - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
13. **DRAINAGE PIPE** - ADS HIGHWAY GRADE OR SCH. 40 PVC WITH TRI-A COUPLER. SUSPEND PIPE DURING BACKFILL OPERATIONS. DIAMETER AS NOTED.
14. **ROCK** - WASHED, SIZED BETWEEN 3/8" AND 1-1/2".
15. **FLOFAST® DRAINAGE SCREEN** - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. OVERALL LENGTH VARIES, UP TO 120" WITH TRI-B COUPLER.
16. **ABSORBENT** - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY. TYPICAL, 2 PER CHAMBER.
17. **FABRIC SEAL** - U.V. RESISTANT GEOTEXTILE - **TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION. GRATED ONLY.
18. **MIN 4' Ø DRILLED SHAFT.**
19. **BASE SEAL** - SIX-SACK SLURRY.
21. **DRAIN DOWN INTAKE SCREEN** - 6" Ø SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. WRAPPED WITH NON-WOVEN GEOTEXTILE FABRIC. 48" OVERALL LENGTH WITH TRI-B COUPLER.

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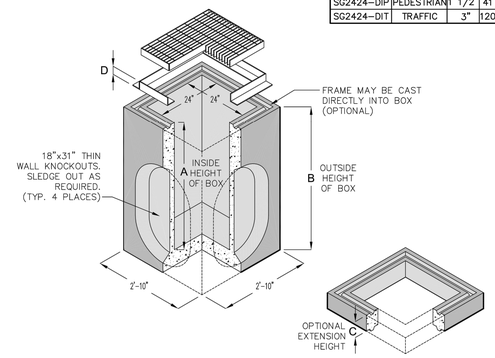
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DROP INLET			
MODEL NO.	A	B	*WEIGHT
DI242436	36"	42"	1900 LBS.
DI2424448	48"	54"	2500 LBS.

*BOX ONLY

FRAME AND GRATE			
MODEL NO.	RATING	D	WEIGHT
SG2424-DIP	PEDESTRIAN	1 1/2"	41 LBS.
SG2424-DIT	TRAFFIC	3"	120 LBS.



EXTENSION		
MODEL NO.	C	WEIGHT
RS242406	6"	300 LBS.
RS242412	12"	600 LBS.

- FRAME AND GRATE ASSEMBLY AVALIABLE IN TRAFFIC OR PEDESTRIAN MODELS.
- DESIGN FOR H-20-44 BRIDGE LOADING.
- ASSEMBLY TO BE PLACED ON A 6" BASE OF CRUSHER RUN FOR EASE OF INSTALLATION AND EVEN LOAD DISTRIBUTION.
- FOR COMPLETE DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.
- ILLUSTRATION IS TYPICAL ONLY OF GENERAL SERIES CONFIGURATION. FOR SPECIFIC CONFIGURATION, CALL JENSEN PRECAST.

24" X 24" DRAIN INLET

JENSEN PRECAST

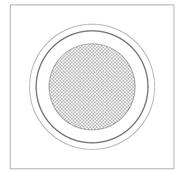
DI2424

ORIG. ENGR. DATE	REV. ENGR. DATE
11-28-00	

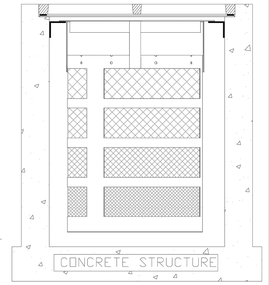
8.01

BIO CLEAN SCREENING FILTER

FOR USE IN GRATE INLETS

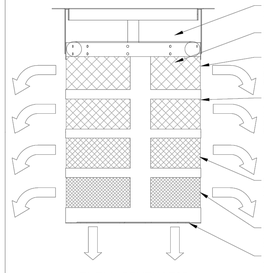


TOP VIEW



NOTES:

1. ALL HARDWARE, FLANGE, FRAME, SCREENS SHALL BE STAINLESS STEEL
2. HYDROCARBON BOOM SHALL BE 2" DIAMETER AND CONNECTED, MECHANICALLY TO THE FILTER FRAME WITH RAILS ALLOWING IT TO FLOAT ON THE WATER SURFACE REGARDLESS OF HEIGHT
3. SEE PERFORMANCE REPORTS IN MANUFACTURES SPECIFICATIONS
4. OTHER STANDARD AND CUSTOM MODEL SIZES AVAILABLE – CONTACT BIO CLEAN FOR MORE INFORMATION.
5. BASED ON 37% OPEN AREA
6. CONSIDERS A SAFETY FACTOR OF 2.0.
7. CONSIDERS A LOCAL DEPRESSION PONDING DEPTH OF 6 INCHES.
8. STORAGE CAPACITY BASED ON THE BASKET HALF FULL.



FLOW SCHEMATIC

MODEL #	TREATMENT FLOW (CFS)	BYPASS FLOW (CFS)	SOLIDS STORAGE CAPACITY (CF)
BC-GRATE-MLS 12-12-12	1.19	1.55	0.27
BC-GRATE-MLS 18-18-18	4.32	3.68	1.05
BC-GRATE-MLS 24-24-24	7.67	4.83	2.41
BC-GRATE-MLS 30-30-24	12.97	6.21	3.98
BC-GRATE-MLS 25-38-24	13.53	6.59	4.16
BC-GRATE-MLS 36-36-24	19.64	7.60	5.94
BC-GRATE-MLS 48-48-18	24.84	10.13	7.92

**FLOW RATES CALCULATED USING THE FOLLOWING EQUATION

$Q = SD^2 C_d * A \sqrt{2 * g * h}$ C_d = COEFFICIENT of DISCHARGE = .62

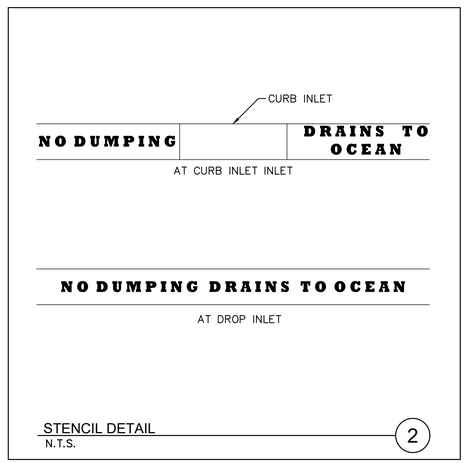
DRAWING: BIO CLEAN GRATE INLET FILTER DETAILS	MULTI-LEVEL SCREENING
TYPICAL MODEL DETAIL	
WARRANTY: 5 YEAR MANUFACTURERS	PROJECT:

BIO CLEAN ENVIRONMENTAL SERVICES, INC.
398 VIA EL CENTRO, OCEANSIDE CA 92058
PHONE: 760-433-7640 FAX: 760-433-3176

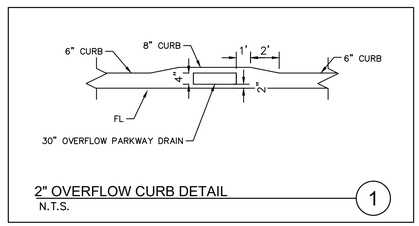
DATE: 10/12/17	SCALE: SF = 15	REVISIONS:	DATE:
DRAFTER: M.C.P.	UNITS = INCHES	REVISIONS:	DATE:

Bio Clean
A Forterra Company

PAGE 1



STENCIL DETAIL
N.T.S.
2



2" OVERFLOW CURB DETAIL
N.T.S.
1

Know what's below. Call before you dig. 811

ISSUE	DATE	DESCRIPTION

TB — DRAWN BY
JP — CHECKED BY
TH — RECOMMENDED

ENGINEERS SEAL — REGISTERED PROFESSIONAL ENGINEER — JOHN K. POLLOCK — No. 86160 — CIVIL — NOT FOR CONSTRUCTION — STATE OF CALIFORNIA

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
JOHN POLLOCK, R.C.E. NO. 86160 — DATE: 12/8/2022 — EXP. 12/31/2022

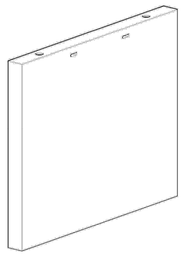
BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

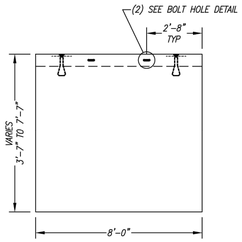
CITY OF BREA

CONCEPTUAL WQMP DETAILS

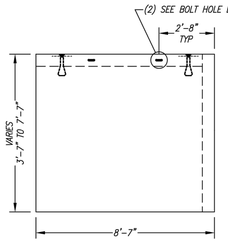
2 OF 3

Drawing name: C:\Users\TATIAN~1.BRA\AppData\Local\Temp\AcPublish_11456\Preliminary WQMP Plan.dwg 2 – Preliminary WQMP Details Dec 08, 2022 2:27pm by tatiana.braun
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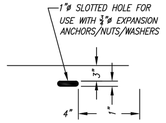




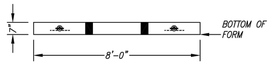
EXTERIOR VIEW



EXTERIOR VIEW



BOLT HOLE DETAIL



TOP VIEW



TOP VIEW

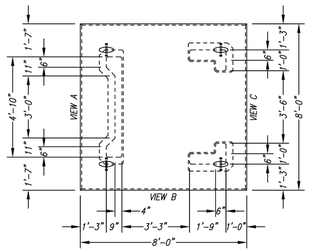
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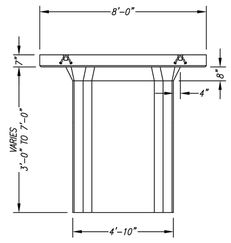
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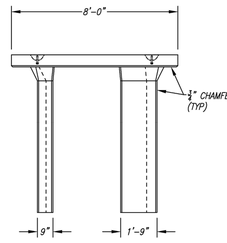
URBANPOND
PRECAST CONCRETE STORMWATER DETENTION
SINGLE MODULE - EXTERIOR WALL PANEL



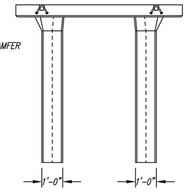
TOP VIEW



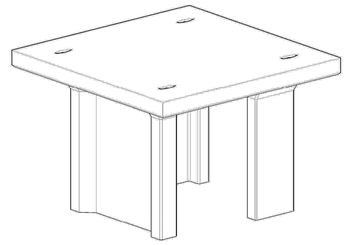
ELEVATION VIEW A



ELEVATION VIEW B



ELEVATION VIEW C



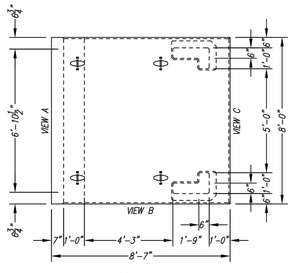
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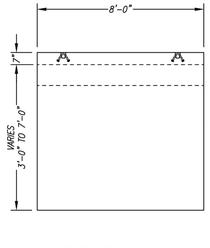
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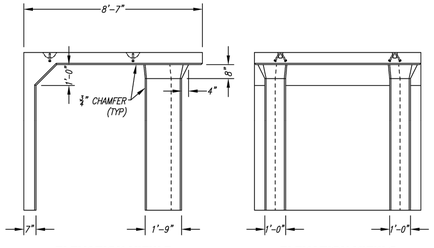
URBANPOND
PRECAST CONCRETE STORMWATER DETENTION
SINGLE MODULE - INTERIOR



TOP VIEW

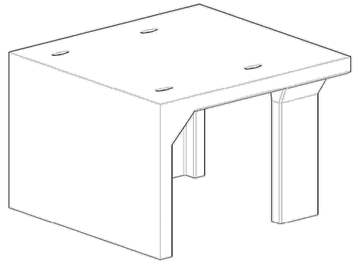


ELEVATION VIEW A



ELEVATION VIEW B

ELEVATION VIEW C



1:40 SCALE

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Bio Clean — A Forterra Company

URBANPOND
PRECAST CONCRETE STORMWATER DETENTION
SINGLE MODULE - PERIMETER

Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

TB — DRAWN BY
JP — CHECKED BY
TH — RECOMMENDED

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER — JOHN K. POLLOCK — No. 86160 — CIVIL — STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
DATE: 12/8/2022
JOHN POLLOCK R.C.E. NO. 86160 — EXP. 12/31/2022

BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA

CONCEPTUAL WQMP DETAILS

3 OF 3

Drawing name: C:\Users\TATIAN~1.BRA\AppData\Local\Temp\AcPublish_11456\Preliminary WQMP Plan.dwg 2 – Preliminary WQMP Details (2) Dec 08, 2022 2:27pm by: tatiana.braun
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City of Brea
Project Specific WQMP Summary Report

INSTRUCTIONS: Project applicant, please fill out and check all that apply.

Project Name: Brea Gaslight Square	Project Address: 255 E. Imperial Highway Brea, CA 92821
WQMP Application Number (BLD #):	APN(s): 319-292-35 319-292-36
Watershed: Coyote Creek Watershed	Project Size (Acres): 0.95 acres disturbed of 1.44 acres
New Development or Redevelopment: Redevelopment	Design Capture Volume (ft^3): 4,455 CF
Land Use Type (check one): ☐ Industrial (SIC Code):_____ ☑ Commercial (SIC Code): 5812, 5999, 8011 ☐ Mixed Use ☐ Residential ☐ Municipal (i.e. CIP) ☐ Other (specify): _____	Total BMP Treatment Capacity (ft^3): 5,048 CF Hydromodification (Yes/No): No Owner/Company Name: One Berry LLC Owner Address: 330 W. Birch Street, Suite E201 Brea, CA 92821 Contact Name: Dwight Manley Contact Phone: (714) 990-8748 HOA/POA (Yes/No): No

STRUCTURAL BMP SUMMARY TABLE

Provide an itemized list of each LID and FCS BMP for each proposed project DMA. Expand this table as needed.

LID BMP Description (i.e. HSC-1, BIO-2, include manufacturer and model number if possible)	DMA ID (as noted on BMP Plot Plan)	DMA Acres	DCV (indicate units)	BMP Treatment Capacity (indicate units)	BMP GPS Coordinates
1. INF-7 Torrent Maxwell Drywell for DMA 1A, 1B (DW-1)	1A, 1B	1.00	2,442 CF	259 CF	LAT: 25.961402 LONG: -136.167091
2. Contech Urban Pond for DMA 1A, 1B (DB-1)				2,572 CF	LAT: 25.961401 LONG: -136.167229
3. INF-7 Torrent Maxwell Drywell for DMA 2A, 2B (DW-2)	2A, 2B	0.86	2,013 CF	259 CF	LAT: 25.961286 LONG: -136.166574
4. Contech Urban Pond for DMA 2A, 2B (DB-2)				1,958 CF	LAT: 25.961281 LONG: -136.166695
5.					
6.					
7.					
8.					
9.					
10.					
TOTAL		1.86	4,455 CF	5,048 CF	
Does BMP Capacity Exceed DCV (Y/N)?			Yes		

FCS Description	DMA ID	Location Description	FCS GPS Coordinates
1.			
2.			
3.			
4.			
5.			
6.			

Non-Structural Source Control BMP's (check all that apply):

- [x] N1 Owner, Tenant, Occupant Education
- [x] N2 Activity Restrictions
- [x] N3 Common Area Landscape Mgmt
- [x] N4 BMP Maintenance
- [x] N5 Title 22 CCR Compliance
- [ ] N6 Local Water Quality Permit
- [ ] N7 Spill Contingency Plan
- [ ] N8 Underground Storage Tank
- [ ] N9 Hazardous Materials Disclosure
- [x] N10 Uniform Fire Code
- [x] N11 Common Area Litter Control
- [x] N12 Employee Training
- [ ] N13 Loading Dock Good Housekeeping
- [x] N14 Common Area Catch Basin Inspection
- [x] N15 Street Sweeping Private Streets & Parking Lots
- [ ] N16 Retail Gasoline Outlets

Structural Source Control BMP's (check all that apply):

- [x] S1 Storm Drain System Stenciling/Signage
- [x] S2 Outdoor Material Storage Areas
- [x] S3 Trash Storage Areas
- [x] S4 Efficient Irrigation Systems & Landscape Design
- [ ] S5 Protect Slopes & Channels
- [ ] S6 Loading Dock Areas
- [ ] S7 Maintenance Bays
- [ ] S8 Vehicle Wash Areas
- [ ] S9 Outdoor Process Areas
- [ ] S10 Equipment Wash Areas
- [ ] S11 Fueling Areas
- [ ] S12 Hillside Landscaping
- [x] S13 Wash Water Controls for Food Prep Areas
- [ ] S14 Community Car Wash Racks

Project WQMP Summary Exhibit

This WQMP Summary Exhibit ("Summary Exhibit") is to ensure there is a consistent and clarified exhibit included as part of the WQMP submittal process. The purpose of this Summary Exhibit is for it to be used by City inspectors to verify that post-construction structural BMPs are implemented correctly at the project site and as described in the approved WQMP. Though similar, the required elements of this Summary Exhibit are separate from the WQMP Plot Plan that is otherwise found in the WQMP report, as it should only include information relevant to the understanding of stormwater BMP operations and maintenance (i.e. no construction notes) and minimize use of topo lines, elevation callouts, etc. The Summary Exhibit shall include the following elements:

- Drainage Management Areas (DMAs) and flow information (i.e. surface flow arrows and pipe flow arrows),
- BMPs (LID and Structural Source Control – i.e. trash enclosures, catch basin stenciling),
- FCS – Full Capture Systems for trash TMDLs,
- Other structural water quality devices (i.e. roof downspout filters),
- All connections between on-site stormwater structures and off-site storm drains,
- And list of structural BMP ID (CASQA-appropriate).

Where applicable, the applicant shall input concise BMP sizing information in tabular form in the Summary Exhibit. This BMP sizing information should include:

- DMA ID,
- BMP ID (i.e. MWS #1, CDS #1, INF #1) and TGD BMP ID (i.e. BIO-1, BIO-7, INF-1, HSC-2),
- BMP description (i.e. dimensions, model number),
- And BMP location coordinates.

Color can be used to highlight the information above but should not be used for other plan details. Details unrelated to stormwater should be turned off/screened back/de-emphasized where possible. If using a hatch for pavement or landscaping, ensure it is also screened back and not distracting from BMPs.

ATTACHMENT C

Soil and Rainfall Maps

SUBJECT TO FURTHER REVISION

LEGEND

- Orange County Precipitation Stations
- 24 Hour, 85th Percentile Rainfall (Inches)
- 24 Hour, 85th Percentile Rainfall (Inches) - Extrapolated
- City Boundaries

Rainfall Zones

Design Capture Storm Depth (inches)

- 0.65"
- 0.7
- 0.75
- 0.80
- 0.85
- 0.90
- 0.95
- 1.00
- 1.10"

Note: Events defined as 24-hour periods (calendar days) with greater than 0.1 inches of rainfall.
For areas outside of available data coverage, professional judgment shall be applied.

Site Location
0.89 in

0.65 0.7 0.75 0.8 0.85 0.9 0.95 1 1.05 1.1

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY

0 3 6 12 Kilometers
0 1.8 3.6 7.2 Miles

TITLE: RAINFALL ZONES

JOB: ORANGE COUNTY TECHNICAL GUIDANCE DOCUMENT — ORANGE CO. CA

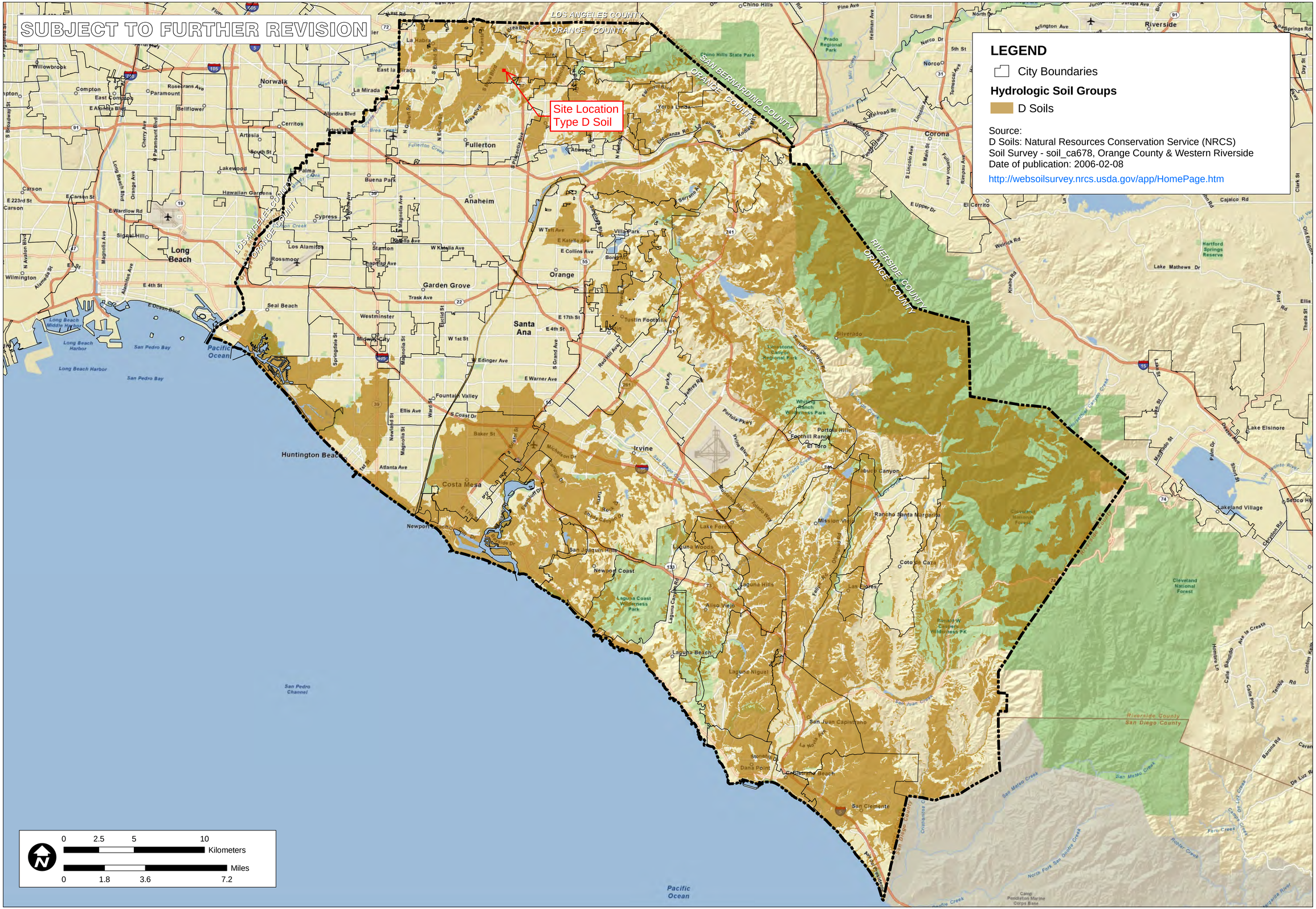
SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE XVI-1

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-1_RainfallZones_20110215.mxd

SUBJECT TO FURTHER REVISION



LEGEND

City Boundaries

Hydrologic Soil Groups

D Soils

Source:
D Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08

http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers

0 1.8 3.6 7.2 Miles

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2b_D-Soils_20110215.mxd

TITLE

HYDROLOGIC SOIL GROUP
TYPE D NRCS SOIL SURVEY

ORANGE COUNTY
INFILTRATION STUDY

CA

JOB

ORANGE CO.

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE

XVI-2b

Susceptibility

Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility

Channel Type

- Earth (Unstable)
- Earth (Stabilized)
- Stabilized

Tidel Influence

- <= Mean High Water Line (4.28')

Water Body

- Basin
- Lake
- Reservoir

Other Lands

- Airport/Military

Los Angeles County

Santa River Watershed

Anaheim Bay-Huntington Harbor Watershed

Newport Bay-Newport Coastal Streams Watershed

Site Location

Humble Reservoir

Orange County

Valencia Reservoir

Fullerton Reservoir

Loftus Diversion Channel

Desilting Basin

Brea Creek Reservoir

Fullerton Reservoir

Fullerton Reservoir

Hillcrest Park Reservoir

Fullerton Airport

Miller Retarding Basin

La Jolla Recharge Basin

Placentia Retarding Basin

Kraemer Basin

Raymond Retarding Basin

Gilbert Retarding Basin

Crescent Retarding Basin

Cypress Retarding Basin

Channel in Retarding Basin

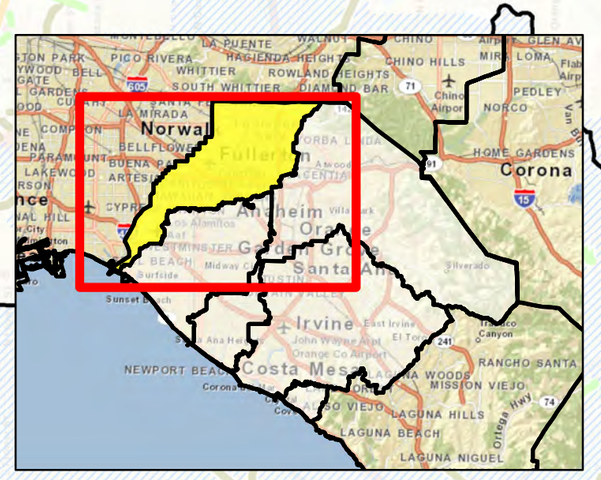
Rossmoor Retarding Basin

Los Alamitos Retarding Basin

Los Alamitos Naval Air Station

Seal Beach Naval Weapons Station

0 8,000 16,000 Feet



P:\9526E\6-GIS\Mxds\SusceptabilityMaps_20100505\9526E_SanGabrielCoyoteCreekSusceptibility_20100430.mxd

TITLE: SUSCEPTIBILITY ANALYIS SAN GABRIEL-COYOTE CREEK

JOB: ORANGE COUNTY WATERSHED MASTER PLANNING ORANGE CO. CA

SCALE	1" = 8000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE Advanced Water Engineering

ATTACHMENT D

Groundwater Feasibility

SUBJECT TO FURTHER REVISION

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

Site Location

LEGEND

City Boundaries

Seismic Hazards

Potential Landslide Area

Source:
Seismic Hazard Zone Maps
Division of Mines and Geology, California Geology Survey,
Publication Date: 2005; Data Downloaded 02-09-2011

http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx

0 2.5 5 10 Kilometers

0 1.8 3.6 7.2 Miles

TITLE

HYDROLOGIC SOIL GROUP
TYPE D NRCS SOIL SURVEY

JOB

ORANGE CO.
INFILTRATION STUDY

CA

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE

XVI-2c

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2c_Landslides_20110215.mxd

SUBJECT TO FURTHER REVISION

LEGEND

- Depth To First Groundwater Contours
- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

Site Location

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

0 2 4 8 Kilometers

0 1.25 2.5 5 Miles

TITLE
NORTH ORANGE COUNTY
MAPPED DEPTH TO FIRST
GROUNDWATER

JOB
ORANGE COUNTY
INFILTRATION STUDY
ORANGE CO. CA

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
XVI-2d

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2d_DepthToGroundwaterOverview_20110215.mxd

SUBJECT TO FURTHER REVISION

Site Location
Depth to Groundwater > 10'

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

LOS ANGELES COUNTY
ORANGE COUNTY

LEGEND

- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Depth To Groundwater

- <= 5'
- 5-10'

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

0 2 4 8 Kilometers

0 1.25 2.5 5 Miles

TITLE
NORTH ORANGE COUNTY
MAPPED SHALLOW GROUNDWATER

JOB
ORANGE CO.
INFILTRATION STUDY

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

CA

PACE
Advanced Water Engineering

FIGURE
XVI-2e

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2e_DepthToGroundwater15ft_20110215.mxd

SUBJECT TO FURTHER REVISION

Site Location

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

LEGEND

- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Plume Protection Boundaries

- North Basin Groundwater Protection Project
- South Basin Groundwater Protection Project
- El Toro Marine Base
- Tustin Marine Air Base
- Approximate Selenium Contamination Area

Note: Individual contamination sites are not plotted.
See State Water Resources Control Board Geotracker database (http://geotracker.waterboards.ca.gov),
Department of Toxic Substance Control Envirostor database (http://www.envirostor.dtsc.ca.gov) and other applicable sources for current listing of active contaminated sites.

Groundwater basin and plume protection boundaries for South Orange County are not shown on this exhibit at this time

0 2 4 8 Kilometers

0 1.25 2.5 5 Miles

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2f_NorthOCGroundwaterProtectionAreasStreetMap_20110215.mxd

TITLE
NORTH ORANGE COUNTY
GROUNDWATER PROTECTION
AREAS

ORANGE COUNTY
INFILTRATION STUDY

JOB
ORANGE CO.

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

CA

PACE
Advanced Water Engineering

FIGURE
XVI-2f

SUBJECT TO FURTHER REVISION

Site Location Constraint

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY

LEGEND

- OCWD Groundwater Basin Protection Boundary
- City Boundaries

Infiltration Constraints

- 1 Constraint
- 2 Overlapping Constraints
- 3 Overlapping Constraints
- 4 Overlapping Constraints

Analysis Layers Included: 1. Hydrologic Soil Group D, 2. Landslide Hazard Zone, 3. Groundwater Protection Areas 4. Approximate Selinium Area, 5. Depth to Groundwater <= 5'

Note: Screening datasets are not exhaustive. The applicant should always conduct a review of available site-specific information relative to infiltration constraints as part of assessing the feasibility of stormwater infiltration.
Source;
Infiltration Constraint Analysis: PACE/Geosyntec

0 2.5 5 10 Kilometers
0 1.8 3.6 7.2 Miles

San Pedro Channel

Pacific Ocean

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2g_InfiltrationFinal_20110215.mxd

TITLE: INFILTRATION ANALYSIS OVERLAPPING CONSTRAINT LOCATIONS

JOB: ORANGE COUNTY INFILTRATION STUDY — ORANGE CO. — CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE XVI-2g

ATTACHMENT E

Geotechnical Report

Geotechnical Engineering Report

Proposed Brea Gaslight Square Development
Brea, Orange County, California
May 12, 2022
Terracon Project No. CB225046

Prepared for:
One Berry, L.L.C.
Brea, California

Prepared by:
Terracon Consultants, Inc.
Colton, California

May 12, 2022

One Berry, L.L.C.
330 W Birch Street #201
Brea, California 92821

Attn: Mr. Dwight Manley
P: (323) 595-7498

Re: Geotechnical Engineering Report
Proposed Brea Gaslight Square Development
255 E. Imperial Hwy.
Brea, Orange County, California
Terracon Project No. CB225046

Dear Mr. Manley:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. PCB225046 dated March 15, 2022. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Richard Lara, E.I.T.
Senior Staff Engineer



Fred F. Buhamdan, P.E.
Senior Principal

REPORT TOPICS

INTRODUCTION 1
SITE CONDITIONS 1
PROJECT DESCRIPTION 2
GEOTECHNICAL CHARACTERIZATION 3
SEISMIC CONSIDERATIONS 5
LIQUEFACTION AND SEISMIC SETTLEMENT 7
GEOTECHNICAL OVERVIEW 7
EARTHWORK 8
SHALLOW FOUNDATIONS 14
FLOOR SLABS 15
PAVEMENTS 17
STORM WATER MANAGEMENT 19
CORROSIVITY 21
GENERAL COMMENTS 21

Note: This report was originally delivered in a web-based format. Orange Bold text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the *GeoReport* logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

Proposed Brea Gaslight Square Development
255 E. Imperial Hwy.
Brea, Orange County, California

Terracon Project No. CB225046

May 12, 2022

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Gaslight Square Development to be located at 255 E. Imperial Hwy. in Brea, Orange County, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions and historic high groundwater
- 2019 California Building Code (CBC) seismic design parameters
- Subgrade preparation/earthwork recommendations
- Recommendations for foundation design and concrete slabs-on-grade
- Recommendations for preliminary pavement section design
- Infiltration and drainage

The geotechnical engineering Scope of Services for this project included the advancement of four test borings to depths ranging from approximately 21½ to 31½ feet below existing site grades. Additionally, subsurface exploration / boring information from a previous project performed by Terracon at the same site was utilized in our analysis upon receiving authorization from previous client. Six test borings drilled to depths ranging from approximately 5 to 26½ feet below existing grade for Terracon Project No. 60205098 were utilized in our study.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and/or as separate graphs in the **Exploration Results** section. Additional boring information for Terracon Project No. 60205098 are also identified and depicted on the **Exploration Plan.**

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project site is located at 255 E. Imperial Hwy. in Brea, Orange County, California. Just north of Imperial Highway, between S. Flower Avenue and S. Orange Avenue. Latitude: 33.9162 Longitude: -117.8985 See **Site Location**
Existing Improvements	The project site is located within an existing and operational retail shopping center that still contains, at the time of our field investigation, a multistory building and three other buildings, pavement drive, parking areas, landscaping, trees and parking lot lighting.
Current Ground Cover	The surface conditions at the site during our field investigation consisted of asphalt concrete for parking and drives, sidewalks, landscaping and multiple trees.
Existing Topography	The site is flat with an approximate elevation ranging from 352 to 354 feet.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Proposed Development	Based on our review of the site plans provided to us, the existing buildings and utilities will be demolished and removed from the site, and a Starbucks drive thru restaurant and associated pavement for parking lot and drives will be constructed. Also, a multitenant building consisting of a new medical building with an area of about 3,600 S.F. and a restaurant building with an area of about 2,400 S.F. are proposed along with appurtenant infrastructure..
Proposed Structures	Structures include a new Starbucks building drive-thru (approximately 2,000 sf), new medical building (approximately3,600 sf), new restaurant building (approximately 2,400 sf) and appurtenant improvements.
Building Construction	The proposed building will consist of a wood-frame structure supported on a shallow foundation system with slabs on grade.
Finished Floor Elevation	The finished floor elevations were not provided at the time this report was prepared. We anticipate finished floor elevations will be within 1 feet of the existing grade.

Item	Description
Structural Loads (assumed)	Structural loads were not provided at the time of this report. We assume that the proposed structures will have the following loads: ■ Columns: 40 to 80 kips ■ Walls: 1 to 3 kips per linear foot (klf) ■ Slabs: 100 to 150 pounds per square foot (psf)
Grading Requirements	Preliminary grading plans were not yet available for review at the time this proposal was prepared and should be made available for review once completed. We anticipate cuts and fills of 1 foot or less will be required to develop final grade, excluding remedial grading requirements.
Below Grade Structures	Not anticipated
Free-Standing Retaining Wall	Not anticipated
Pavements	Paved driveway and parking will be constructed on site. We assume both rigid (concrete) and flexible (asphalt) pavement sections should be considered. Please confirm this assumption. Anticipated traffic indices (TIs) are as follows for asphalt pavement: ■ Auto Parking Areas: TI=4.5 ■ Drive Lanes TI=5.5 ■ Truck Delivery Areas: TI=6.0 ■ The pavement design period is 20 years. Anticipated average daily truck traffic (ADTT) is as follows for concrete pavement: ■ Light Duty: ADTT=1 (Category A) ■ Medium Duty: ADTT=25 (Category B) ■ Dumpster Pad: ADTT=700 (Category C)
Infiltration Systems	An on-site stormwater retention/infiltration system is planned.

GEOTECHNICAL CHARACTERIZATION

Subsurface Profile

We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting and planned construction. The following table provides our geotechnical characterization.

The geotechnical characterization forms the basis of our geotechnical calculations and evaluation of site preparation, foundation options and pavement options. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the site, and variations are likely.

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description [1]	Consistency/ Density
Stratum I	0.42 to 0.58	Asphalt pavement, 5" to 7" thick	
Stratum II	2½	Fill- Poorly Graded Sand (SP)	
Stratum II	31½ [2]	Interchanging layers of sand with variable amount of clay and clay with varying amount of sand	Medium dense to dense (sand) and stif to very stiff (clay)

1. The soil materials encountered are not expected to experience substantial volumetric changes (shrink/swell) with fluctuations in moisture content.
2. Boring terminated at 33 feet due to practical refusal.

Conditions encountered at each boring location are indicated on the individual boring logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; in situ, the transition between materials may be gradual.

Lab Results

Laboratory tests were conducted on selected soil samples and the test results are presented in the **Exploration Results** section and on the boring logs. Atterberg limit test results indicate that the on-site soils generally have medium plasticity. Expansion Index test for upper soils encountered in B-6 resulted in an expansion index of 37. Additionally, test results performed from previous exploration were utilized on our analysis. A consolidation test indicates that the sandy clay soils encountered at an approximate depth of 3 feet bgs have a slight swell potential when saturated under normal footing loads of 2,000 psf. An Expansion Index test for upper soils encountered in B-1 resulted in an expansion index of 59.

The results are presented in the **Exploration Results** section.

Groundwater Conditions

The borings were advanced using continuous flight auger drilling techniques that allow short-term groundwater observations to be made while drilling. Groundwater seepage was not observed within the maximum depths of exploration during or at the completion of drilling.

In clayey soils with low permeability, the accurate determination of groundwater level may not be possible without long term observation. Long term observation after drilling could not be performed as borings were backfilled immediately upon completion due to safety concerns.

Groundwater levels can best be determined by implementation of a groundwater monitoring plan. Such a plan would include installation of groundwater monitoring wells, and periodic measurement of groundwater levels over a sufficient period of time.

Based on review of Plate 1.2 of the Seismic Hazard Zone Report (SHZP) for the LA HABRA 7.5-Minute Quadrangle, historic groundwater elevations at the project site are reported to be more than 10 feet bgs.

According to data collected from the Geotracker website for a nearby well (OS-4) advanced by Test America located across the street from the site at 120 East Imperial Highway, the groundwater level recorded on April 18, 2007 was measured at 47 feet below existing site grade.[1]

SEISMIC CONSIDERATIONS

The 2019 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16 and 2019 CBC. The 2019 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped S_1 value greater than or equal 0.2.

However, Section 11.4.8 of ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) states that “In general, this exception effectively limits the requirements for site-specific hazard analysis to very tall and or flexible structures at Site Class D sites.” Based on our understanding of the proposed structures, it is our assumption that the exception in Section 11.4.8 applies to the proposed structure. However, the structural engineer should verify the applicability of this exception.

Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2019 CBC.

Description	Value
Site Classification (CBC) [1]	D [2]
Site Latitude (°N)	33.9162
Site Longitude (°W)	117.8985

[1] *Groundwater elevation was obtained from geotracker (well id: OS-4) advanced by Test America located at 120 East Imperial Highway (https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900455)*

Description	Value
S_s Spectral Acceleration for a 0.2-Second Period	1.799
S_1 Spectral Acceleration for a 1-Second Period	0.633
F_a Site Coefficient for a 0.2-Second Period	1.0
F_v Site Coefficient for a 1-Second Period	1.7
Site Modified Peak Ground Acceleration	0.858g
De-aggregated Modal seismic zone Magnitude [3]	6.26

1. Seismic site classification in general accordance with the *2019 California Building Code*.
2. The 2019 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile determination. Our borings were extended to a maximum depth of 31½ feet. This seismic site class definition considers that similar or denser soils continue below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.
3. These values were obtained using on-line Unified Hazard Tool by the USGS (https://earthquake.usgs.gov/hazards/interactive/) for return period of 2% in 50 years accessed

A site-specific ground motion study may reduce design values and consequently construction costs. We recommend consulting with a structural engineer to evaluate the need for such study and its potential impact on construction costs. Terracon should be contacted if a site-specific ground motion study is desired.

Faulting and Estimated Ground Motions

The site is located in the seismically active southern California area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the Whittier fault zone, which is considered to have the most significant effect at the site from a design standpoint, has a maximum magnitude of 7.27 and is located approximately 3.5 kilometers from the site. Other, more distant faults including the Richfield and Puente Hills sources contribute to the seismic hazard at the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the peak ground acceleration (PGA_M) at the project site is expected to be 0.858 g. Based on the USGS Unified Hazard Tool, the project site has a modal magnitude of 6.26. Furthermore, the site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.

LIQUEFACTION AND SEISMIC SETTLEMENT

Liquefaction Potential

Liquefaction is a mode of ground failure that results from the generation of high pore-water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geological Survey (CGS) has designated certain areas as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table.

The project site is not located within a liquefaction hazard zone as designated by the CGS. Based on CGS maps and the anticipated depth to groundwater, liquefaction hazard potential at the site is considered low. Other geologic hazards related to liquefaction, such as lateral spreading, are therefore also considered low.

GEOTECHNICAL OVERVIEW

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations provided in this report are implemented in the design and construction phases of this project.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and our current understanding of the proposed project.

Expansive soils are present on this site. This report provides recommendations to help mitigate the effects of soil shrinkage and expansion; however, even if these procedures are followed, some movement and at least minor cracking in the structure should be anticipated. The severity of cracking and other cosmetic damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

Based on laboratory test results and expansion potential of the near surface soils, foundations and floor slabs should bear on non-expansive engineered fill consisting of low volume change import soils for support of the proposed structure. The engineered fill should extend to a minimum depth of 2 feet below the bottom of foundations. Grading for the proposed building should incorporate the limits of the footing plus a lateral distance of 3 feet beyond the outside edge of

perimeter footings. The low volume change import fill should conform to the specifications of the *Fill Materials and Placement* section of this report.

On-site soils generally consisted of lean clay with variable amount of sand and sand with variable amount of clay extending to the maximum depth of the borings. Fill material was encountered in Borings B-3 and B-5 to a depth of 2½ ft bgs.

Estimated movements described in this report are based on effective drainage for the life of the structure and cannot be relied upon if effective drainage is not maintained. Exposed ground, extending at least 10 feet from the perimeter, should be sloped a minimum of 5% away from the building to provide positive drainage away from the structure. Grades around the structure should be periodically inspected and adjusted as part of the structure's maintenance program

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

The following recommendations include site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations, slabs, and pavements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

Strip and remove existing vegetation, debris, pavements and other deleterious materials from proposed buildings and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. The site should be initially graded to create a relatively level surface to receive fill and provide for a relatively uniform thickness of fill beneath proposed building structures.

Demolition of the existing building should include complete removal of all foundation systems and remaining underground utilities within the proposed construction area. This should include removal of any loose backfill found adjacent to existing foundations. All materials derived from the demolition of existing structures and pavements should be removed from the site and not be allowed for use as on-site fill, unless processed in accordance with the fill requirements included in this report.

Fill material was encountered in Borings B-3 and B-5 to a depth of 2½ ft bgs. It is apparent that the fill materials are associated with the grading of the existing development onsite. Terracon does not have any documentation to show if the grading operations were monitored or the fill materials have been compacted and tested. Structures that are classified as "occupied structures" in accordance with California Code of Regulations Section 3601 should not be constructed on undocumented fill. We recommend that all fill soils be removed within the proposed building area and the excavation thoroughly cleaned prior to backfill placement and/or construction. If such documentation exists, Terracon should be notified and the recommendations in this report may be appropriately modified.

Although no evidence of underground facilities such as septic tanks, cesspools, basements, and utilities was not observed during the site reconnaissance, such features could be encountered during construction. If unexpected fills or underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Subgrade Preparation

Due to the expansion potential of the near surface soils, foundations and floor slabs should bear on non-expansive engineered fill consisting of low volume change import soils for support of the proposed structure. The engineered fill should extend to a minimum depth of 2 feet below the bottom of foundations. Grading for the proposed building should incorporate the limits of the footing plus a lateral distance of 3 feet beyond the outside edge of perimeter footings. The low volume change import fill should conform to the specifications of the *Fill Materials and Placement* section of this report.

Subgrade soils beneath exterior slabs and pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 10 inches. The moisture content and compaction of subgrade soils should be maintained until slab or pavement construction.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted per the compaction requirements in this report.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Excavation

We anticipate that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Individual contractors are responsible for designing and constructing stable, temporary excavations. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

Fill Material Types

Due to the on-site soils expansion potential, they are not recommended for use as engineered fill beneath foundation and interior floor slabs. Such soils may be used as fill materials for the following:

■ general site grading	■ exterior slab areas
■ pavement areas	

Imported low volume change soils should be used as engineered fill for:

■ interior floor slab areas	■ foundation backfill
■ foundation areas	

If imported soils are used as fill materials to raise grades, these soils should conform to low volume change materials and should conform to the following requirements:

Gradation	**Percent Finer by Weight (ASTM C 136)**
3”	100
No. 4 Sieve	50 - 100
No. 200 Sieve	20 - 50

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 15 (max)
- Maximum Expansive Index* ..... 20 (max)

*ASTM D 4829

The contractor shall notify the Geotechnical Engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" (Class S0) potential for sulfate attack based upon current ACI criteria and is "mildly corrosive" to ferrous

metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness.

Compaction Requirements

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site soils and/or low volume change imported fill:			
Beneath foundations:	90	-1%	+3%
Beneath interior slabs:	90	-1%	+3%
Utility trenches (pavement and structural areas)*:	95	-1%	+3%
On-site native soils			
Beneath asphalt pavements:	95	-1%	+3%
Beneath concrete pavements:	90	-1%	+3%
Utility Trenches (Landscape Areas)*:	90	-1%	+3%
Exterior Slabs:	90	-1%	+3%
Miscellaneous backfill:	90	-1%	+3%
Aggregate base (beneath pavements):	95	-1%	+3%

* Upper 12 inches should be compacted to 95% within pavement and structural areas. Low-volume change imported soils should be used in structural areas.

Utility Trenches

We anticipate that the on-site soils will provide suitable support for underground utilities and piping that may be installed. Any soft and/or unsuitable material encountered at the bottom of excavations should be removed and be replaced with an adequate bedding material. A non-expansive granular material with a sand equivalent greater than 30 is recommended for bedding and shading of utilities, unless otherwise allowed by the utility manufacturer.

On-site materials are considered suitable for backfill of utility and pipe trenches from one foot above the top of the pipe to the final ground surface, provided the material is free of organic matter

and deleterious substances. Imported low volume change soils should be used for trench backfill in structural areas.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

We recommend a minimum horizontal setback distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

Roof drainage should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of foundation walls.

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the structure. Trees and shrubbery should be kept away from the exterior of the structure a distance at least equal to their expected mature height

Exterior Slab Design and Construction

Compacted subgrade composed of on-site clayey soils will expand with increasing moisture content; therefore, exterior concrete slabs may heave, resulting in cracking or vertical offsets. The potential for damage would be greatest where exterior slabs are constructed adjacent to the building or other structural elements. To reduce the potential for damage caused by movement, we recommend:

- exterior slabs should be supported directly on subgrade fill (not ABC) with no, or very low expansion potential;
- strict moisture-density control during placement of subgrade fills;

- maintain proper subgrade moisture until placement of slabs;
- placement of effective control joints on relatively close centers and isolation joints between slabs and other structural elements;
- provision for adequate drainage in areas adjoining the slabs;
- use of designs which allow vertical movement between the exterior slabs and adjoining structural elements.
- placing effective control joints on relatively close centers.

Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

Some onsite soils consist of cohesionless sandy soils. Such soils have the tendency to cave and slough during excavations. Therefore, formwork may be needed for foundation excavations.

On-site clay soils may pump, and unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. The use of light construction equipment would aid in reducing subgrade disturbance. The use of remotely operated equipment, such as a backhoe, would be beneficial to perform cuts and reduce subgrade disturbance.

Should unstable subgrade conditions develop stabilization measures will need to be employed. Stabilization measures may include placement of aggregate base and multi-axial geogrid. Use of lime, fly ash, kiln dust or cement could also be considered as a stabilization technique. Laboratory evaluation is recommended to determine the effect of chemical stabilization on subgrade soils prior to construction.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork operations may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards.

Construction Observation and Testing

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test for every 50 linear feet of compacted utility trench backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event that unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Item	Description
Foundation Support	Engineered fill extending 2 feet below the bottom of foundations.
Net Allowable Bearing pressure [1, 2]	2,500 psf
Minimum Foundation Dimensions	Columns: 24 inches Continuous: 18 inches

Item	Description
Foundation Support	Engineered fill extending 2 feet below the bottom of foundations.
Minimum Footing Depth	18" below finish grade
Ultimate Passive Resistance [4]	360 pcf
Ultimate Coefficient of Sliding Friction [5]	0.36
Estimated Total Static Settlement from Structural Loads [2]	about 1 inch
Estimated Differential Settlement [2, 6]	About 1/2 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.
2. Values provided are for maximum loads noted in **Project Description**. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations.
3. Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in the **Earthwork**.
4. Use of passive earth pressures requires the footing forms be removed and compacted structural fill be placed against the vertical footing face. A factor of safety of 2.0 is recommended.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions. A factor of safety of 1.5 is recommended.
6. Differential settlements are as measured over a span of 40 feet.

Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

To ensure foundations have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings should be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest edge of adjacent trenches.

FLOOR SLABS

DESCRIPTION	RECOMMENDATION
Interior floor system	Slab-on-grade concrete
Floor slab support	Engineered fill extending 2 feet below the bottom of foundations.

DESCRIPTION	RECOMMENDATION
Subbase	Minimum 4-inches of Aggregate Base
Modulus of subgrade reaction	150 pounds per square inch per inch (psi/in) (The modulus was obtained based on estimates obtained from NAVFAC 7.1 design charts). This value is for a small loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

LATERAL EARTH PRESSURES

Design Parameters

For import low volume change materials above any free water surface, recommended equivalent fluid pressures for unrestrained foundation elements are:

ITEM	VALUE[a, b]
Active Case	42 psf/ft
Passive Case	360 psf/ft
At-Rest Case	64 psf/ft
Coefficient of Friction	0.36

[a]Note: The values are based on on-site soils used as backfill.
[b]Note: Uniform, horizontal backfill, compacted to at least 90% of the ASTM D 1557 maximum dry density, rendering a maximum unit weight of 125 pcf.

The lateral earth pressures herein do not include any factor of safety and are not applicable for submerged soils/hydrostatic loading. Additional recommendations may be necessary if such conditions are to be included in the design.

Fill against foundation and retaining walls should be compacted to densities specified in the Earthwork section of this report. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors.

PAVEMENTS

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Pavement Design Parameters

Design of asphalt concrete (AC) pavements is based on the procedures outlined in the Caltrans "Highway Design Manual for Safety Roadside Rest Areas" (Caltrans, 2016). Design of Portland cement concrete (PCC) pavements are based upon American Concrete Institute (ACI) 330R-08; "Guide for Design and Construction of Concrete Parking Lots."

An estimated correlated R-value was used to calculate the AC pavement thickness sections. A modulus of subgrade reaction of 110 pci and a modulus of rupture of 600 psi were used for the PCC pavement designs.

The structural sections are predicated upon proper compaction of the utility trench backfills and the subgrade soils as prescribed by in **Earthwork**, with the upper 12 inches of subgrade soils and all aggregate base material brought to a minimum relative compaction of 95 percent in accordance with ASTM D 1557 prior to paving. The aggregate base should meet Caltrans requirements for Class 2 base.

The pavement designs were based upon the results of preliminary sampling and testing and assumed R-value based on soil conditions encountered. R-value testing should be performed during construction when the actual subgrade soils are exposed.

Pavement Section Thicknesses

The following table provides options for AC and PCC Sections:

Asphalt Concrete Design		
Usage	**Assumed Traffic Index**	**Recommended Structural Section**
Auto Parking Areas	4.5	3" HMA[1]/7" Class 2 AB[2]
Drive lanes	5.5	3" HMA[1]/10" Class 2 AB[2]
Truck Delivery Areas	6.0	3" HMA[1]/12" Class 2 AB[2]

1. HMA = hot mix asphalt
2. AB = aggregate base

Portland Cement Concrete Design			
Layer	**Thickness (inches)**		
	Light Duty[1]	**Medium Duty[2]**	**Dumpster Pad[3]**
PCC	5.0	6.0	7.5
Aggregate Base [4]	4.0	4.0	4.0

1. Car Parking and Access Lanes, Average Daily Truck Traffic (ADTT) = 1 (Category A).
2. Truck Parking Areas, Multiple Units, ADTT = 25 (Category B)
3. In areas of anticipated heavy traffic, fire trucks, delivery trucks, or concentrated loads (e.g., dumpster pads), and areas with repeated turning or maneuvering of heavy vehicles, ADTT = 700 (Category C).
4. Aggregate base is not required. Compacted on-site material is considered competent.

Recommended structural sections were calculated based on assumed TIs and our preliminary assumed value for R-value.

Terracon does not practice traffic engineering. We recommend that the project civil engineer or traffic engineer verify that the TIs and ADTT traffic indices used are appropriate for this project.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2 percent.
- Subgrade and pavement surfaces should have a minimum 2 percent slope to promote proper surface drainage.
- Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

STORM WATER MANAGEMENT

Two (2) in-situ percolation tests were performed at the site and conducted for Project No. 60205098 and was utilize in our analysis. The test were performed to approximate depths of 6 to 25 feet bgs. A 2-inch thick layer of gravel was placed in the bottom of each boring after the borings were drilled to investigate the soil profile. A 3-inch diameter perforated pipe was installed on top of the gravel layer in each boring. Gravel was used to backfill between the perforated pipes and the boring sidewall. The borings were then filled with water for a pre-soak period of 24 hours. Testing began after a pre-soak period. At the beginning of the test, the pipes were refilled with water and readings were taken at standardized time intervals. Percolation rates are provided in the following table:

Test Location	Boring Depth (ft.) [1]	Test Depth Range (ft.) [1]	Soil Type	Water Head (in)	Percolation Rate Average (in./hr.)	Infiltration Rate Average (in./hr.) [2]
P-1	6	0 to 5	CL	38	1	<0.1
P-2	25	19 to 25	CL/SC	34	51.1	2.2

1. Below existing ground surface.
2. If proposed infiltration system will mainly rely on vertical downward seepage, the correlated infiltration rates should be used.

The subsurface profiled is layered with low permeability clay layers and higher permeability sandy soils. Design considerations should be given to the depth of the proposed system and targeting the sandy layers for the bottom of the infiltration systems. Furthermore, design should consider perched water conditions and lateral seepage through the sandy soils within the existing layered soils onsite.

With time, the bottoms of infiltration systems tend to plug with organics, sediments, and other debris. Long term maintenance will likely be required to remove these deleterious materials to help reduce decreases in actual percolation rates.

The percolation tests were performed with clear water, whereas the storm water will likely not be clear, but may contain organics, fines, and grease/oil. The presence of these deleterious materials will tend to decrease the rate that water percolates from the infiltration systems. Design of the stormwater infiltration systems should account for the presence of these materials and should incorporate structures/devices to remove these deleterious materials. A safety factor should be applied to these measured rates.

Based on the soils encountered in our borings, we expect the percolation rates of the soils could be different than measured in the field due to variations in fines and gravel content. The design elevation and size of the proposed infiltration system should account for this expected variability in infiltration rates.

Infiltration testing should be performed after construction of the infiltration system to verify the design infiltration rates. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the infiltration areas. The actual infiltration rate may vary from the values reported here. Infiltration systems should be located a minimum of 10 feet from any existing or proposed foundation system.

CORROSIVITY

The following table lists the laboratory electrical resistivity (standard and as-received), chlorides, soluble sulfates, and pH testing results. These values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Boring	Depth (feet)	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)	Total Salts (mg/kg)	pH	Resistivity (as-received) (Ohm-cm)	Resistivity (saturated) (Ohm-cm)
B-4	0 to 3	342	37	1394	8.5	8924	1067

1. Test performed according to ASTM; G51, C1580, D512, G57 and AWWA 2540

Boring	Sample Depth (ft.) [1]	Soluble Sulfate (%) [1]	Electrical Resistivity (Ohm-cm) [1]	Chlorides (ppm) [1]	pH
B-2	0 to 3	0.0312	4,000	101	7.1

1. Test performed according to CT. 643, CT. 417, CT.422

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 19.3.1.1 of the ACI Building Code Requirements. Concrete should be designed in accordance with the provisions of the ACI Building Code Requirements Manual, Section 318, Chapter 19.

For protection against corrosion to buried metals, Terracon recommends that an experienced corrosion engineer be retained to design a suitable corrosion protection system for underground metal structures or components.

If corrosion of buried metal is critical, it should be protected using a non-corrosive backfill, wrapping, coating, sacrificial anodes, or a combination of these methods, as designed by a qualified corrosion engineer.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather.

The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Initially, six borings were proposed for our scope of work however due to accessibility restrictions only four borings were drilled. Terracon conducted four soil-testing borings. These borings were planned to the following extended depths below existing grades.

Number of Borings	Boring Depth (feet) [1]	Location
4	21 ½ to 31 ½	Planned building area and Planned parking/driveway area

1. Below ground surface.

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet) and approximate elevations were obtained by interpolation from the Google Earth. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advance the borings with a truck-mounted drill rig using hollow-stem augers. Both a standard penetration test (SPT) sampler (2-inch outer diameter and 1-3/8-inch inner diameter) and a modified California ring-lined sampler (3-inch outer diameter and 2-3/8-inch inner diameter) are utilized in our investigation. The penetration resistance is recorded on the boring logs as the number of hammer blows used to advance the sampler in 6-inch increments (or less if noted). The samplers are driven with an automatic hammer that drops a 140-pound weight 30 inches for each blow. After the required seating, samplers are advanced up to 18 inches, providing up to three sets of blowcounts at each sampling interval. The sampling depths, penetration distances, and other sampling information are recorded on the field boring logs. The recorded blows are raw numbers without any corrections for hammer type (automatic vs. manual cathead) or sampler size (ring sampler vs. SPT sampler). Relatively undisturbed and bulk samples of the soils encountered are placed in sealed containers and returned to the laboratory for testing and evaluation.

We observe and record groundwater levels during drilling and sampling. For safety purposes, all borings are backfilled with auger cuttings after their completion.

Our exploration team prepares field boring logs as part of the drilling operations. These field logs include visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs are prepared from the field logs. The

final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- Water (Moisture) Content of Soil by Mass
- Laboratory Determination of Density (Unit Weight) of Soil Specimens
- Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
- Atterberg Limits test
- Corrosivity suite test

The laboratory testing program often included examination of soil samples by an engineer. Based on the material’s texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

SITE LOCATION

Proposed Brea Gaslight Square Development ■ Brea, Orange County, California
May 12, 2022 ■ Terracon Project No. CB225046

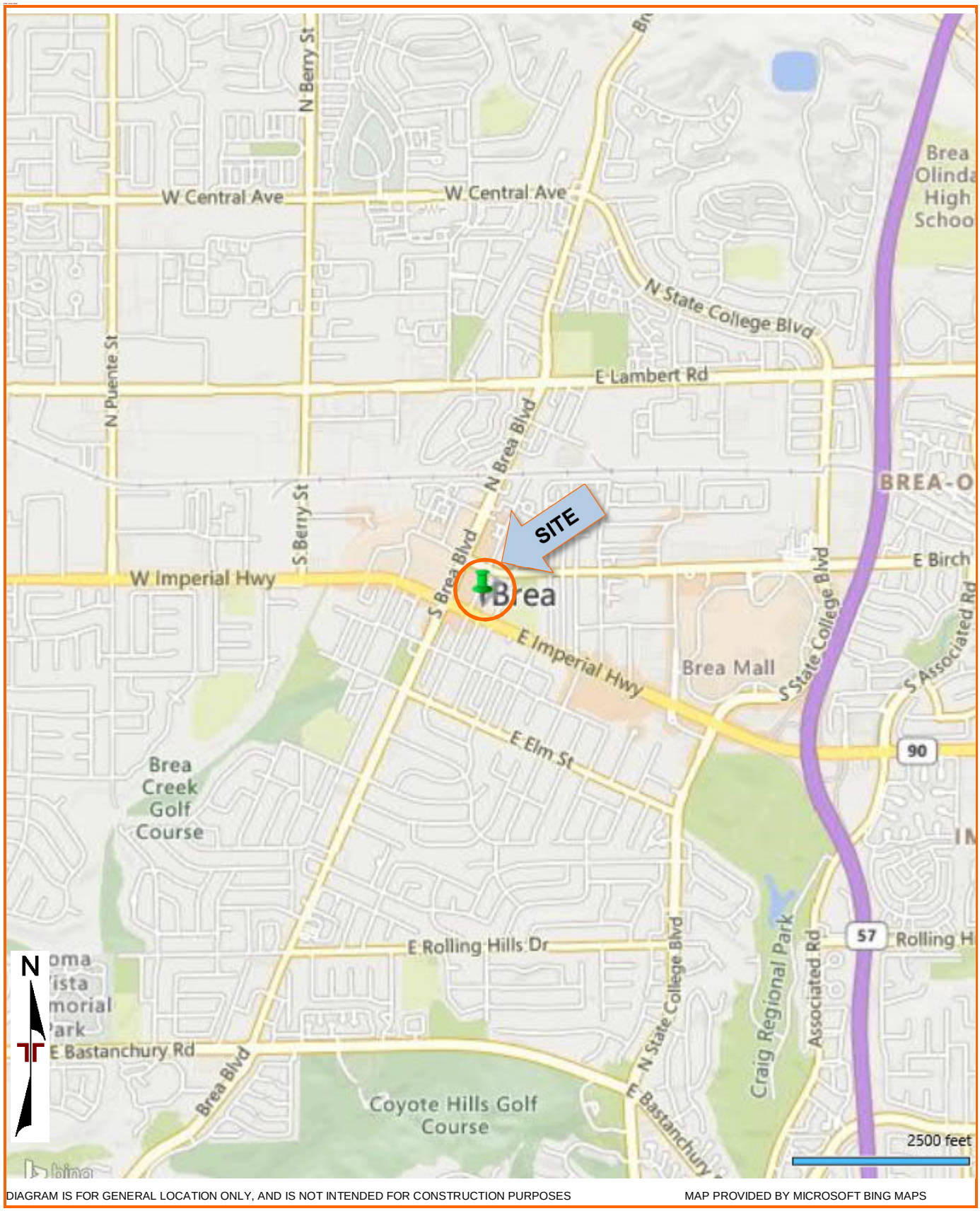


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Proposed Brea Gaslight Square Development ■ Brea, Orange County, California
May 12, 2022 ■ Terracon Project No. CB225046



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

BORING LOG NO. B-3

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9164° Longitude: -117.8987°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.6		**ASPHALT**, 7" thickness												
1.0		**AGGREGATE BASE COURSE**, 5" thickness											30-18-12	1
2.5		**FILL - POORLY GRADED SAND (SP)**, dark brown												
		SANDY LEAN CLAY (CL), dark brown, very stiff				4-10-14					14.4	97		
			5			3-10-17					14.1	117		
7.5		**CLAYEY SAND (SC)**, reddish brown, medium dense				5-13-17					14.2	103		28
10.0		**LEAN CLAY WITH SAND (CL)**, reddish brown, very stiff	10			3-8-16					18.1	107		
15.0		**SANDY LEAN CLAY (CL)**, trace sand, reddish brown, stiff	15			3-5-6 N=11								
		very stiff	20			6-7-11 N=18								68
		stiff	25			3-4-11 N=15								
30.0		**SILTY CLAYEY SAND (SC-SM)**, reddish brown, medium dense	30			5-5-5 N=10								
31.5		***Boring Terminated at 31.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

BORING LOG NO. B-4

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9163° Longitude: -117.8986°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.5		**ASPHALT**, 6" thickness												
0.8		**AGGREGATE BASE COURSE**, 4" thickness												56
		SANDY LEAN CLAY (CL), dark brown reddish brown, very stiff				4-10-17					16.6	111		
			5			4-11-19					15.1	113		
7.5		**CLAYEY SAND (SC)**, reddish brown, medium dense				4-11-22					14.6	111		42
10.0		**SANDY LEAN CLAY (CL)**, reddish brown, very stiff	10			3-11-19					18.7	97		
			15			7-9-14 N=23								
			20			7-11-17 N=28								
25.0		**SILTY CLAYEY SAND (SC-SM)**, light brown, medium dense	25			10-11-19 N=30								
30.0		**SANDY SILTY CLAY (CL-ML)**, brown, stiff	30			8-7-8 N=15								
31.5		***Boring Terminated at 31.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

BORING LOG NO. B-5

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8986°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.5		**ASPHALT**, 6.5" thickness												
0.9		**AGGREGATE BASE COURSE**, 4" thickness											42-20-22	3
2.5		**FILL - POORLY GRADED SAND (SP)**, reddish brown												
		SANDY LEAN CLAY (CL), reddish brown, very stiff				6-8-13					17.5	102		
			5			5-11-17					15.2	112		
7.5		**CLAYEY SAND (SC)**, trace gravel, reddish brown, medium dense				6-9-10					17.1	101		37
10.0		**SANDY LEAN CLAY (CL)**, reddish brown, very stiff	10			5-11-19					11.9	107		
			15			4-8-11 N=19								
20.0		**LEAN CLAY (CL)**, brown, hard	20			11-16-20 N=36								
25.0		**POORLY GRADED SAND WITH CLAY (SP-SC)**, trace gravel, reddish brown, dense	25			13-14-20 N=34								
30.0		**CLAYEY SAND (SC)**, trace micaceous gravel, reddish brown, medium dense	30			10-9-8 N=17								
31.5		***Boring Terminated at 31.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

BORING LOG NO. B-6

PROJECT: Proposed Brea Gaslight Square

CLIENT: One Berry LLC
Brea, CA

SITE: 255 E. Imperial Hwy.
Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9165° Longitude: -117.8988°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Expansion Index	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.4		**ASPHALT**, 5" thickness					Expansion Index = 37						38-19-19	59
0.7		**AGGREGATE BASE COURSE**, 3.5" thickness												
		SANDY LEAN CLAY (CL), brown very stiff				5-12-22					15.0	118		
			5			4-13-20					12.1	115		
						6-13-21					10.3	111		
10.0		**LEAN CLAY WITH SAND (CL)**, reddish brown, very stiff	10			2-9-14					20.7	118		
15.0		**LEAN CLAY (CL)**, trace sand, reddish brown, stiff	15			3-6-7 N=13								
			20			3-6-9 N=15								
21.5		***Boring Terminated at 21.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
8" Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 04-22-2022 | Boring Completed: 04-22-2022

Drill Rig: D-90 | Driller: Terracon

Project No.: CB225046

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/12/22

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
One Berry LLC

Project
Proposed Brea Gaslight Square

Sample Submitted By: Terracon (CB) **Date Received:** 4/28/2022 **Lab No.: 22-0338**

Results of Corrosion Analysis

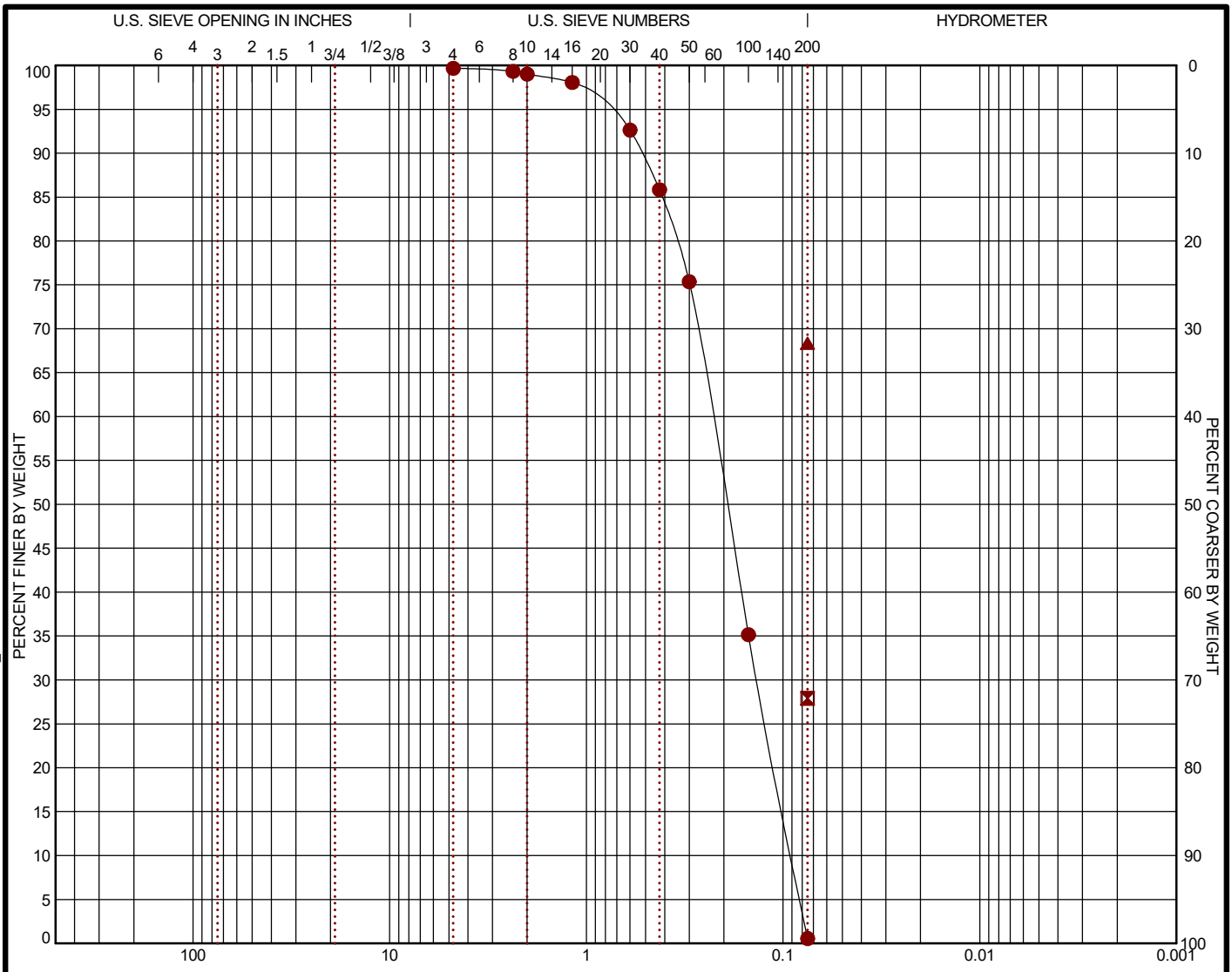
Sample Number	--
Sample Location	B-4
Sample Depth (ft.)	0.0
pH Analysis, ASTM G 51	8.54
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	342
Chlorides, ASTM D 512, (mg/kg)	37
Total Salts, AWWA 2540, (mg/kg)	1394
As-Received Resistivity, ASTM G 57, (ohm-cm)	8924
Saturated Minimum Resistivity, ASTM G 57, (ohm-cm)	1067

Analyzed By:
Nathan Campo
Engineering Technician II

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	**B-3**	**0 - 2.5**			**99.1**		**0.5**		**SP**
⊠	**B-3**	**7.5 - 9**					**27.9**		
▲	**B-3**	**20 - 21.5**					**68.4**		

	GRAIN SIZE		
	●	⊠	▲
D_{60}	**0.23**		
D_{30}	**0.135**		
D_{10}	**0.091**		
	COEFFICIENTS		
C_C	**0.88**		
C_U	**2.54**		

●		⊠		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#4	99.66	#200	27.92	#200	68.36
#8	99.31				
#10	99.0				
#16	98.06				
#30	92.63				
#40	85.84				
#50	75.36				
#100	35.15				
#200	0.54				

SOIL DESCRIPTION
● POORLY GRADED SAND (SP)
⊠
▲

REMARKS
●
⊠
▲

PROJECT: Proposed Brea Gaslight Square

SITE: 255 E. Imperial Hwy.
Brea, CA

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB225046

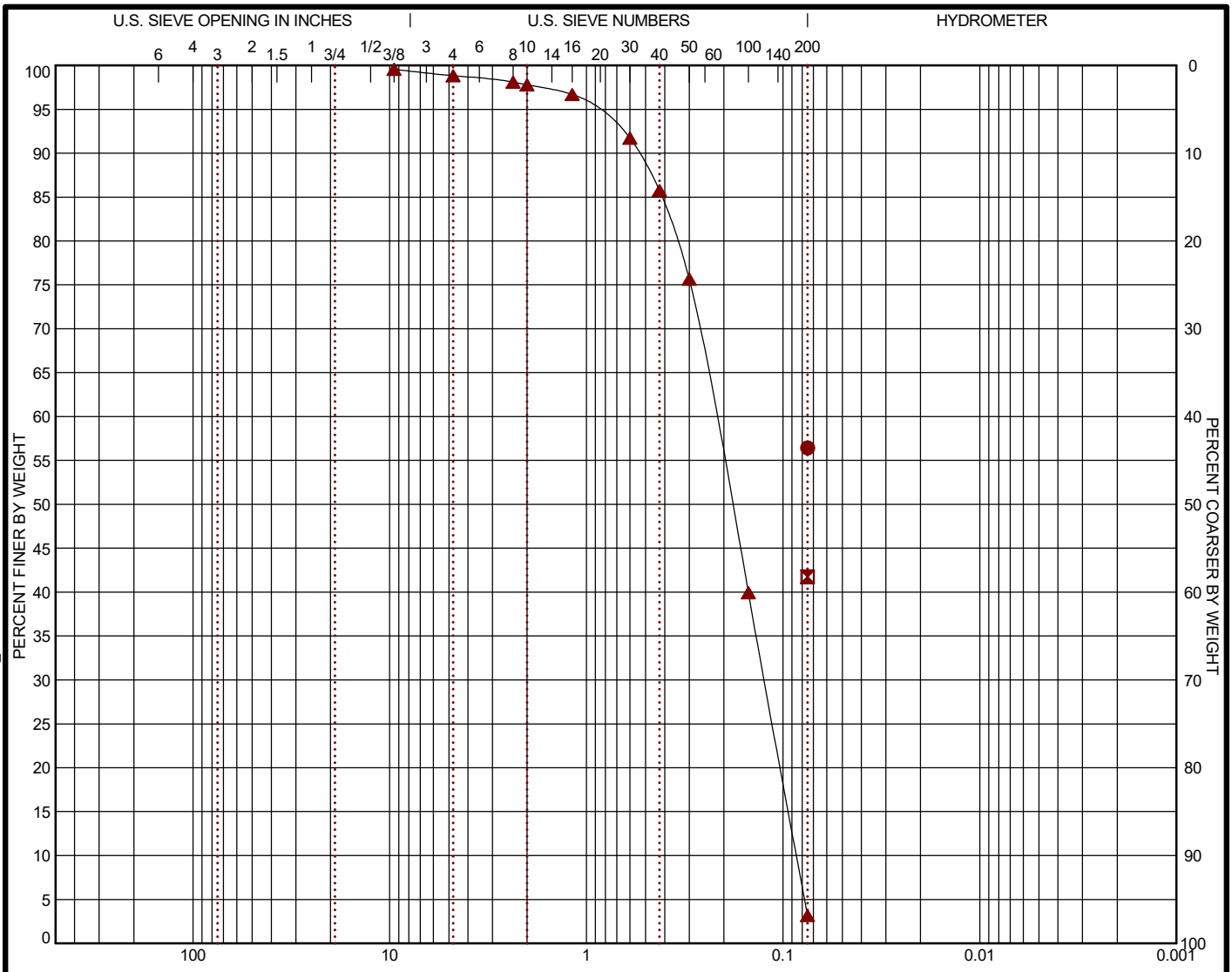
CLIENT: One Berry LLC
Brea, CA

EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/11/22

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	**B-4**	**0 - 2.5**					**56.4**		
⊠	**B-4**	**7.5 - 9**					**41.8**		
▲	**B-5**	**0 - 2.5**		**0.7**	**95.7**		**3.2**		**SP**

	GRAIN SIZE		
	●	⊠	▲
D_{60}			**0.221**
D_{30}			**0.124**
D_{10}			**0.085**
	COEFFICIENTS		
C_C			**0.82**
C_U			**2.59**

●		⊠		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#200	**56.43**	**#200**	**41.76**	**3/8"**	**99.56**
				#4	**98.83**
				#8	**98.1**
				#10	**97.78**
				#16	**96.69**
				#30	**91.71**
				#40	**85.77**
				#50	**75.65**
				#100	**39.94**
				#200	**3.15**

SOIL DESCRIPTION

●

⊠

▲ POORLY GRADED SAND (SP)

REMARKS

●

⊠

▲

PROJECT: Proposed Brea Gaslight Square

SITE: 255 E. Imperial Hwy.
Brea, CA

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB225046

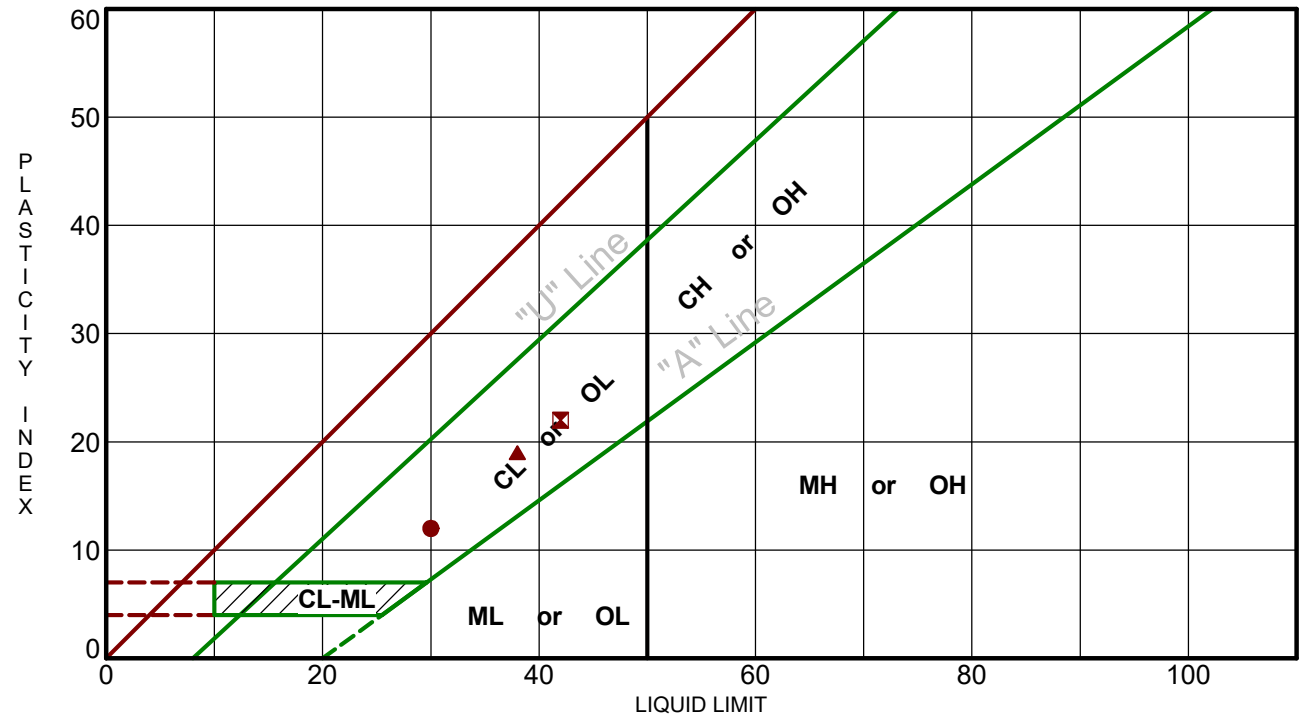
CLIENT: One Berry LLC
Brea, CA

EXHIBIT: B-2

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/11/22

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
● B-3	0 - 2.5	30	18	12	0.5	SP	POORLY GRADED SAND
⊠ B-5	0 - 2.5	42	20	22	3.2	SP	POORLY GRADED SAND
▲ B-6	0 - 2.5	38	19	19	59.1	CL	SANDY LEAN CLAY

PROJECT: Proposed Brea Gaslight Square

SITE: 255 E. Imperial Hwy.
Brea, CA

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB225046

CLIENT: One Berry LLC
Brea, CA

EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS CB225046 PROPOSED BREA GAS.GPJ TERRACON_DATATEMPLATE.GDT 5/11/22

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
One Berry LLC

Project
Proposed Brea Gaslight Square

Sample Submitted By: Terracon (CB) **Date Received:** 4/28/2022 **Lab No.: 22-0338**

Results of Corrosion Analysis

Sample Number	--
Sample Location	B-4
Sample Depth (ft.)	0.0
pH Analysis, ASTM G 51	8.54
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	342
Chlorides, ASTM D 512, (mg/kg)	37
Total Salts, AWWA 2540, (mg/kg)	1394
As-Received Resistivity, ASTM G 57, (ohm-cm)	8924
Saturated Minimum Resistivity, ASTM G 57, (ohm-cm)	1067

Analyzed By:
Nathan Campo
Engineering Technician II

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

BORING LOG NO. B-1

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8984°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.3		**ASPHALT**, 3" Thickness												
0.5		**AGGREGATE BASE COURSE**, 3" Thickness												
		SANDY LEAN CLAY (CL), brown					59						36-16-20	64
		very stiff				7-13-27					17	112		
			5			18-12-14 N=26								
						4-11-13					17	108		
			10			5-8-8 N=16								
15.0		**LEAN CLAY (CL)**, trace sand, dark brown, hard	15			16-22-26					19	100		
20.0		**SILTY CLAYEY SAND (SC-SM)**, brown, medium dense	20			6-10-11 N=21								
25.0		**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown, very dense	25			14-21-33 N=54								
26.5		***Boring Terminated at 26.5 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. B-2

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9159° Longitude: -117.8982°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
0.5		**ORGANIC CLAY WITH SAND (OL)**, dark brown to black												
		SANDY LEAN CLAY (CL), dark brown											27-13-14	63
		stiff				3-4-5 N=9								
		brown, hard	5			11-20-28					14	116		
		very stiff				6-8-8 N=16								
10.0		**LEAN CLAY WITH SAND (CL)**, brown, very stiff	10			8-16-19					17	110		
15.0		**SANDY LEAN CLAY (CL)**, brown, hard	15			12-15-22 N=37								
20.0		**SILTY SAND (SM)**, light brown, dense	20			21-32-30					14	115		
25.0		**POORLY GRADED SAND WITH SILT (SP-SM)**, dark tan, very dense	25			24-33-50/4"					4	111		
26.3		***Boring Terminated at 26.33 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings and surface capped with sod

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-1

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.916° Longitude: -117.8986° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	0.5 **ORGANIC CLAY WITH SAND (OL)**, dark brown **SANDY LEAN CLAY (CL)**, brown 5.0												
	Boring Terminated at 5 Feet	5											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings and surface capped with sod

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-02-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-2

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8982°

DEPTH	GRAPHIC LOG	DESCRIPTION
0.3		**ASPHALT**, 3" Thickness
0.5		**AGGREGATE BASE COURSE**, 3" Thickness
2.5		**LEAN CLAY WITH SAND (CL)**, dark brown to brown
		SANDY LEAN CLAY (CL), brown
20.0		**CLAYEY SAND (SC)**, brown
25.0		***Boring Terminated at 25 Feet***

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
5											
10											
15											
20											
25											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-02-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-3

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9163° Longitude: -117.8984°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	0.3 **ASPHALT**, 3" Thickness 0.6 **AGGREGATE BASE COURSE**, 4" Thickness **LEAN CLAY WITH SAND (CL)**, dark brown to brown	5											
	6.0 ***Boring Terminated at 6 Feet***												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

BORING LOG NO. P-4

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

SITE: West Imperial Highway &
South Flower Avenue, Brea, CA

LOCATION See Exploration Plan

Latitude: 33.9162° Longitude: -117.8981°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	0.2 **ASPHALT**, 2" Thickness 0.5 **AGGREGATE BASE COURSE**, 4" Thickness **LEAN CLAY WITH SAND (CL)**, dark brown to brown 6.0	5											
	Boring Terminated at 6 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

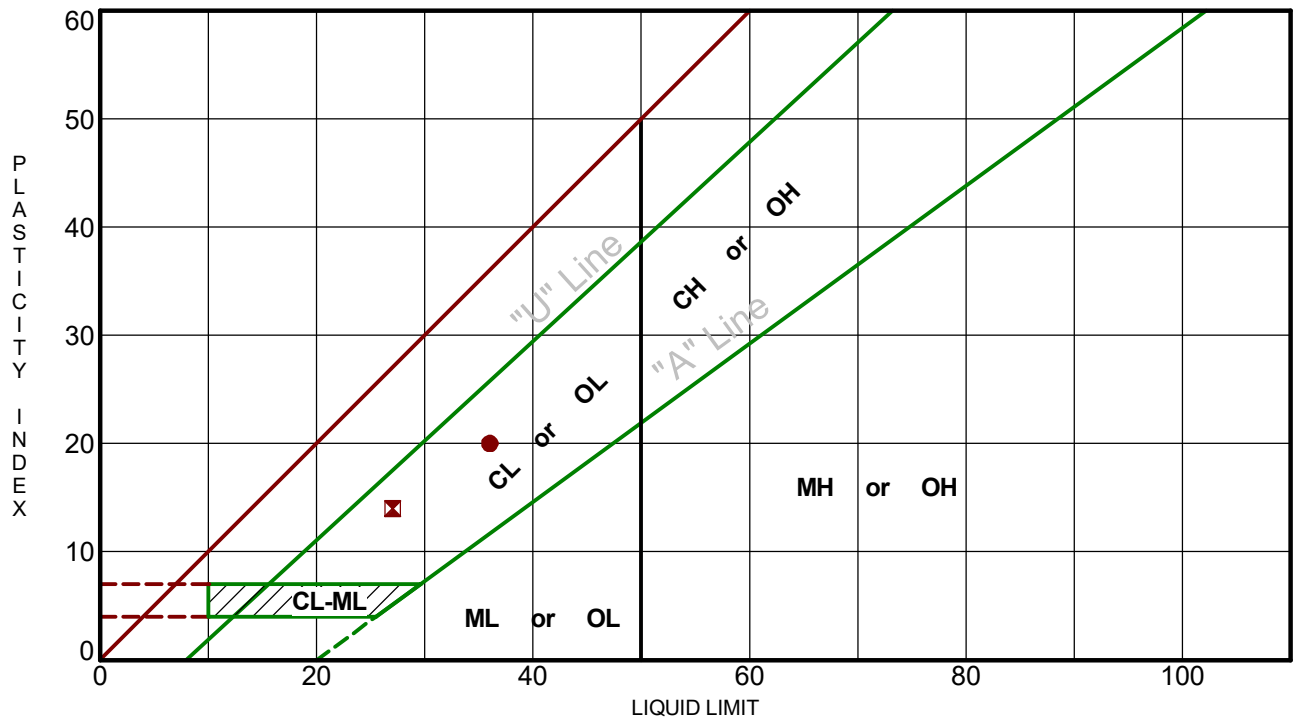
Drill Rig: D-90 | Driller: Terracon

Project No.: 60205098

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/10/20

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth	LL	PL	PI	Fines	USCS	Description
●	B-1	0.5 - 3	36	16	20	63.8	CL	SANDY LEAN CLAY
⊠	B-2	0 - 3	27	13	14	62.6	CL	SANDY LEAN CLAY

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

PROJECT NUMBER: 60205098

SITE: West Imperial Highway & South Flower Avenue, Brea, CA

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/11/20

ANAHEIM TEST LAB, INC

196 Technology Drive, Unit D
Irvine, CA 92618
Phone (949)336-6544

Terracon Consultants, Inc.
1421 Edinger Ave.
Tustin, CA 92780

DATE: 06/09/2020

P.O. NO.: Chain of Custody

LAB NO.: C-3851

SPECIFICATION: CTM-643/417/422

MATERIAL: Soil

Project No.: 60205098
Project: Raising Cane's Restaurant
(RC: 550) Brea
Sample ID: B-2 @ 0-3'

ANALYTICAL REPORT

CORROSION SERIES

SUMMARY OF DATA

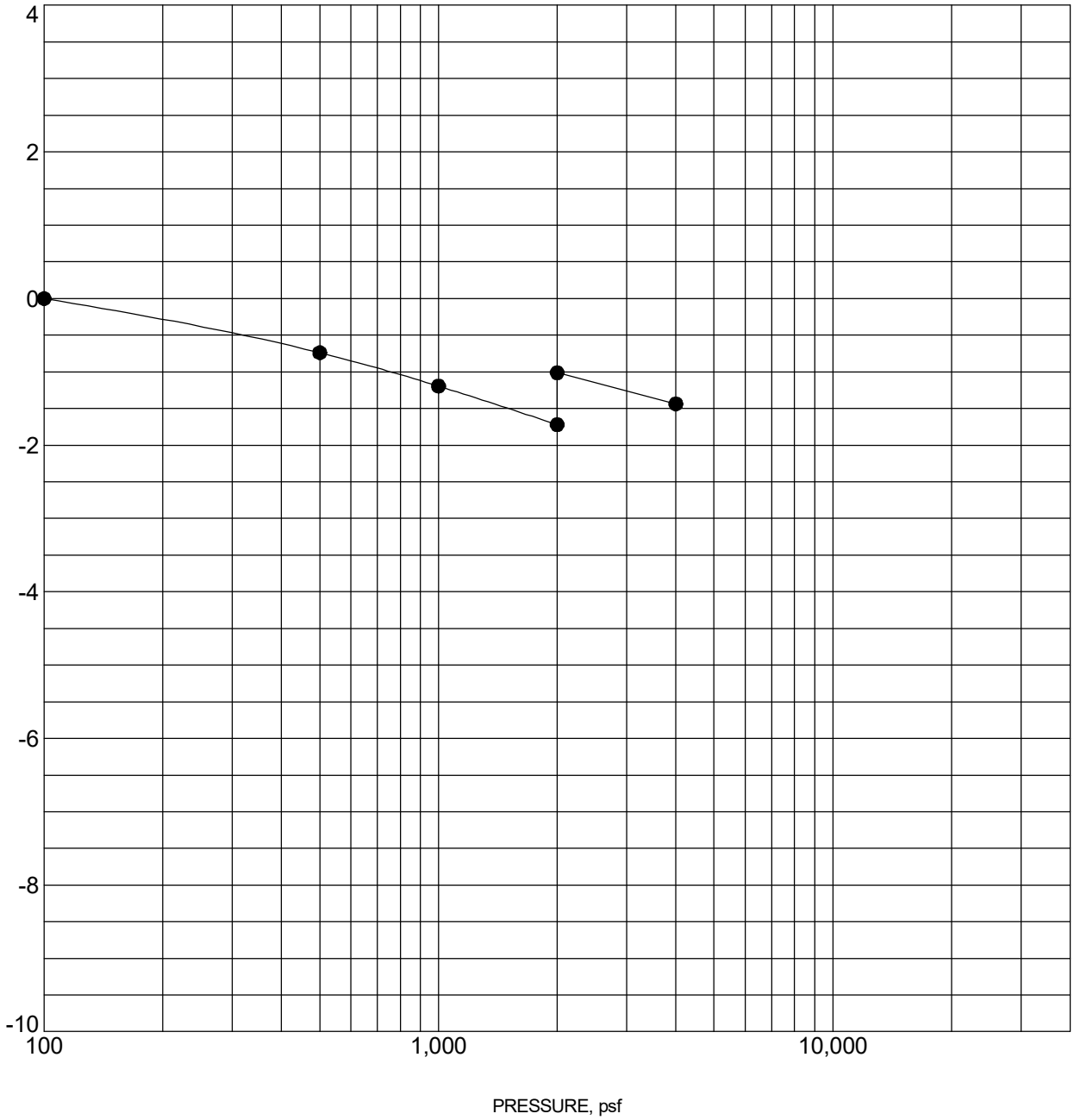
pH	MIN. RESISTIVITY per CT. 643 ohm-cm	SOLUBLE SULFATES per CT. 417 (% by weight)	SOLUBLE CHLORIDES per CT. 422 ppm
7.1	4,000	0.0312%	101

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

SWELL CONSOLIDATION TEST

ASTM D4546



Specimen Identification			Classification	γ_d, pcf	WC, %
●	B-1	3 - 4.5 ft	SANDY LEAN CLAY (CL)	112	17

NOTES: Water added at 2,000 psf

PROJECT: Raising Cane's Restaurant (RC: 550) - Brea

SITE: West Imperial Highway & South Flower Avenue, Brea, CA

Terracon
1421 Edinger Ave, Ste C
Tustin, CA

PROJECT NUMBER: 60205098

CLIENT: Raising Cane's Restaurants, LLC
Plano, TX

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC_CONSOL_STRAIN-USCS 60205098 RAISING CANE'S RE.GPJ TERRACON_DATATEMPLATE.GDT 6/12/20

TERRACON

DATE: 6/5/2020 **P.N. :** 6E+07

CLIENT : Raising Canes **TECH:** M. Safaie

SITE: RC No. 550 - Brea

EXPANSION INDEX TEST

Location of sample	B-1	
Depth	0-3'	
Soil Classification	Sandy Lean Clay	
Wet Weight + Ring (gm)	589.4	
Ring Weight (gm)	182.5	
Wet Weight (gm)	406.9	
Wet Weight (lb.)	0.896	
Volume of Wet Soil	0.0073	
Wet Density (γ) lb./ft3	122.8	
% Moisture (W)	9.7	
Dry Density (γD) lb./ft3	111.9	
% Saturation = W/((62.4/γD) - (1/2.7))	51.8	
Initial Dial Reading	0.016	
Initial Time	2P.M.	
Final Dial Reading	0.075	
Final Time (Next Day)	2 P.M.	
Expansion Index	**59**	

SUPPORTING INFORMATION

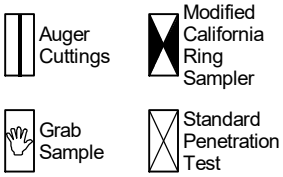
Contents:

General Notes
Unified Soil Classification System

GENERAL NOTES
DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Terracon GeoReport

SAMPLING



WATER LEVEL



Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Cave In Encountered

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

N	**Standard Penetration Test Resistance (Blows/Ft.)**
(HP)	**Hand Penetrometer**
(T)	**Torvane**
(DCP)	**Dynamic Cone Penetrometer**
UC	**Unconfined Compressive Strength**
(PID)	**Photo-Ionization Detector**
(OVA)	**Organic Vapor Analyzer**

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS

(More than 50% retained on No. 200 sieve.)
Density determined by Standard Penetration Resistance

Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6
Loose	4 - 9	7 - 18
Medium Dense	10 - 29	19 - 58
Dense	30 - 50	59 - 98
Very Dense	> 50	> 99

CONSISTENCY OF FINE-GRAINED SOILS

(50% or more passing the No. 200 sieve.)
Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (tsf)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Soft	less than 0.25	0 - 1	< 3
Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Stiff	0.50 to 1.00	4 - 8	5 - 9
Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Stiff	2.00 to 4.00	15 - 30	19 - 42
Hard	> 4.00	> 30	> 42

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu ≥ 4 and 1 ≤ Cc ≤ 3 [E]		GW	Well-graded gravel [F]
			Cu < 4 and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu ≥ 6 and 1 ≤ Cc ≤ 3 [E]		SW	Well-graded sand [I]
			Cu < 6 and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

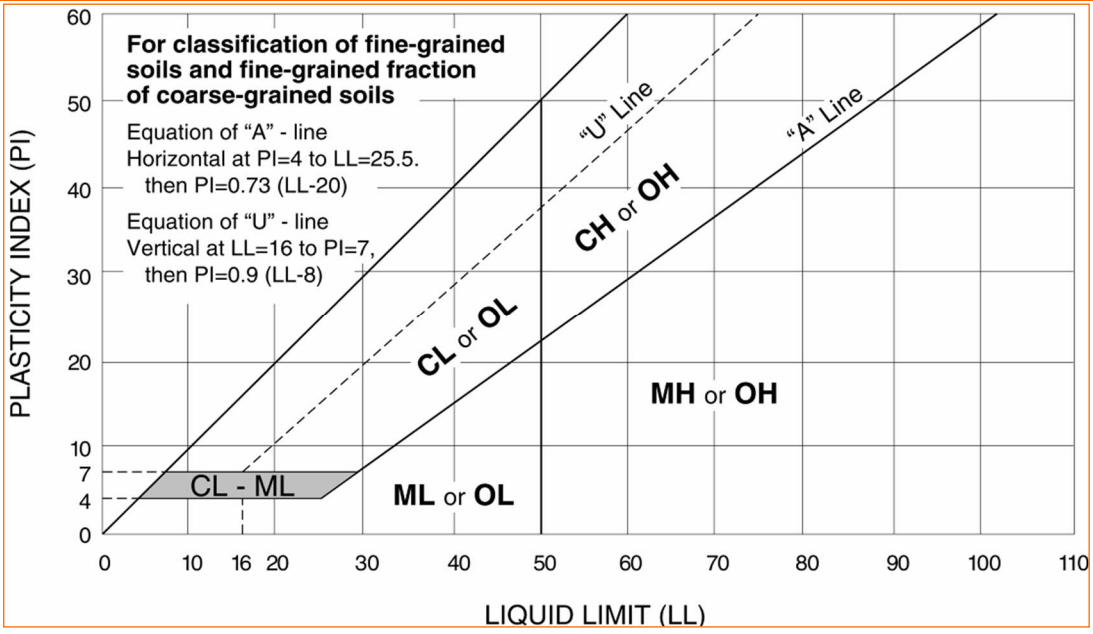
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

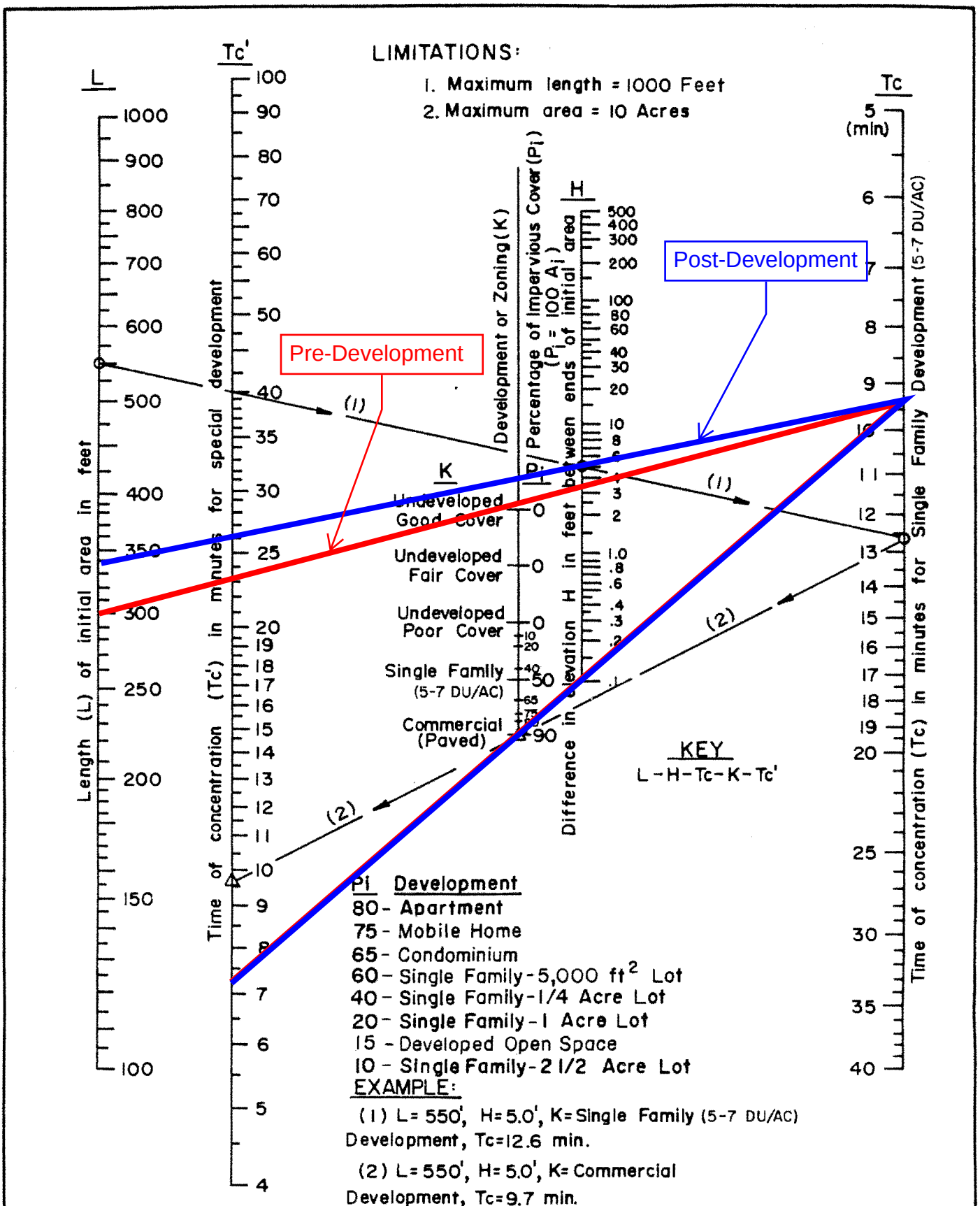
[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



ATTACHMENT F

LID Calculations



ORANGE COUNTY

HYDROLOGY MANUAL

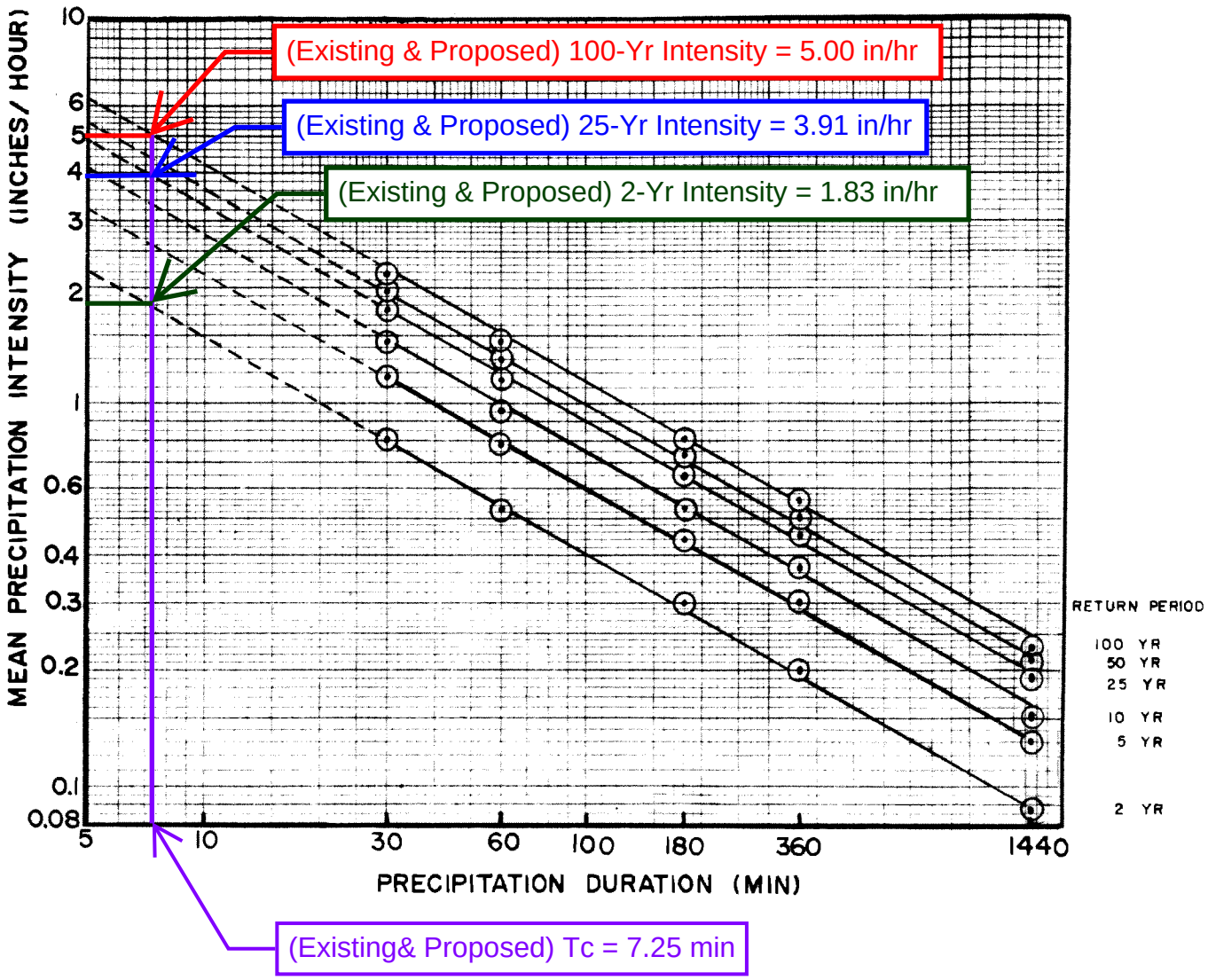
TIME OF CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA

Figure D-1

Regression Equations: $I(t) = at^b$

(I= Intensity in inches/hour, t= duration in minutes)

Return Frequency (years)	a	b
2	5.702	-0.574
5	7.870	-0.562
10	10.209	-0.573
25	11.995	-0.566
50	13.521	-0.566
100	15.560	-0.573



ORANGE COUNTY
HYDROLOGY MANUAL

MEAN PRECIPITATION INTENSITIES FOR NONMOUNTAINOUS AREAS

Figure B-3

Brea Gaslight Square

2 Year Runoff using Rational Method per the OC Hydrology Manual

5/24/2022

Exisiting Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	
Total Area, sf	19,462	22,114	24,225	15,198	6,993	
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	
Impervious Area, sf	14,079	16,566	19,685	12,493	6,993	
Impervious Area, acres	**0.32**	**0.38**	**0.45**	**0.29**	**0.16**	
Pervious Area, sf	5,383	5,548	4,540	2,705	0	
Pervious Area, acres	**0.12**	**0.13**	**0.10**	**0.06**	**0.00**	
Impervious Area Fraction (a_I)	0.72	0.75	0.81	0.82	1.00	
Pervious Area Fraction (a_P)	0.28	0.25	0.19	0.18	0.00	
Maximum Los Rates, F_m (in/hr)	0.06	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.25	7.25	7.25	7.25	7.25	
2-year Intensity, I (in/hr)	1.83	1.83	1.83	1.83	1.83	
Runoff Coefficient, C	0.87	0.88	0.88	0.88	0.90	
2-Year Peak Flow Rate Runoff, Q (cfs)	**0.713**	**0.813**	**0.897**	**0.563**	**0.264**	**3.250**

Proposed Conditions

	DMA 1B	DMA 2B	DMA 1A	DMA 2A	DMA 3	
Total Area, sf	19,462	22,114	24,225	15,198	6,993	
Total Area, acres	**0.45**	**0.51**	**0.56**	**0.35**	**0.16**	
Impervious Area, sf	15,485	16,229	19,685	12,493	6,993	
Impervious Area, acres	**0.36**	**0.37**	**0.45**	**0.29**	**0.16**	
Pervious Area, sf	3,977	5,885	4,540	2,705	0	
Pervious Area, acres	**0.09**	**0.14**	**0.10**	**0.06**	**0.00**	
Impervious Area Fraction (a_I)	0.80	0.73	0.81	0.82	1.00	
Pervious Area Fraction (a_P)	0.20	0.27	0.19	0.18	0.00	
Maximum Los Rates, $F_{m\ (in/hr)}$	0.04	0.05	0.04	0.04	0.00	
Time of Concentration, t (min)	7.26	7.25	7.25	7.25	7.25	
2-year Intensity, I (in/hr)	1.83	1.83	1.83	1.83	1.83	
Runoff Coefficient, C	0.88	0.87	0.88	0.88	0.90	
2-Year Peak Flow Rate Runoff, Q (cfs)	**0.718**	**0.811**	**0.897**	**0.563**	**0.264**	**3.253**

Differential in Runoff Flowrate, cfs = 0.0032

Post / Pre Runoff = **1.0010** <1.00% Increase

Notes:

1) Rational Method - Peak Flow Rate (Q) = Runoff Coefficient (C) x 100 Year Intensity (in/hr) x Area (acres) - per OC Hydrology Manual section D.1
2) Runoff Coefficient, C (I > Fp) - per OC Hydrology Manual section D.5
3) 2-year rainfall intensity, I(t) = a(t^b) - per OC Hydrology Manual Figure B.3
4) Maximum Loss Rate (in/hr), Fm = apFp (Fp = 0.2 [Soil Type D]) - per OC Hydrology Manual section C.6.5

Worksheet B: Simple Design Capture Volume Sizing Method DMA 1A & 1B

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.89	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.89	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	1.00	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.81	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.75	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	2,442	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	51.1	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=	2.25	
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=	22.71	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	48	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} x T x (1/12)$	D_{max}=	90.8	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	26.8	sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

*Underground dry well system DW-1 for DMA's 1A and 1B 48-hour drawdown of 5,702 CF exceeds the required Design Capture Volume of 2,442 CF. Refer to Dry Well Sizing Sheet attached hereon for more information.

Worksheet B: Simple Design Capture Volume Sizing Method DMA 2B

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.89	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.89	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.86	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.77	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.73	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	2013	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	51.1	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=	2.25	
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=	22.71	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	48	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} x T x (1/12)$	D_{max}=	90.8	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	22.2	sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

*Underground dry well system DW-2 for DMA's 2A and 2B 48-hour drawdown of 5,702 CF exceeds the required Design Capture Volume of 2,013 CF. Refer to Dry Well Sizing Sheet attached hereon for more information.

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	3	0.75
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1.5
B	Design	Tributary area size	0.25	1	0.25
		Level of pretreatment/ expected sediment loads	0.25	1	0.25
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_B = \Sigma p$			1.5
Combined Safety Factor, $S_{Total} = S_A \times S_B$					2.25
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					51.1
Design Infiltration Rate, in/hr, $K_{DESIGN} = K_{Observed} / S_{Total}$					22.71

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

Infiltration rate provided is based on the 19-25 feet depth percolation test rates observed in the field. Prior to the installation of the underground system the contractor shall perform in-situ testing to verify values presented in this report.

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Dry Well and Underground Storage Vault Calculations

Raising Cane's - Brea
09/12/2022

Dry Well – BMP IDs: (DW-1 AND DB-1)
Field Percolation Rate: 51.1 in/hr
Factor of Safety: 2.25

Design Percolation Rate:
(51.1 in/hr) / 2.25 = **22.71 in/hr**
22.71 in/hr x (1hr/3600s) x (1ft/12in) = **0.0005257 ft/s**

Drywell Percolation Rate:
Percolation occurs between 21 feet and 25 feet below grade. This provides 4 feet of infiltration depth in addition to the bottom area:

Surface Area of drywell shaft – 4' diameter drywell
3.14 x 2^2 x 4' = **50.24 sf**

Bottom Area – total is equivalent to a 4' diameter circle
3.14 x 2^2 = **12.56 sf**

The Total Percolation Surface Area Available
12.56 sf + 125.66 sf = **62.80 sf**

Total Available Percolation Flowrate:
Design Percolation Rate * Percolation Surface Area Available
0.0005257 ft/s * 62.80 sf = **0.033 cfs**

48-Hour Drawdown Volume Available per drywell
Available Percolation Flowrate (3600 s / 1 hr) (48 hours per storm event)
0.033 cfs*(3600 s/1 hr)*(48 hr) = **5,702.4 CF per drywell**

Static Storage DCV

Drywell storage, DW-1
Settling chamber = 12.57 SF x 16' = 201.1 CF
Gravel area = (7' x 12.57 SF x 0.4 porosity) + (2' x 28.27 SF x 0.4 porosity) = 58.5 CF
Total available storage available from storage = 201.1 CF + 58.5 CF = **259 CF**

Detention vault storage, DB-1
Inner dimensions: length 24.00' x 32.00' x 3.35' = **2,572 CF**

DMAs 1A & 1B
Due to the high percolation rates available at this site, the drywell, DW-1, 48-hour drawdown volume available of 5,702 CF, exceeds DMA 1A & 1B DCV of 2,442 CF. The drywell stores 259 CF of the 2,442 CF DCV. The remaining 2,183 CF will be held in an underground detention vault, DB-1. The total provided BMP treatment capacity of DW-1 and DB-1 is 2,831 CF.

Dry Well – BMP IDs: (DW-2 AND DB-2)
Field Percolation Rate: 51.1 in/hr
Factor of Safety: 2.0

Design Percolation Rate:
(51.1 in/hr) / 2.25 = **22.71 in/hr**
22.71 in/hr x (1hr/3600s) x (1ft/12in) = **0.0005257 ft/s**

Drywell Percolation Rate:
Percolation occurs between 21 feet and 25 feet below grade. This provides 4 feet of infiltration depth in addition to the bottom area:

Surface Area of drywell shaft – 4' diameter drywell
3.14 x 2^2 x 4' = **50.24 sf**

Bottom Area – total is equivalent to a 4' diameter circle
3.14 x 2^2 = **12.56 sf**

The Total Percolation Surface Area Available
12.56 sf + 125.66 sf = **62.80 sf**

Total Available Percolation Flowrate:
Design Percolation Rate * Percolation Surface Area Available
0.0005257 ft/s * 62.80 sf = **0.033 cfs**

48-Hour Drawdown Volume Available per drywell
Available Percolation Flowrate (3600 s / 1 hr) (48 hours per storm event)
0.033 cfs*(3600 s/1 hr)*(48 hr) = **5,702.4 CF per drywell**

Static Storage DCV

Drywell storage, DW-1
Settling chamber = 12.57 SF x 16' = 201.1 CF
Gravel area = (7' x 12.57 SF x 0.4 porosity) + (2' x 28.27 SF x 0.4 porosity) = 58.5 CF
Total available storage available from storage = 201.1 CF + 58.5 CF = **259 CF**

Detention vault storage, DB-2
Inner dimensions: length 24.0' x 16.0' x 5.1' = **1,958 CF**

DMA 2A & 2B
Due to the high percolation rates available at this site, the drywell, DW-2, 48-hour drawdown volume available of 5,702 CF, exceeds DMA 2A & 2B DCV of 2,013 CF. The drywell stores 259 CF of the 2,013 CF DCV. The remaining 1,754 CF will be held in an underground detention vault, DB-2. The total provided BMP treatment capacity of DW-2 and DB-2 is 2,217 CF.

Brea Gaslight Square Detention Vault Sizing
Date: 10/25/2022

Retention Vault Sizing								
BMP ID	DMA	Volume (CF)	Length (FT)	Width (FT)	Required Depth	Top of Basin	Bottom of Basin	Provided Depth
DB-1	DMAs 1A and 1B	2183	24	32	2.84	360.86	357.51	3.35
DB-2	DMAs 2A and 2B	1754	24	16	4.57	361.13	356.03	5.10

ATTACHMENT G

Education Materials



Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Fertilizers, pesticides and other chemicals that are left on yards or driveways can be blown or washed into storm drains that flow to the ocean. Overwatering lawns can also send materials into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour gardening products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

UCCE Master Gardener Hotline:
(714) 708-1646

To report a spill,
call the
Orange County 24-Hour
Water Pollution Problem
Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while landscaping or gardening. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Tips for Landscape & Gardening



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Landscape & Gardening

Never allow gardening products or polluted water to enter the street, gutter or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.
- Plant native vegetation to reduce the amount of water, fertilizers, and pesticide applied to the landscape.



- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.



- Use slow-release fertilizers to minimize leaching, and use organic fertilizers.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.



- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting. For more information, visit **www.ipm.ucdavis.edu**.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. Locations are provided below.

Household Hazardous Waste Collection Centers

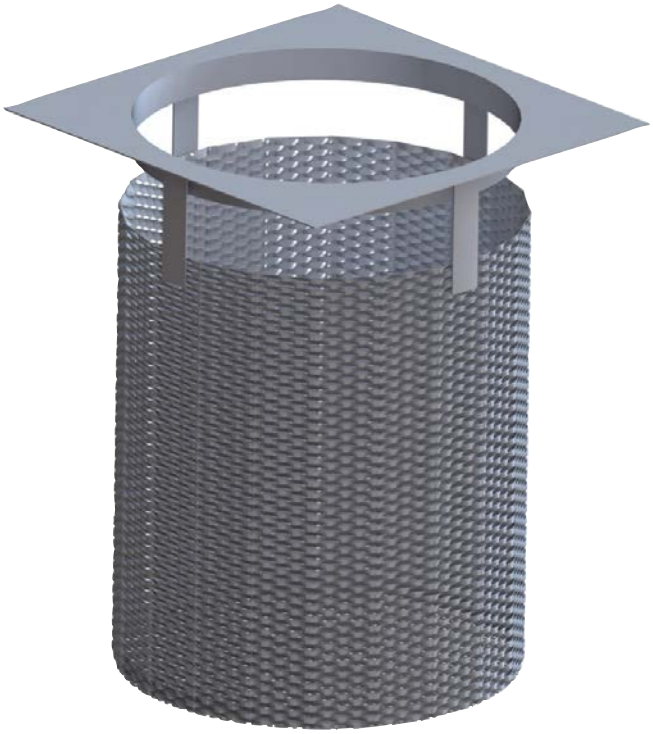
Anaheim:	1071 N. Blue Gum St.
Huntington Beach:	17121 Nichols St.
Irvine:	6411 Oak Canyon
San Juan Capistrano:	32250 La Pata Ave.

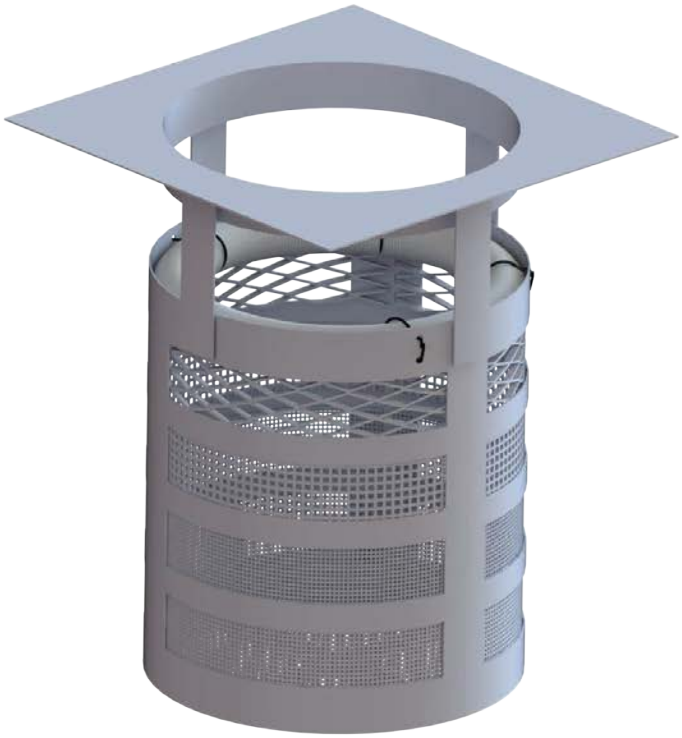
For more information, call (714) 834-6752 or visit www.oclandfills.com

Grate Inlet Filter

Bio Clean
A Forterra Company

OPERATION & MAINTENANCE





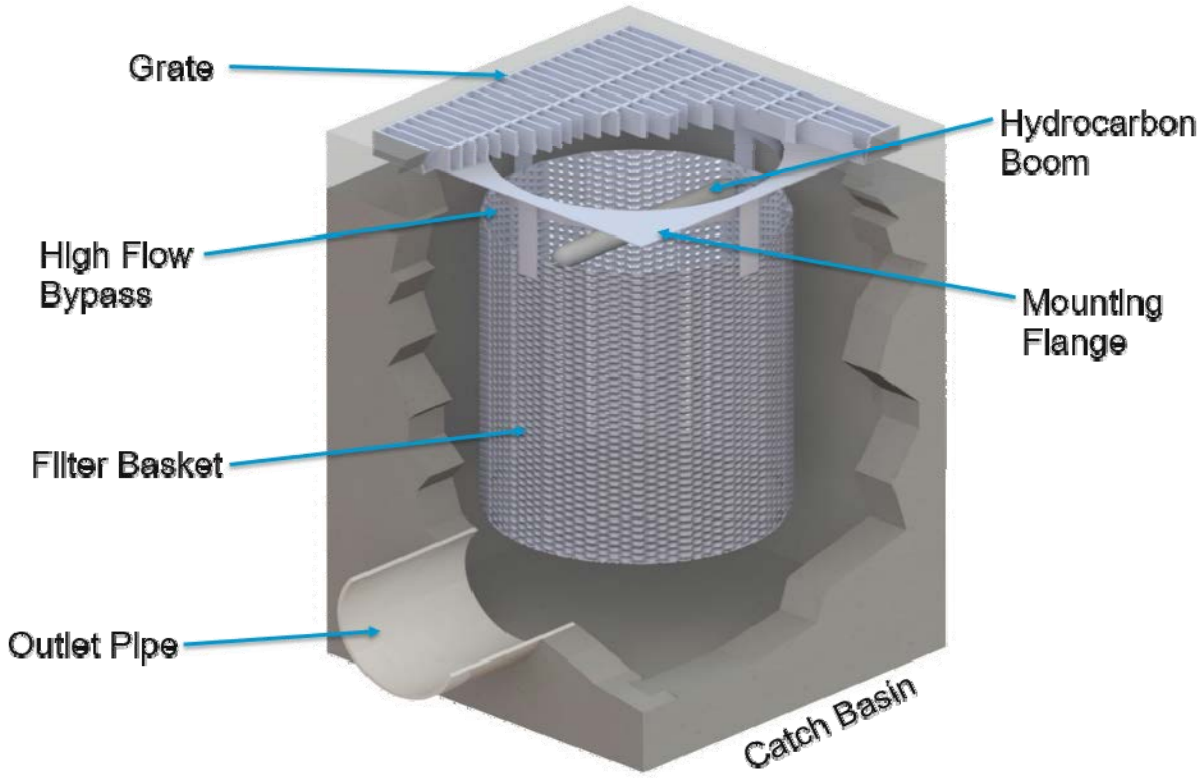
Bio Clean Environmental Services, Inc.
398 Via El Centro
Oceanside, CA 92058

www.BioCleanEnvironmental.com
p: 760.433.7640
f: 760.433.3176

OPERATION & MAINTENANCE

The Bio Clean Grate Inlet Filter is a stormwater device designed to remove high levels of trash, debris, sediments and hydrocarbons. The filter is available in several configurations including trash full capture, multi-level screening, Kraken membrane filter and media filter variations. This manual covers maintenance procedures of the trash full capture and multi-level screening configurations. A supplemental manual is available for the Kraken and media filter variations. This filter is made of 100% stainless steel and is available and various sizes and depths allowing it to fit in any grated catch basin inlet. The filters heavy duty construction allows for cleaning with any vacuum truck. The filet can also easily be cleaned by hand.

As with all stormwater BMPs, inspection and maintenance on the Grate Inlet Filter is necessary. Stormwater regulations require BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess site-specific loading conditions. This is recommended because pollutant loading can vary greatly from site to site. Variables such as nearby soil erosion or construction sites, winter sanding of roads, amount of daily traffic and land use can increase pollutant loading on the system. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years. Without appropriate maintenance a BMP can exceed its storage capacity which can negatively affect its continued performance in removing and retaining captured pollutants.



System Diagram:

Inspection Equipment

Following is a list of equipment to allow for simple and effective inspection of the Grate Inlet Filter:

- Bio Clean Environmental Inspection Form (contained within this manual).
- Manhole hook or appropriate tools to remove access hatches and covers.
- Appropriate traffic control signage and procedures.
- Protective clothing and eye protection.
- Note: entering a confined space requires appropriate safety and certification. It is generally not required for routine inspections or maintenance of the system.



Inspection Steps

The core to any successful stormwater BMP maintenance program is routine inspections. The inspection steps required on the Grate Inlet Filter are quick and easy. As mentioned above the first year should be seen as the maintenance interval establishment phase. During the first year more frequent inspections should occur in order to gather loading data and maintenance requirements for that specific site. This information can be used to establish a base for long-term inspection and maintenance interval requirements.

The Grate Inlet Filter can be inspected though visual observation. All necessary pre-inspection steps must be carried out before inspection occurs, such as safety measures to protect the inspector and nearby pedestrians from any dangers associated with an open grated inlet. Once the grate has been safely removed the inspection process can proceed:

- Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other info (see inspection form).
- Observe the filter with the grate removed.
- Look for any out of the ordinary obstructions on the grate or in the filter and its bypass. Write down any observations on the inspection form.
- Through observation and/or digital photographs estimate the amount of trash, foliage and sediment accumulated inside the filter basket. Record this information on the inspection form.
- Observe the condition and color of the hydrocarbon boom. Record this information on the inspection form.
- Finalize inspection report for analysis by the maintenance manager to determine if maintenance is required.

Maintenance Indicators

Based upon observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components.
- Obstructions in the filter basket and its bypass.
- Excessive accumulation of trash, foliage and sediment in the filter basket. Maintenance is required when the basket is greater than half-full.
- The following chart shows the 50% and 100% storage capacity of each filter height:

Model	Filter Basket Diameter (in)	Filter Basket Height (in)	50% Storage Capacity (cu ft)	100% Storage Capacity (cu ft)
BC-GRATE-12-12-12	10.00	12.00	0.27	0.55
BC-GRATE-18-18-18	16.00	18.00	1.05	2.09
BC-GRATE-24-24-24	21.00	24.00	2.41	4.81
BC-GRATE-30-30-24	27.00	24.00	3.98	7.95
BC-GRATE-36-36-24	33.00	24.00	5.94	11.88
BC-GRATE-48-48-18	44.00	18.00	7.92	15.84

Maintenance Equipment

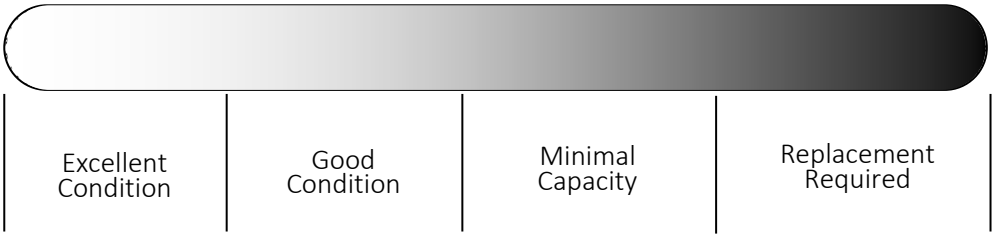
It is recommended that a vacuum truck be utilized to minimize the time required to maintain the Curb Inlet Filter, though it can easily cleaned by hand:

- Bio Clean Environmental Maintenance Form (contained in O&M Manual).
- Manhole hook or appropriate tools to remove the grate.
- Appropriate safety signage and procedures.
- Protective clothing and eye protection.
- Note: entering a confined space requires appropriate safety and certification. It is generally not required for routine maintenance of the system. Small or large vacuum truck (with pressure washer attachment preferred).

Maintenance Procedures

It is recommended that maintenance occurs at least two days after the most recent rain event to allow debris and sediments to dry out. Maintaining the system while flows are still entering it will increase the time and complexity required for maintenance. Cleaning of the Grate Inlet Filter can be performed utilizing a vacuum truck. Once all safety measures have been set up cleaning of the Grate Inlet Filter can proceed as followed:

- Remove grate (traffic control and safety measures to be completed prior).
- Using an extension on a vacuum truck position the hose over the opened catch basin. Insert the vacuum hose down into the filter basket and suck out trash, foliage and sediment. A pressure wash is recommended and will assist in spraying of any debris stuck on the side or bottom of the filter basket. Power wash off the filter basket sides and bottom.
- Next remove the hydrocarbon boom that is attached to the inside of the filter basket. The hydrocarbon boom is fastened to rails on two opposite sides of the basket (vertical rails). Assess the color and condition of the boom using the following information in the next bullet point. If replacement is required install and fasten on a new hydrocarbon boom. Booms can be ordered directly from the manufacturer.
- Follow is a replacement indication color chart for the hydrocarbon booms:



- The last step is to replace the grate and remove all traffic control.
- All removed debris and pollutants shall be disposed of following local and state requirements.
- Disposal requirements for recovered pollutants may vary depending on local guidelines. In most areas the sediment, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste.
- In the case of damaged components, replacement parts can be ordered from the manufacturer. Hydrocarbon booms can also be ordered directly from the manufacturer as previously noted.

Maintenance Sequence



Remove grate and set up vacuum truck to clean the filter basket.

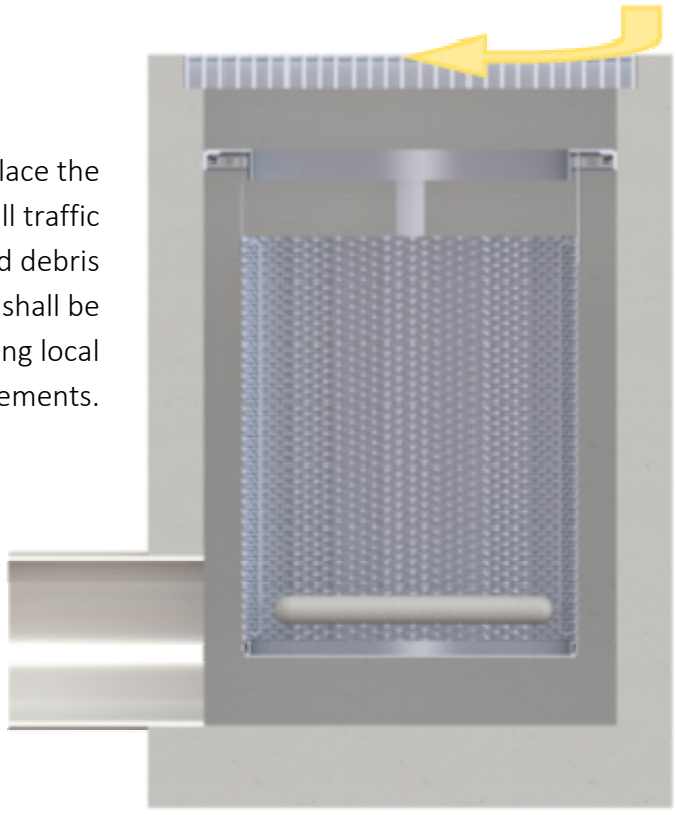


Insert the vacuum hose down into the filter basket and suck out debris. Use a pressure washer to assist in vacuum removal. Pressure wash off screens.



Remove the hydrocarbon boom that is attached to the inside of the filter basket. The hydrocarbon boom is fastened to rails on two opposite sides of the basket (vertical rails). Assess the color and condition of the boom using the following information in the next bullet point. If replacement is required install and fasten on a new hydrocarbon boom.

Close up and replace the grate and remove all traffic control. All removed debris and pollutants shall be disposed of following local and state requirements.



For Maintenance Services or Information Please Contact Us At:
760-433-7640
Or Email:
info@biocleanenvironmental.com

Bio Clean
A Forterra Company

Inspection and Maintenance Report
Catch Basin Only

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ___/___/___ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ollow Up ☐omplaint ☐torm Storm Event in Last 72-hours? ☐ ☐s

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Catch Basin Size	Evidence of Illicit Discharge?	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Signs of Structural Damage?	Functioning Properly or Maintenance Needed?
1	Lat: Long:							
2	Lat: Long:							
3	Lat: Long:							
4	Lat: Long:							
5	Lat: Long:							
6	Lat: Long:							
7	Lat: Long:							
8	Lat: Long:							
10	Lat: Long:							
11	Lat: Long:							
12	Lat: Long:							

Comments:

398 Via El Centro, Oceanside, CA 92058 P. 760.433.7640 F. 760.433.3176

IC7. LANDSCAPE MAINTENANCE

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Properly store and dispose of gardening wastes.
- Use mulch or other erosion control measures on exposed soils.
- Properly manage irrigation and runoff.
- Properly store and dispose of chemicals.
- Properly manage pesticide and herbicide use.
- Properly manage fertilizer use.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	
Bacteria	x
Oil & Grease	
Organics & Toxicants	
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Take steps to reduce landscape maintenance requirements.
    - Where feasible, retain and/or plant native vegetation with features that are determined to be beneficial. Native vegetation usually requires less maintenance than planting new vegetation.
    - When planting or replanting consider using low water use flowers, trees, shrubs, and groundcovers.
    - Consider alternative landscaping techniques such as naturescaping and xeriscaping.
2. Properly store and dispose of gardening wastes.
    - Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage at a permitted landfill or by composting.
    - Do not dispose of gardening wastes in streets, waterways, or storm drainage systems.
    - Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm and/or cover.
3. Use mulch or other erosion control measures on exposed soils.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

4. Properly manage irrigation and runoff.
    - Irrigate slowly or pulse irrigate so the infiltration rate of the soil is not exceeded.
    - Inspect irrigation system regularly for leaks and to ensure that excessive runoff is not occurring.
    - If re-claimed water is used for irrigation, ensure that there is no runoff from the landscaped area(s).
    - If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
    - Use automatic timers to minimize runoff.
    - Use popup sprinkler heads in areas with a lot of activity or where pipes may be broken. Consider the use of mechanisms that reduce water flow to broken sprinkler heads.
5. Properly store and dispose of chemicals.
    - Implement storage requirements for pesticide products with guidance from the local fire department and/or County Agricultural Commissioner.
    - Provide secondary containment for chemical storage.
    - Dispose of empty containers according to the instructions on the container label.
    - Triple rinse containers and use rinse water as product.
6. Properly manage pesticide and herbicide use.
    - Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of pesticides and herbicides and training of applicators and pest control advisors.
    - Follow manufacturers' recommendations and label directions.
    - Use pesticides only if there is an actual pest problem (not on a regular preventative schedule). When applicable use less toxic pesticides that will do the job. Avoid use of copper-based pesticides if possible. Use the minimum amount of chemicals needed for the job.
    - Do not apply pesticides if rain is expected or if wind speeds are above 5 mph.
    - Do not mix or prepare pesticides for application near storm drains. Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the targeted pest.
    - Whenever possible, use mechanical methods of vegetation removal rather than applying herbicides. Use hand weeding where practical.
    - Do not apply any chemicals directly to surface waters, unless the application is approved and permitted by the state. Do not spray pesticides within 100 feet of open waters.
    - Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
    - When conducting mechanical or manual weed control, avoid loosening the soil, which could lead to erosion.
    - Purchase only the amount of pesticide that you can reasonably use in a given time period.
    - Careful soil mixing and layering techniques using a topsoil mix or composted organic material can be used as an effective measure to reduce herbicide use and watering.
7. Properly manage fertilizer use.
    - Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers.
    - Follow manufacturers' recommendations and label directions.
    - Employ techniques to minimize off-target application (e.g. spray drift) of fertilizer, including consideration of alternative application techniques. Calibrate fertilizer distributors to avoid excessive application.
    - Periodically test soils for determining proper fertilizer use.
    - Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
    - Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
    - Use slow release fertilizers whenever possible to minimize leaching

8. Incorporate the following integrated pest management techniques where appropriate:
    - Mulching can be used to prevent weeds where turf is absent.
    - Remove insects by hand and place in soapy water or vegetable oil. Alternatively, remove insects with water or vacuum them off the plants.
    - Use species-specific traps (e.g. pheromone-based traps or colored sticky cards).
    - Sprinkle the ground surface with abrasive diatomaceous earth to prevent infestations by soft-bodied insects and slugs. Slugs also can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
    - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
    - Small mammals and birds can be excluded using fences, netting, and tree trunk guards.
    - Promote beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders that prey on detrimental pest species.

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Educate and train employees on the use of pesticides and pesticide application techniques. Only employees properly trained to use pesticides can apply them.
3. Train and encourage employees to use integrated pest management techniques.
4. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.
5. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
6. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. King County Surface Water Management. July 1995. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Stormwater Management Manual for Western Washington. Volume IV Source Control BMPs. Prepared by Washington State Department of Ecology Water Quality Program. Publication No. 99-14. August 2001.

Water Quality Handbook for Nurseries. Oklahoma Cooperative Extension Service. Division of Agricultural Sciences and Natural Resources. Oklahoma State University. E-951. September 1999.

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC15. PARKING AND STORAGE AREA MAINTENANCE

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Conduct regular cleaning.
- Properly collect and dispose of wash water.
- Keep the parking and storage areas clean and orderly.
- Use absorbent materials and properly dispose of them when cleaning heavy oily deposits.
- When conducting surface repair work cover materials and clean paintbrushes and tools appropriately.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	x
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Conduct regular cleaning.
    - Sweeping or vacuuming the parking facility is encouraged over other methods.
    - Sweep all parking lots at least once before the onset of the wet season.
    - Establish frequency of sweeping based on usage and field observations of waste accumulation.
2. Properly collect and dispose of wash water.
    - Block the storm drain or contain runoff.
    - Wash water should be collected and pumped to the sanitary sewer or discharged to a pervious surface, do not allow wash water to enter storm drains. Refer to fact sheet ***IC24 Wastewater Disposal*** for guidance on appropriate methods for disposal of wash water to the sanitary sewer.
    - Dispose of parking lot sweeping debris and dirt at a landfill.
3. Consider use of source treatment BMPs to treat runoff.
    - Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
    - Utilize sand filters or oleophilic collectors for oily waste in low quantities.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

4. Keep the parking and storage areas clean and orderly.
    - Clean out and cover litter receptacles frequently to prevent spillage.
    - Remove debris in a timely fashion.

    OPTIONAL:
    - Post "No Littering" signs.
5. When cleaning heavy oily deposits:
    - If possible, clean oily spots with absorbent materials.
    - Do not allow discharges to the storm drain.
    - Appropriately dispose of spilled materials and absorbents.
6. When conducting surface repair work:
    - Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
    - Conduct surface repair work during dry weather to prevent contamination from contacting stormwater runoff.
    - Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and clean any debris for proper disposal.
    - To avoid runoff, use only as much water as necessary for dust control.
    - Use drip pans or absorbent material to catch drips from paving equipment that is not in use. Dispose of collected material and absorbents properly.
7. Conduct inspections on a regular basis.
    - Designate personnel to conduct inspections of the parking facilities and stormwater conveyance systems associated with them.
    - Inspect cleaning equipment/sweepers for leaks on a regular basis.
8. Keep accurate maintenance logs to evaluate materials removed/stored and improvements made.
9. Arrange rooftop drains to prevent drainage directly onto paved surfaces.

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.
3. Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
4. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
5. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. King County Surface Water Management. July 1995. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

Stormwater Management Manual for Western Washington. Volume IV Source Control BMPs. Prepared by Washington State Department of Ecology Water Quality Program. Publication No. 99-14. August 2001.

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC21. WASTE HANDLING AND DISPOSAL

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Prevent waste materials from coming in direct contact with wind or rain. .
- Keep waste collection areas clean.
- Secure solid waste containers when not in use.
- Regularly inspect, repair, and/or replace waste containers.
- Use all of a product before disposing of the container.
- Label and store hazardous wastes according to hazardous waste regulations.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	x
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Prevent waste materials from coming in direct contact with wind or rain.
    - Cover the waste management area with a permanent roof.
    - If this is not feasible, cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene, or hypalon.
    - Cover dumpsters to prevent rain from washing out waste materials.
2. Design waste handling and disposal area to prevent stormwater runon.
    - Enclose the waste handling and disposal area or build a berm around it.
    - Position roof downspouts to direct stormwater away from waste handling and disposal area.
3. Design waste handling and disposal area to contain spills.
    - Place dumpsters or other waste receptacles on an impervious surface.
    - Construct a berm around the area to contain spills.
    - Install drains connected to the public sewer or the facility's process wastewater system within these contained areas. DO NOT discharge to a public sewer until contacting the local sewer authority to find out if pretreatment is required.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

4. Keep waste collection areas clean.
    - When cleaning around waste handling and disposal areas use dry methods when possible (e.g. sweeping, use of absorbents).
    - If water must be used, collect water and discharge to the sewer if permitted to do so. DO NOT discharge to a public sewer until contacting the local sewer authority to find out if pretreatment is required. If discharge to the sanitary sewer is not allowed, pump water to a tank and dispose of properly.
    - Post "No Littering" signs.
5. Secure solid waste containers when not in use.
6. Regularly inspect, repair, and/or replace waste containers.
7. Do not fill waste containers with washout water or any other liquid.
8. Use all of a product before disposing of the container.
9. Segregate wastes by type and label and date wastes.
    - Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
    - Ensure that only appropriate solid wastes are added to solid waste containers.
    - Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers.
10. Label and store hazardous wastes according to hazardous waste regulations.
    - Consult your local hazardous waste agency or Fire Department for details.
    - Obtain a hazardous waste generator license or permit if necessary.
12. Minimize waste.
    - Recycle materials whenever possible.
    - Modify processes or equipment to increase efficiency.
    - Identify and promote use of non-hazardous alternatives.
    - Reduction in the amount of waste generated can be accomplished using many different types of source controls such as:
        - Production planning and sequencing
        - Process or equipment modification
        - Raw material substitution or elimination
        - Loss prevention and housekeeping
        - Waste segregation and separation
        - Close loop recycling
    - Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Train employees in proper waste handling and disposal.
3. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.

4. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
5. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read “No Dumping Drains to Ocean”.

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC22. EATING AND DRINKING ESTABLISHMENTS

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Use dry cleaning methods instead of water
- Clean equipment (floor mats, grease filters, grills, garbage cans, etc.) indoors or in a covered outdoor wash area that is plumbed to the sanitary sewer or in an area that will contain the wash water (Refer to fact sheet *IC24 Wastewater Disposal* for guidance on appropriate methods for disposal of wash water to the sanitary sewer).
- Recycle and/or properly dispose of grease and oil.
- Block the storm drain when hosing or steam/pressure washing outside dumpster areas, sidewalks, and common areas.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	
Nutrients	x
Floatable Materials	x
Metals	
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Practice good housekeeping.
    - Conduct regular sweeping or vacuuming of outdoor areas: Dry sweep pavement areas including "drive-thru" areas, parking lots, sidewalks, outdoor eating areas and dumpster storage areas frequently.
    - Keep outside areas free of trash & debris.
    - Do not hose out dumpsters or fill them with liquid waste.
    - Regularly inspect, repair, and/or replace dumpsters.
2. Clean equipment (floor mats, grease filters, grills, garbage cans, etc.) indoors or in a covered outdoor wash area that is plumbed to the sanitary sewer.
    - Clean equipment in a mop sink if possible (never in a food preparation sink). If there is no mop sink, dedicate an indoor cleaning area where a drain is plumbed to the sanitary sewer.
    - Dispose mop water from cleaning floors in a mop sink, toilet or other drain that is plumbed to the sanitary sewer. Refer to fact sheet *IC24 Wastewater Disposal* for guidance on appropriate methods for disposal of wash water to the sanitary sewer.
    - Do not pour wash water outside or into a street, gutter, or storm drain.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

- Dispose of all wastewater containing oil and grease in a grease trap or interceptor.

3. Recycle and/or properly dispose of grease and oil. Collect and dispose of concentrated waste oil and grease and disposed of by a certified waste grease hauler. NEVER pour grease or oil into a sink, floor drain, storm drain or dumpster.
4. Block storm drain(s) when cleaning (hosing or steam/pressure washing) outside dumpster areas, sidewalks, and common areas with hot water, soap, or other cleaning agent. Collect water/waste and discharge to the sanitary sewer (with approval of the local sanitation district).

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.
3. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
4. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

Carlsbad Jurisdictional Urban Runoff Management Plan. Best Management Practices for Restaurants. City of Carlsbad. February 2002. On-line: http://www.ci.carlsbad.ca.us/cserv/jurmp.html

Orange County Stormwater Program. 2001. Water Quality Guidelines for Exterior Restaurant Cleaning Operations. Brochure. June.

Orange County Stormwater Program. Good Cleaning Practices Food & Restaurant Industry. Poster. Courtesy of the City and County of LA.

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC23. FIRE SPRINKLER TESTING/MAINTENANCE

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

Provided below are specific procedures associated with this activity. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Conduct activity on non-rainy days and for the shortest duration possible to minimize discharge volume.
- Inspect flow path and remove all debris and materials prior to testing or maintenance.

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	
Nutrients	
Floatable Materials	
Metals	x
Bacteria	
Oil & Grease	x
Organics & Toxicants	
Pesticides	
Oxygen Demanding	

Best Management Practices

1. Contain flows onsite and/or direct the water flows to landscaped or green areas whenever possible and safe to do so without causing damage or erosion.
2. Divert sprinkler system flows to the sewer, when practicable and with the permission of the local sewer agency. Refer to fact sheet ***IC24 Wastewater Disposal*** for guidance on appropriate methods for disposal of wash water to the sanitary sewer.
3. Training
   a. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
   b. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
   c. Use a training log or similar method to document training.

References

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates for California Stormwater Quality Association. January 2003.

For additional information contact:

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Main: (714) 955-0600
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or visit our website at www.ocwatersheds.com

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

The watermark for drainage solutions.®

TORRENT RESOURCES

INDUSTRY SERVICES

Site Drainage Systems
- Stormwater Drywells
- French Drains
- Piping
- Drainage Appurtenances
- Pump Systems

Technical Analysis
- Design Review
- Percolation Testing
- Geologic Database
- ADEQ Drywell Registration

Recharge Systems
- Municipal/Private Recharge Wells
- Injection Wells & Galleries

Environmental Applications
- Pattern Drilling/Soil Remediation
- Drainage Rehabilitation
- Drywell Abandonments
- OSHA HAZMAT-Certified

Drainage Renovation
- Problem Assessment
- Site Redesign/Modification
- System Retrofit

Drainage Maintenance
- Preventive Maintenance
- Service Contracts
- Drywell Cleaning

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CA Lic. 886759 A, C-42

www.TorrentResources.com

An evolution of McGuckin Drilling

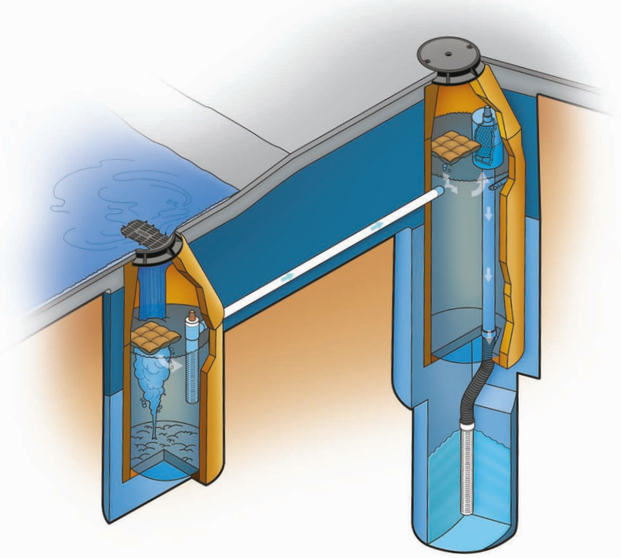
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MaxWell® Plus DRAINAGE SYSTEM

Product Information and Design Features

TORRENT RESOURCES

The ***MaxWell® Plus,*** as manufactured and installed exclusively by Torrent Resources Incorporated, is the industry standard for draining large paved surfaces, nuisance water and other demanding applications. This patented system incorporates state-of-the-art pre-treatment technology.



THE ULTIMATE IN DESIGN

Since 1974, nearly 65,000 MaxWell® Systems have proven their value as a cost-effective solution in a wide variety of drainage applications. They are accepted by state and municipal agencies and are a standard detail in numerous drainage manuals. Many municipalities have recognized the inherent benefits of the MaxWell Plus and now require it for drainage of all paved surfaces.

SUPERIOR PRE-TREATMENT

Industry research, together with Torrent Resources' own experience, have shown that initial storm drainage flows have the greatest impact on system performance. This "first flush" occurs during the first few minutes of runoff, and carries the majority of sediment and debris. Larger paved surfaces or connecting pipes from catch basins, underground storage, etc. can also generate high peak flows which may strain system function. In addition, nuisance water flows require controlled processing separate from normal storm runoff demands.

Manufactured and Installed Exclusively by Torrent Resources Incorporated
Please see reverse side for additional information
U.S. Patent No. 4,923,330

In the ***MaxWell® Plus,*** preliminary treatment is provided through collection and separation in deep large-volume settling chambers. The standard MaxWell Plus System has over 2,500 gallons of capacity to contain sediment and debris carried by incoming water. Floating trash, paper, pavement oil, etc. are effectively stopped by the **PureFlo®** Debris Shields in each chamber. These shielding devices are equipped with an effective screen to filter suspended material and are vented to prevent siphoning of floating surface debris as the system drains.

EFFECTIVE PROCESSING

Incoming water from the surface grated inlets or connecting pipes is received in the Primary Settling Chamber where silt and other heavy particles settle to the bottom. A PureFlo Debris Shield ensures containment by trapping floating debris and pavement oil. The pre-treated flow is then regulated to a design rate of up to 0.25cfs and directed to a Secondary Settling Chamber. The settling and containment process is repeated, thereby effectively achieving controlled, uniform treatment. The system is drained as water rises under the PureFlo Debris Shield and spills into the top of the overflow pipe. The drainage assembly returns the cleaned water into the surrounding soil through the **FloFast®** Drainage Screen.

ABSORBENT TECHNOLOGY

Both MaxWell Plus settling chambers are equipped with absorbent sponges to provide prompt removal of pavement oils. These floating pillow-like devices are 100% water repellent and literally wick petrochemical compounds from the water. Each sponge has a capacity of up to 128 ounces to accommodate effective, long-term treatment. The absorbent is completely inert and will safely remove runoff constituents down to rainbow sheens that are typically no more than one molecule thick.

SECURITY FEATURES

MaxWell Plus Systems include bolted, theft-deterrent, cast iron gratings and covers as standard security features. Special inset castings which are resistant to loosening from accidental impact are available for use in landscaped applications. Machined mating surfaces and "Storm Water Only" wording are standard.

THE MAXWELL FIVE-YEAR WARRANTY

Innovative engineering, quality materials and exacting construction are standard with every MaxWell System designed, manufactured and installed by Torrent Resources Incorporated. The MaxWell Drainage Systems Warranty is the best in the industry and guarantees against failures due to workmanship or materials for a period of five years from date of completion.

MAXWELL® PLUS DRAINAGE SYSTEM DETAIL AND SPECIFICATIONS

CALCULATING MAXWELL PLUS REQUIREMENTS:

The type of property, soil permeability, rainfall intensity and local drainage ordinances determine the number and design of MaxWell Systems. For general applications draining retained stormwater, use one standard ***MaxWell® Plus*** per the instructions below for up to 5 acres of landscaped contributory area, and up to 2 acres of paved surface. To drain nuisance water flows in storm runoff systems, add a remote inlet to the system. For smaller drainage needs, refer to our ***MaxWell® IV.*** For industrial drainage, our ***Envibro® System*** may be recommended. For additional considerations, please refer to **"Design Suggestions For Retention And Drainage Systems"** or consult our Design Staff.

COMPLETING THE MAXWELL PLUS DRAWING

To apply the MaxWell Plus drawing to your specific project, simply fill in the blue boxes per the following instructions. For assistance, please consult our Design Staff.

' PRIMARY SETTLING CHAMBER DEPTH

The overall depth of the Primary Settling Chamber is determined by the amount of surface area being drained. Use a standard depth of **15 feet** for the initial acre of contributory drainage area, **plus 2 feet** for each additional acre, up to the design limits of the property type noted in "Calculating MaxWell Plus Requirements" noted above. Other conditions that would require increased chamber depths are property usage, maintenance scheduling, and severe or unusual service conditions. Connecting pipe depth may dictate deeper chambers so as to maintain the effectiveness of the settling process. Maximum chamber depth is 25 feet.
A pump and lift station is recommended for systems with deeper requirements.

' ESTIMATED TOTAL DEPTH

The Estimated Total Depth is the approximate total system depth required to achieve 10 continuous feet of penetration into permeable soils, based upon known soil information. Torrent utilizes specialized **"crowd"** equipped rigs to get through the difficult cemented soil and to reach clean drainage soils at depths up to **180 feet.** An extensive drilling log database is available to use as a reference.

' SETTLING CHAMBER DEPTH

On MaxWell Plus Systems of over 30 feet overall depth and up to 0.25cfs design rate, the standard Settling Chamber Depth is **18 feet.** Maximum chamber depth is 25 feet.

' OVERFLOW HEIGHT

The Overflow Height and Secondary Settling Chamber Depth determine the effectiveness of the settling process. The higher the overflow pipe, the deeper the chamber, the greater the settling capacity. An overflow height of **13 feet** is used with the standard settling chamber depth of **18 feet.**

"Ø DRAINAGE PIPE

This dimension also applies to the **PureFlo®** Debris Shields, the **FloFast®** Drainage Screen, and fittings. The size is based upon system design rates, multiple primary settling chambers, soil conditions, and need for adequate venting. Choices are 6", 8", or 12" diameter. Refer to our company's **"Design Suggestions for Retention and Drainage Systems"** for recommendations on which size best matches your application.

"Ø BOLTED RING & GRATE/COVER

Standard models are quality cast iron and available to fit 24" Ø or 30" Ø manhole openings. All units are bolted in two locations with wording "Storm Water Only" in raised letters. For other surface treatments, please refer to "Design Suggestions for Retention and Drainage Systems."

' INLET PIPE INVERT

Pipes up to 12" in diameter from catch basins, underground storage, etc. may be connected into the primary settling chamber. Larger pipe diameters dictate the use of manhole material for the primary setting chamber with 48" grates on the cone.Inverts deeper than 5 feet will require additional depth in both system settling chambers to maintain respective effective settling capacities.

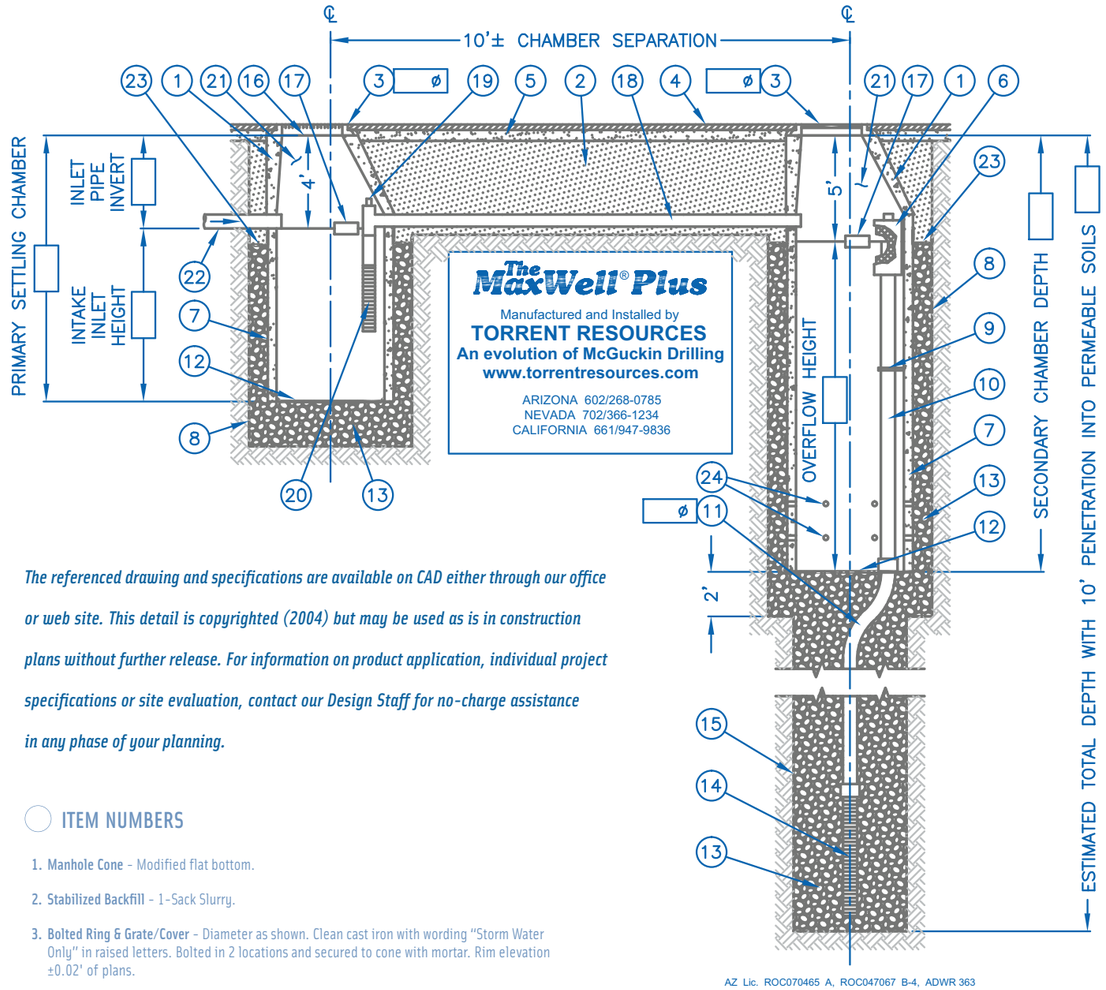
' INTAKE INLET HEIGHT

The Intake Inlet Height determines the effectiveness of the settling process in the Primary Settling Chamber. A minimum inlet height of **11 feet** is used with the standard primary settling chamber depth of 15 feet. Greater inlet heights would be required with increased system demands as noted in Primary Settling Chamber Depth. Freeboard Depth Varies with inlet pipe elevation. Increase primary/secondary settling chamber depths as needed to maintain all inlet pipe elevations above connector pipe overflow.

' CHAMBER SEPARATION

The standard separation between chambers is **10 feet** from center to center.
Soil conditions and deeper inverts may dictate required variations in chamber separation.

The MaxWell® Plus Drainage System Detail And Specifications



The referenced drawing and specifications are available on CAD either through our office or web site. This detail is copyrighted (2004) but may be used as is in construction plans without further release. For information on product application, individual project specifications or site evaluation, contact our Design Staff for no-charge assistance in any phase of your planning.

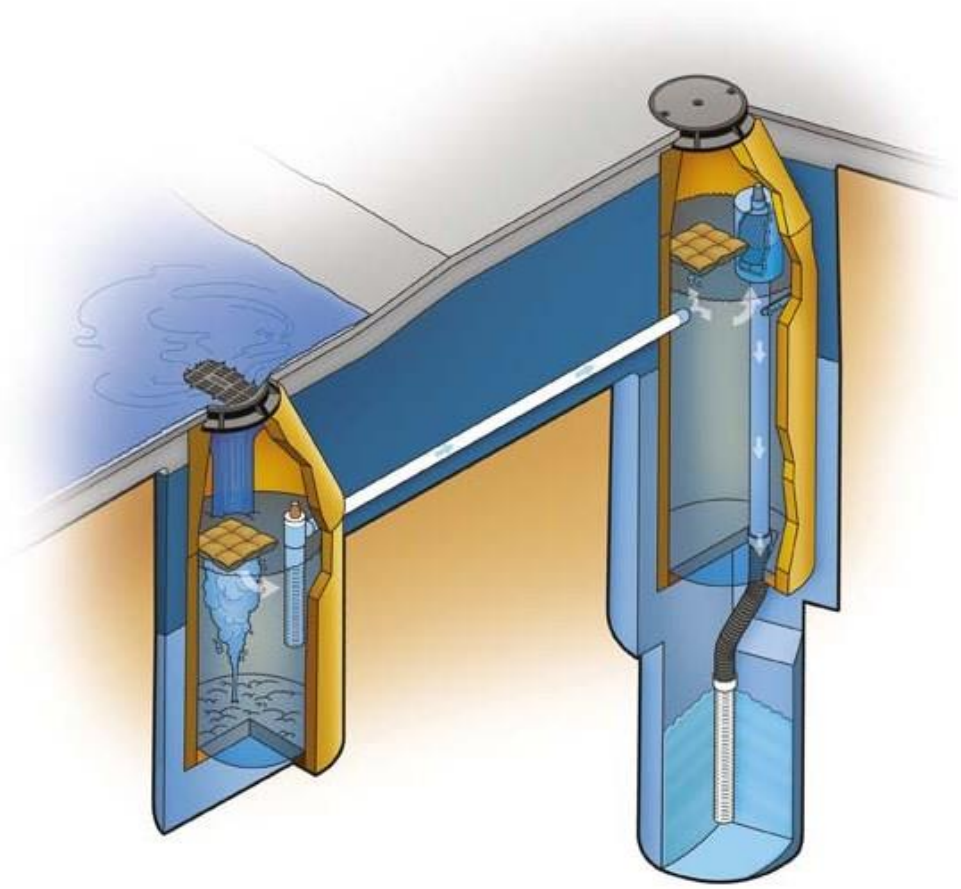
AZ Lic. ROC070465 A, ROC047067 B-4, ADWR 363
CA Lic. 528080, C-42, HAZ.
NV Lic. 0035350 A - NM Lic. 90504 GF04

ITEM NUMBERS

1. **Manhole Cone** - Modified flat bottom.
2. **Stabilized Backfill** - 1-Sack Slurry.
3. **Bolted Ring & Grate/Cover** - Diameter as shown. Clean cast iron with wording "Storm Water Only" in raised letters. Bolted in 2 locations and secured to cone with mortar. Rim elevation ±0.02' of plans.
4. **Graded Basin or Paving** (by Others).
5. **Compacted Base Material** (by Others).
6. **PureFlo® Debris Shield** - Rolled 16 Ga. steel X 24" length with vented anti-siphon and internal .265" Max. SWO flattened expanded steel screen X 12" length. **Fusion bonded epoxy coated.**
7. **Pre-cast Liner** - 4000 PSI concrete 48" ID. X 54" OD. **Center in hole** and align sections to **maximize bearing surface.**
8. **Min. 6' Ø Drilled Shaft.**
9. **Support Bracket** - Formed 12 Ga. steel. **Fusion bonded epoxy coated.**
10. **Overflow Pipe** - Sch. 40 PVC mated to drainage pipe at base seal.
11. **Drainage Pipe** - ADS highway grade with TRI-A coupler. **Suspend pipe** during backfill operations to prevent buckling or breakage. Diameter as noted.
12. **Base Seal** - Geotextile or concrete slurry.
13. **Rock** - Washed, sized between 3/8" and 1-1/2" to **best complement soil conditions.**
14. **FloFast® Drainage Screen** - Sch. 40 PVC 0.120" slotted well screen with 32 slots per row/ft. Diameter varies 120" overall length with TRI-B coupler.
15. **Min. 4' Ø Shaft** - Drilled to **maintain permeability** of drainage soils.
16. **Fabric Seal** - U.V. Resistant Geotextile - **To be removed by customer** at project completion.
17. **Absorbent** – Hydrophobic Petrochemical Sponge. Min 128 oz. capacity.
18. **Connector Pipe** – 4" Ø Sch. 40 PVC.
19. **Anti-Siphon Vent** with flow regulator.
20. **Intake Screen** – Sch. 40 PVC 0.120" modified slotted well screen with 32 slots per row/ft. 48" overall length with TRI-C end cap.
21. **Freeboard Depth Varies** with inlet pipe elevation. Increase primary/secondary settling chamber depths as needed to maintain all inlet pipe elevations above connector pipe overflow.
22. **Optional Inlet Pipe** (by Others).
23. **Moisture Membrane** – 6 mil. Plastic. Place securely against eccentric cone and hole sidewall. Used in lieu of slurry in landscaped areas.
24. **Eight** – (8) **perforations per foot,** 2 row minimum.

OPERATION AND MAINTENANCE MANUAL

The *MaxWell® Plus* Drainage System



Torrent Resources Incorporated

The watermark for drainage solutions.®

Table of Contents

Company Overview 3

General Purpose 3

MaxWell® Plus Description 3

Installation 4

Operation 4

Maintenance 5

Appendix 8

Company Overview

Torrent Resources Incorporated…an Employee-Owned Company.

First licensed as a drainage contractor, Torrent Resources has evolved into a full-service; drainage solutions partner to address ever-growing customer needs in California, Arizona, New Mexico, Nevada and Texas. The company is headquartered in Phoenix, with an additional office in Fontana, California.

Since 1972, Torrent Resources has set the standard in design and construction of water drainage systems for the mitigation of excess surface water. In 1974, the company revolutionized the industry with its exclusive, patented ***MaxWell***® systems – products unmatched in efficiency and reliability by any other type of stormwater disposal application. To date, more than 80,000 MaxWell drywells have been installed throughout the western United States.

General Purpose

With a greater awareness of the need to address the quality of urban stormwater runoff, on-site drainage systems used for the stormwater elimination have come under closer scrutiny. One such system is the drywell which has been used previously throughout the United States to dispose of retained or surplus surface water. The early versions of this structure were not much more than holes in the ground filled with rocks. This meant that maintenance on these primitive types was impossible, and inundation from silt-loading quickly led to clogging and failure of the drywells.

Fortunately, the introduction of the MaxWell concept provided a solution to this problem by incorporating a deep settling basin to trap out the suspended solids for easy removal during routine cleaning. To that end, all MaxWell drainage systems are designed to remove not only sediment and debris, but also floating hydrocarbons and organic compounds prior to recharging the treated stormwater back into the sub-grade. The water is then further polished by the soil envelope as it passes through the vadose zone to eventually replenish the resource.

The MaxWell is a treatment BMP which also utilizes infiltration to recycle surface water for reuse. In most cases, the system will be utilized in one of two applications: mitigation of the entire amount of retained water from a rainfall event of some historic frequency and duration, in which case the product would be considered volume-based; or, removal of only first flush constituents from an incremental portion of a larger rainfall event. In the latter, the system would be considered a flow-based BMP.

The system itself is not intended to provide storage volume, but instead is designed to gradually dispose of accumulated stormwater to ensure maximum pre-treatment efficiency. Therefore, in both applications described above, a means of storing the required capture volume should be provided separately. This can be done in shallow surface basins or planter areas with the drywells incorporated into the low spots, or by interconnecting the drainage systems to underground tanks or vaults. This allows the minimum number of drainage systems to be used to percolate the water into the sub soils, using the total allowable draw-down timeframe. More systems could be used in lieu of storage to increase processing rates, but this is generally not as cost-effective as providing a means or retaining the required volume.

MaxWell® Plus Description

Preliminary treatment is provided in the dual-chambered MaxWell Plus System through the collection and separation in deep, large volume settling chambers. Depending upon the permeability of the soils, the pilot-hole excavations for the drywells may be up to 180 feet deep.

The typical MaxWell Plus provides over 2,500 gallons of chamber capacity to process incoming water for the removal of suspended solids and floating organic compounds. These chambers are constructed of 4000 PSI pre-cast concrete liner segments that are 48-inches I.D., 54-inches O.D. with a 3-inch wall thickness. In constructing the chambers, these sections are carefully aligned, centered, and stacked in the borehole to maximize bearing surfaces.

A filter sleeve made of non-woven geotextile fabric is placed inside the drilled shaft to encapsulate the aggregate backfill, and inhibit the migration of fines from the surrounding soils into the gravelpack. Next, a corrugated HDPE drainage pipe with a slotted Schedule 40 PVC drainage screen attached to the lower end is inserted into the pilot-hole excavation. This component is then capped and suspended slightly off the bottom of the borehole. Clean, washed aggregate sized between 3/8" to 1 ½" to best complement site soil conditions is utilized for the backfill material surrounding the drainage pipe in the lower excavation of the main well. The pre-cast concrete chambers are then erected in the 72-inch diameter reamed portions of the upper excavation.

An overflow pipe constructed of Schedule 40 PVC is installed in the main chamber, and is mated to the drainage pipe with a coupling under the chamber bottom. This vertical pipe is supported by a fusion-bonded epoxy-coated galvanized steel bracket attached to the liner wall. Our ***PureFlo***® Debris Shield equipped with an internal screen is then fitted onto the top of the overflow inlet. This cylindrical shield is approximately 24-inches in length, and is fabricated from rolled 16-gauge galvanized steel. The component is coated with fusion-bonded epoxy, and fitted with an anti-siphon vent. In operation, the shield forces water to be drawn into the system from several inches beneath the surface, effectively isolating and containing floating trash, paper, debris and pavement oils within the chambers. The internal screen effectively filters out suspended material, and the vent prevents floating debris from being sucked into the overflow pipe as the water level inside the chamber subsides.

The primary settling chamber is interconnected to the main well with a 4-inch diameter Schedule 40 PVC pipe installed with a two percent slope between chambers. This connecting pipe is feed through a vented, shielded and screened inlet that is fitted with a reduction orifice. This component narrows the opening of the 4-inch pipe to 2-inches to manage excessive inflow velocity, and provide a manageable metered flow to the main well. The restriction also increases the residence time of the water in the inlet structure, thereby further enhancing the gravity settlement of suspended solids.

Each chamber of this design is equipped with two hydrophobic floating absorbent pillows, which will remove a wide range of hydrocarbons and organic liquids. The sponges are 100% water repellant, and literally "wick" floating petrochemical compounds from the surface of the water. Each pillow has a removal capacity of at least 128 ounces to accommodate effective, long-term treatment.

At the surface of the ground, the inlet structure will be equipped with a 24" or 30" diameter cast-iron grate and ring assembly, while the main well will be fitted with a 30-inch diameter cast-iron ring and solid cover. See Appendix 1-A for MaxWell detail.

Installation

Once the locations of any utilities have been identified, the exact locations of the drywell chambers on the jobsite are laid out and identified by the Civil Designer's survey team. When installed with standard inverts, the layout requires center stakes for each chamber, with (2) 10-foot offsets, 90 degrees apart.

The installation begins with the excavation of a pilot-hole boring, which will be accomplished using either a bucket-auger drill rig, or a SoilMec machine. When a bucket-auger is utilized, the initial borehole is drilled using a 48-inch diameter bucket. The upper part of this excavation where the chamber will be built must be enlarged to 72-inches, in order to provide sufficient access to stack the liner segments, and place the aggregate backfill around the outside of the chamber. In order to expand the upper portion of the drilled

shaft from 4-feet to 6-feet, Torrent uses reaming knives attached to the 48-inch diameter bucket. If a SoilMec is used, a 6-foot diameter flight auger is used to begin the shaft, which is changed to a 4-foot diameter auger after the upper excavation is completed. In either case, the enlargement of the upper portion of the excavation to 72-inches in diameter provides the working access needed to erect the chamber and place the gravel pack.

It is vital to the function of the finished drainage system that a continuous 10-foot interface is achieved with some sort of suitable permeable drainage material at the terminus of the excavation. As the drilling progresses and each load of cuttings is discharged, the composition of the drainage soils is assessed for suitable permeability. Optimum permeability is found in soils comprised of clean sand, gravel and small cobbles, with an absence of silt, clay or excessive fines. However, other materials may possess acceptable transmissibility, such as clean sand or decomposed granite.

It is significant to note that the crew that completes the excavation for the systems is not the crew that will build the finished structures. When the drilling is completed, the drilling crew will leave the site protected by covering the open holes with steel plates, and constructing a berm around the immediate well site. Barricades and flagging are additionally utilized to protect the drilled shafts after the excavation is complete. A construction crew will then arrive within a day or two to finish the installation process.
The actual construction sequence begins with pulling the plates back far enough to allow the placement of a setting platform over the first open boring. The first component lowered into the excavation is the slotted drainage screen, connected to the lower end of the drainage pipe. The material used for the drainage pipe is heavy-duty ADS Highway Grade corrugated polyethylene. This HDPE drainage pipe is lowered into position, and held slightly off the bottom of the pilot-hole. The pipe is then capped and suspended by a chain, which has been secured to the setting platform above the excavation.

As the fabrication progresses, the protective steel plates are pulled completely away so that there is access for the backfill operation. A skip loader is utilized to place the gravelpack into the entire length of the 48-inch pilot hole around the suspended drainage pipe. Next, the lower perforated section of 48-inch precast liner for the main well is lowered into place within the enlarged 6-foot diameter excavation. Additional liner segments are carefully aligned and stacked in the enlarged portion of the shaft to create the settling chamber of the system. The last section to be placed at grade is a modified manhole cone. The opening in the manhole cone is covered to prevent the accidental introduction of gravel as the upper excavation is backfilled with this same washed, graded aggregate.

The trench between the chambers of the MaxWell Plus System is excavated from the surface with a backhoe. A 4-inch diameter Schedule 40 PVC pipe is placed into this trench to interconnect the inlet structure to the main drywell settling chamber. Piping connections through the liner walls are mudded after the connecting pipe has been stubbed-out in the chambers.

The assembled intake inlet for the Primary Settling Chamber is then installed. At the top of this component, a PVC tee is utilized to connect the anti-siphon vent to the intake screen below. The completed vented intake assembly is then fitted to the stubbed-out connecting pipe inside the inlet structure.

As a good workmanship measure, a stabilizing slurry mixture is utilized to backfill the trench holding the connecting pipe between the chambers so that the potential for subsidence is minimized. This same slurry envelope is placed around all deep piping connections, and around the cone sections of the upper chambers. This material effectively encapsulates the components, and approximates the compaction of native soil. With the chambers completed, the interior components are installed. The overflow pipe is lowered into position in the main well chamber as assembly progresses.

Each chamber is equipped with two hydrophobic floating absorbent pillows for the removal of a wide range of petroleum-based organic liquids. One blanket in each chamber is filled with a unique type of polymer plastic bead which resists the release of these constituents, even if compressed.

After securing the grate to the cast-iron ring, a layer of ultraviolet-resistant geotextile fabric is applied over the grate. This UV-resistant fabric layer is banded to the grated inlet, and is intended to prevent incidental introduction of trash or debris before the well goes into service. This fabric will be removed by the General Contractor after final landscaping and paving are completed. Premature fabric removal could result in system damage and may void some, or all warranty conditions.

The metal grates and covers used are embossed with the Torrent Resources company name, the MaxWell trade name, and the words “Storm Water Only” as a general reminder to the public as to the intended usage of the structure.

The final step in the installation process is the application of a mortar mix to affix the ring and grate assemblies securely to the manhole cones. This completes the construction sequence.

MaxWell Operation

Incoming water from the surface grated inlets or connecting pipes is received in the primary settling chamber where silt and other heavy particles settle to the bottom. A vented, screened and shielded inlet ensures containment of floating debris within the chamber, and elimination of petroleum constituents through two floating absorbent pillows. When installed in optimum drainage materials, the pre-treated flow is then regulated to a maximum design rate of up to 0.25 cfs, and directed to a secondary settling chamber. Here the pre-treatment separation and containment process is repeated, thereby effectively achieving controlled, uniform treatment. The system is drained as water rises under the PureFlo™ Debris Shield, and spills into the top of the overflow pipe. The drainage assembly returns the cleaned water to the surrounding soil through the FloFast™ Drainage Screen.

To provide prompt removal of pavement oils, both MaxWell Plus settling chambers are equipped with two absorbent pillows. These floating pillow-like devices are 100 percent water repellent and literally wick petrochemical compounds from the water. Each sponge has a capacity of at least 100 ounces to accommodate effective, long-term treatment. These absorbent pillows are completely inert, and will safely remove runoff constituents down to rainbow sheens which are typically no more than one molecule thick.

All MaxWell Plus Systems are equipped with bolted, theft-deterrent cast iron grates and covers as standard security features. Special inset castings are available for use in landscaped applications, which are resistant to loosening from accidental impact. Machined mating surfaces, and “Storm Water Only” wording are standard on these components.

Maintenance

The responsible party, such as a Property Management Company or Homeowners Association, is typically responsible for maintaining the drywell(s).

New systems should receive a thorough visual examination following the first several significant rainfall events. This assessment will assure that there is no standing water, and that runoff or nuisance water flows are being eliminated within the allowable 48 hour draw-down timeframe. Beyond that, the drainage structures should be inspected once a year and within 48 hours of a significant storm event to ensure that there is no standing water in the chambers.

Standing water problems are usually caused by inadequate performance of the existing drainage systems on the property. Reasons are varied but may be due to system aging, reduced soil permeability, pavement settlement, ineffective site maintenance, property expansions and additions, or change in property usage.

If a drywell is draining slowly or leaves water standing over the grate for longer than regulations allow, debris may simply be blocking the inlet. The maintenance guidelines begin with the performance of an annual inspection, which should include assessing the need for cleaning and inspecting the functional and structural continuity of the system. At the same time, surface aspects of the drainage way are evaluated for evidence of staining or standing water.

A typical cleaning is carried out using a truck-mounted hydro-vactor (see below) when accumulated trash, debris, and sediment occupy 15% or more of the original settling chamber capacity. The hydro-vactor utilizes streams of air and high-pressure water to dislodge built-up material, which is then removed via vacuum hose and disposed of off-site.

Inlet grates and covers are removed for this operation and all filters and screens are cleaned during this procedure. At the same time, any obstructions or accumulated debris in remote inlets and connecting pipes is removed by jet-rodding. The cleaning operation also involves replacement of the floating absorbent pillows and changing out the filter fabric at the bottom of the chambers where applicable.

After the initial cleaning, most systems generally will not require subsequent cleaning for 3-5 years. When afforded regularly scheduled maintenance, our records indicate that our MaxWell Drywells will provide decades of efficient, reliable service.

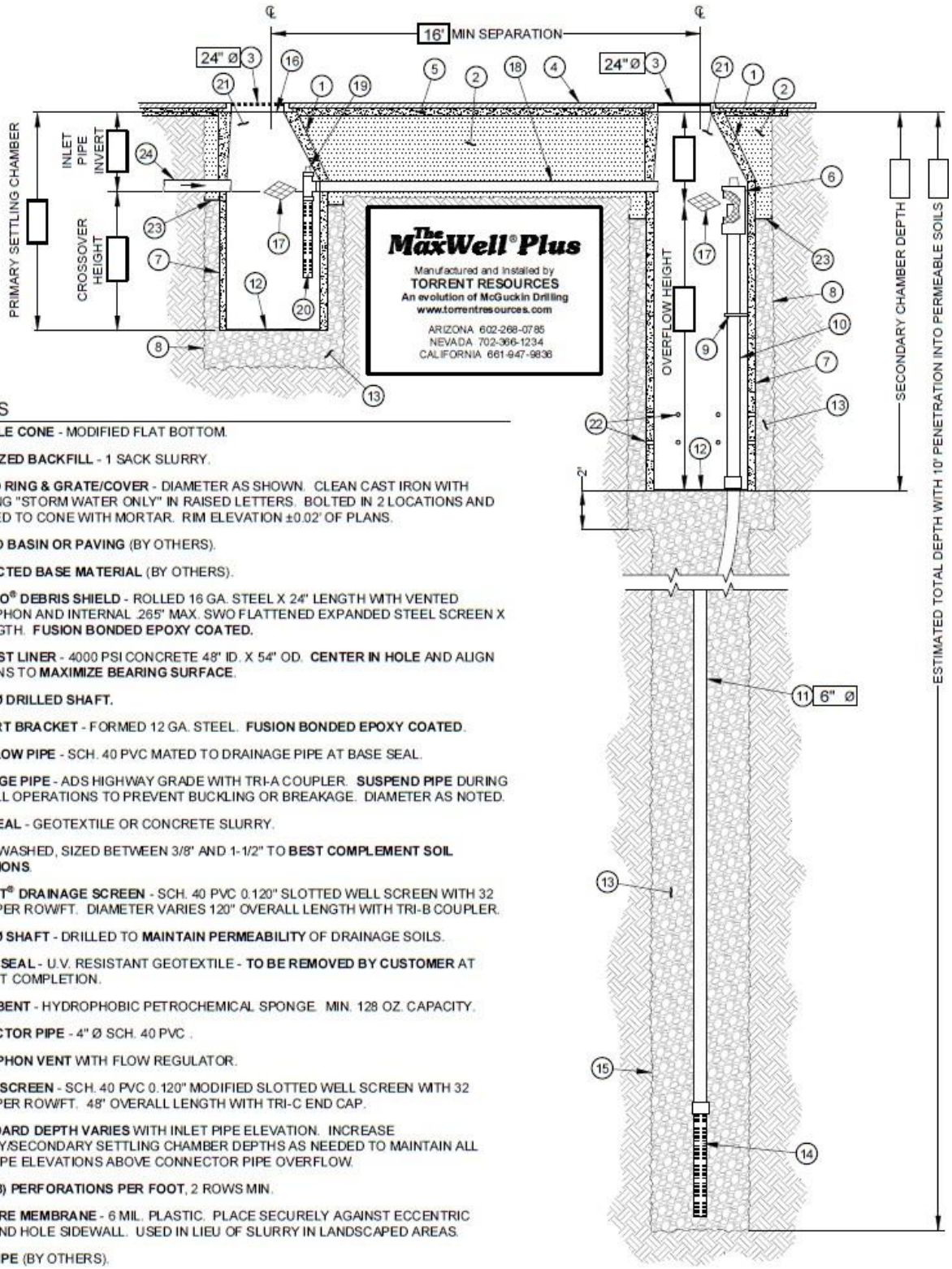
A written log shall be kept of all inspections and maintenance actions performed on the drywell systems.



Typical Hydrovactor Truck used for Drywell Maintenance

APPENDIX
1-A

The MaxWell® Plus Drainage System Detail And Specifications



NOTES

1. **MANHOLE CONE** - MODIFIED FLAT BOTTOM.
2. **STABILIZED BACKFILL** - 1 SACK SLURRY.
3. **BOLTED RING & GRATE/COVER** - DIAMETER AS SHOWN. CLEAN CAST IRON WITH WORDING "STORM WATER ONLY" IN RAISED LETTERS. BOLTED IN 2 LOCATIONS AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.
4. **GRADED BASIN OR PAVING** (BY OTHERS).
5. **COMPACTED BASE MATERIAL** (BY OTHERS).
6. **PUREFLO® DEBRIS SHIELD** - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL .265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED.**
7. **PRE-CAST LINER** - 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS TO **MAXIMIZE BEARING SURFACE**.
8. **MIN. 6' Ø DRILLED SHAFT.**
9. **SUPPORT BRACKET** - FORMED 12 GA. STEEL. **FUSION BONDED EPOXY COATED**.
10. **OVERFLOW PIPE** - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
11. **DRAINAGE PIPE** - ADS HIGHWAY GRADE WITH TRI-A COUPLER. **SUSPEND PIPE** DURING BACKFILL OPERATIONS TO PREVENT BUCKLING OR BREAKAGE. DIAMETER AS NOTED.
12. **BASE SEAL** - GEOTEXTILE OR CONCRETE SLURRY.
13. **ROCK** - WASHED, SIZED BETWEEN 3/8" AND 1-1/2" TO **BEST COMPLEMENT SOIL CONDITIONS**.
14. **FLOFAST® DRAINAGE SCREEN** - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. DIAMETER VARIES 120" OVERALL LENGTH WITH TRI-B COUPLER.
15. **MIN. 4' Ø SHAFT** - DRILLED TO **MAINTAIN PERMEABILITY** OF DRAINAGE SOILS.
16. **FABRIC SEAL** - U.V. RESISTANT GEOTEXTILE - **TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION.
17. **ABSORBENT** - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY.
18. **CONNECTOR PIPE** - 4" Ø SCH. 40 PVC .
19. **ANTI-SIPHON VENT** WITH FLOW REGULATOR.
20. **INTAKE SCREEN** - SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. 48" OVERALL LENGTH WITH TRI-C END CAP.
21. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE PRIMARY/SECONDARY SETTLING CHAMBER DEPTHS AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE CONNECTOR PIPE OVERFLOW.
22. **EIGHT (8) PERFORATIONS PER FOOT**, 2 ROWS MIN.
23. **MOISTURE MEMBRANE** - 6 MIL. PLASTIC. PLACE SECURELY AGAINST ECCENTRIC CONE AND HOLE SIDEWALL. USED IN LIEU OF SLURRY IN LANDSCAPED AREAS.
24. **INLET PIPE** (BY OTHERS).



Preventing water pollution at your commercial/industrial site

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many landscape and building maintenance activities can lead to water pollution if you're not careful. Paint, chemicals, plant clippings and other materials can be blown or washed into storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour soap or fertilizers into the ocean, so why would you let them enter the storm drains? Follow these easy tips to help prevent water pollution.

Some types of industrial facilities are required to obtain coverage under the State General Industrial Permit. For more information visit: **www.swrcb.ca.gov/stormwater/industrial.html**

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

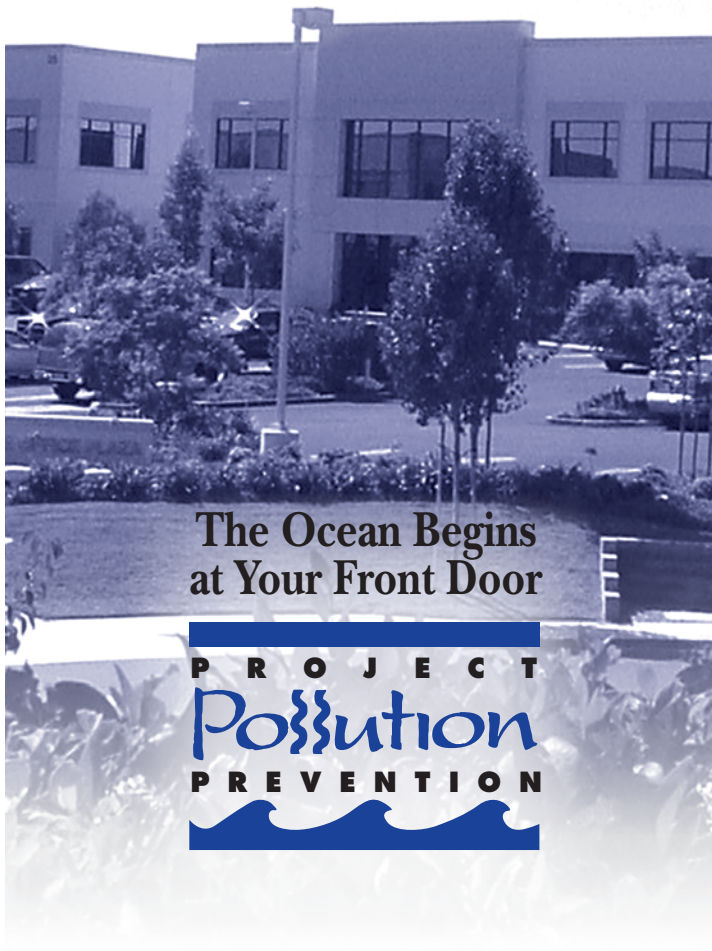
For emergencies, dial 911.

RECYCLE USED OIL

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Proper Maintenance Practices for Your Business



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Proper Maintenance Practices for your Business

Landscape Maintenance

- Compost grass clippings, leaves, sticks and other vegetation, or dispose of it at a permitted landfill or in green waste containers. Do not dispose of these materials in the street, gutter or storm drain.
- Irrigate slowly and inspect the system for leaks, overspraying and runoff. Adjust automatic timers to avoid overwatering.
- Follow label directions for the use and disposal of fertilizers and pesticides.
- Do not apply pesticides or fertilizers if rain is expected within 48 hours or if wind speeds are above 5 mph.
- Do not spray pesticides within 100 feet of waterways.
- Fertilizers should be worked into the soil rather than dumped onto the surface.
- If fertilizer is spilled on the pavement or sidewalk, sweep it up immediately and place it back in the container.

Building Maintenance

- Never allow washwater, sweepings or sediment to enter the storm drain.
- Sweep up dry spills and use cat litter, towels or similar materials to absorb wet spills. Dispose of it in the trash.
- If you wash your building, sidewalk or parking lot, you **must** contain the water. Use a shop vac to collect the water and contact your city or sanitation agency for proper disposal information. Do not let water enter the street, gutter or storm drain.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of materials in the trash.
- Use a ground cloth or oversized tub for mixing paint and cleaning tools.
- Use a damp mop or broom to clean floors.
- Cover dumpsters to keep insects, animals, rainwater and sand from entering. Keep the area around the dumpster clear of trash and debris. Do not overfill the dumpster.
- Call your trash hauler to replace leaking dumpsters.
- Do not dump any toxic substance or liquid waste on the pavement, the ground, or near a storm drain. Even materials that seem harmless such as latex paint or biodegradable cleaners can damage the environment.

Never Dispose of Anything in the Storm Drain.

- Recycle paints, solvents and other materials. For more information about recycling and collection centers, visit **www.oclandfills.com**.
- Store materials indoors or under cover and away from storm drains.
- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry, carpet, plastic, pipes, drywall, rocks, dirt, and green waste. For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**
- Properly label materials. Familiarize employees with Material Safety Data Sheets.

PROJECT Pollution PREVENTION



Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Materials and excess concrete or mortar can be blown or washed into the storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never throw building materials into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

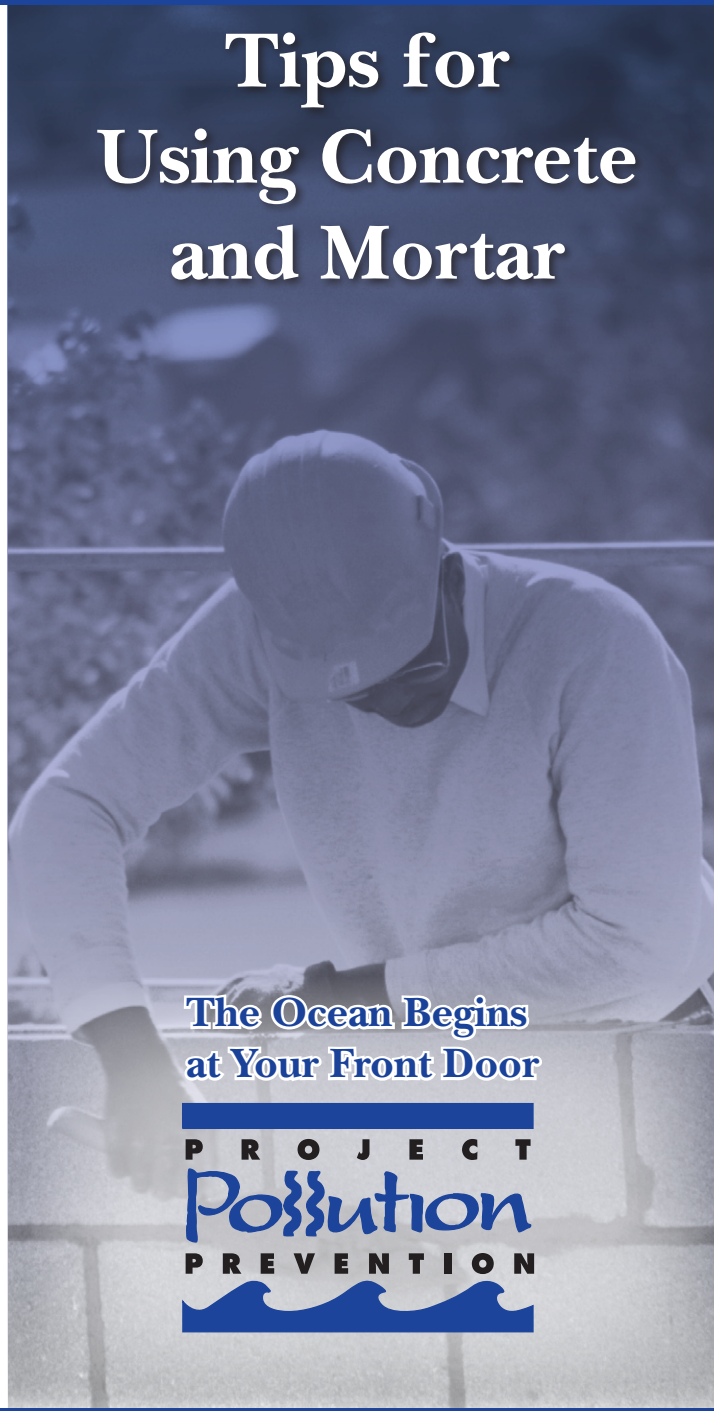
For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com.**

To report a spill, call the **Orange County 24-Hour Water Pollution Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The Tips contained in this brochure provide useful information about how you can keep materials and washwater from entering the storm drain system. If you have other suggestions for how water and materials may be contained, please contact your city's stormwater representative or call the Orange County Stormwater Program.

Tips for Using Concrete and Mortar



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Using Concrete and Mortar

Never allow materials or washwater to enter the street or storm drain.

Before the Project

- Schedule projects for dry weather.
- Store materials under cover, with temporary roofs or plastic sheets, to eliminate or reduce the possibility that the materials can be carried from the project site to streets, storm drains or adjacent properties via rainfall, runoff or wind.
- Minimize waste by ordering only the amount of materials needed to complete the job.
- Take measures to block nearby storm drain inlets.

During the Project

- Set up and operate small mixers on tarps or heavy drop cloths.
- Do not mix more fresh concrete or cement than is needed for the job.



- When breaking up pavement, pick up all chunks and pieces and recycle them at a local construction and demolition recycling company. (See information to the right)
- When making saw cuts in pavement, protect nearby storm drain inlets during the saw-cutting operation and contain the slurry. Collect the slurry residue from the pavement or gutter and remove from the site.



Clean-Up

- Dispose of small amounts of dry concrete, grout or mortar in the trash.
- Never hose materials from exposed aggregate concrete, asphalt or similar treatments into a street, gutter, parking lot, or storm drain.
- Wash concrete mixers and equipment in designated washout areas where the water can flow into a containment area or onto dirt. Small amounts of dried material can be disposed of in the trash. Large amounts should be recycled at a local construction and demolition recycling company. (See information below)



- Recycle cement wash water by pumping it back into cement mixers for reuse.

Spills

- Never hose down pavement or impermeable surfaces where fluids have spilled. Use an absorbent material such as cat litter to soak up a spill, then sweep and dispose in the trash.
- Clean spills on dirt areas by digging up and properly disposing of contaminated dry soil in trash.
- Immediately report significant spills to the County's 24-Hour Water Pollution Problem Reporting Hotline at 714-567-6363 or log onto the County's website at www.ocwatersheds.com and fill out an incident reporting form.

For a list of construction and demolition recycling locations in your area visit www.ciwmb.ca.gov/Recycle/.

For additional information on how to control, prevent, remove, and reduce pollution refer to the Stormwater Best Management Practice Handbook, available on-line at www.cabmphandbooks.com.

Bio Clean

A Forterra Company

UrbanPond™

A Stormwater Storage Solution

INSPECTION & MAINTENANCE MANUAL

5796 Armada Drive Suite 250 | Carlsbad, CA 92008 | 855.566.3938

stormwater@forterrabp.com | biocleanenvironmental.com

URBAN POND INSPECTION & MAINTENANCE

Inspection and maintenance of the Urban Pond underground detention, retention, or infiltration system is vital for the performance and life cycle of the stormwater management system. All local, state, and federal permits and regulations must be followed for system compliance. Manway access locations are provided on each system for ease of ingress and egress for routine inspection and maintenance activities. Stormwater regulations require that all BMPs be inspected and maintained to ensure they are operating as designed and providing protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site specific conditions. Inspection after the first significant rainfall event and at quarterly intervals is typical. This is recommended because pollutant loading and pollutant characteristics can vary greatly from site to site. Variables such as nearby soil erosion or construction sites, winter sanding on roads, amount of daily traffic and land use can increase pollutant loading on the system. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided. Without appropriate maintenance a BMP can exceed its storage capacity, become blocked, or damaged, which can negatively affect its continued performance.

Inspection Equipment

Following is a list of equipment to allow for simple and effective inspection of the underground detention, retention, or infiltration system:

- Bio Clean Environmental Inspection and Maintenance Report Form
- Flashlight
- Manhole hook or appropriate tools to access hatches and covers
- Appropriate traffic control signage and procedures
- Measuring pole and/or tape measure
- Protective clothing and eye protection
- Note: Entering a confined space requires appropriate safety and certification. It is generally not required for routine inspections of the system.



Inspection Steps

The key to any successful stormwater BMP maintenance program is routine inspections. The inspection steps required on the Urban Pond underground detention, retention, or infiltration system are quick and easy. As mentioned above, the first year should be seen as the maintenance interval establishment phase. During the first year more frequent inspections should occur in order

to gather loading data and maintenance requirements for that specific site. This information can be used to establish a base for long term inspection and maintenance interval requirements.

The Urban Pond underground detention, retention, or infiltration system can be inspected though visual observation without entry into the system. All necessary pre-inspection steps must be carried out before inspection occurs, especially traffic control and other safety measures to protect the inspector and nearby pedestrians from any dangers associated with an open access hatch or manhole. Once these access covers have been safely opened the inspection process can proceed:

- Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other information (see inspection form).
- Observe the upstream drainage area and look for sources of pollution, sediment, trash and debris.
- Observe the inside of the system through the access manholes. If minimal light is available and vision into the unit is impaired, utilize a flashlight to see inside the system and all of its modules.
- Look for any out of the ordinary obstructions in the inflow and outflow pipes. Check pipes for movement or leakage. Write down any observations on the inspection form.
- Observe any movement of modules.
- Observe concrete for cracks and signs of deterioration.
- In detention and retention systems inspect for any signs of leakage.
- In infiltration systems inspect for any signs of blockage or reasons that the soils are not infiltrating.
- Through observation and/or digital photographs, estimate the amount of floatable debris accumulated in the system. Record this information on the inspection form. Next, utilizing a tape measure or measuring stick, estimate the amount of sediment accumulated in the system. Sediment depth may vary throughout the system, depending on the flow path. Record this depth on the inspection form.
- Finalize inspection report for analysis by the maintenance manager to determine if maintenance is required.

Maintenance Indicators

Based upon observations made during inspection, maintenance of the system may be required based on the following indicators:

- Damaged inlet and outlet pipes.
- Obstructions in the system or its inlet or outlet.
- Excessive accumulation of floatables.
- Excessive accumulation of sediment of more than 6” in depth.
- Damaged joint sealant.

Maintenance Equipment

While maintenance can be done fully by hand it is recommended that a vacuum truck be utilized to minimize time requirements required to maintain the Urban Pond underground detention, retention, or infiltration system:

- Bio Clean Environmental Inspection and Maintenance Report Form
- Flashlight
- Manhole hook or appropriate tools to access hatches and covers
- Appropriate traffic control signage and procedures
- Measuring pole and/or tape measure
- Protective clothing and eye protection
- Vacuum truck
- Trash can
- Pressure washer
- Note: Entering a confined space requires appropriate safety and certification. It is generally not required for routine inspections of the system. Entry into the system will be required if maintenance is required.

Maintenance Procedures

It is recommended that maintenance occurs at least three days after the most recent rain event to allow for drain down of the system and any upstream detention systems designed to drain down over an extended period of time. Maintaining the system while flows are still entering it will increase the time and complexity required for maintenance. Once all safety measures have been set up cleaning of the system can proceed as follows:

- Using an extension on a boom on the vacuum truck, position the hose over the opened manway and lower into the system. Remove all floating debris, standing water (as needed) and sediment from the system. A power washer can be used to assist if sediments have become hardened and stuck to the walls and columns. Repeat the same procedure at each manway until the system has been fully maintained. Be sure not to pressure wash the infiltration area as it may scour.

If maintenance requires entry into the vault:

- Following rules for confined space entry use a gas meter to detect the presence of any hazardous gases. If hazardous gases are present do not enter the vault. Follow appropriate confined space procedures, such as utilizing venting system, to address the hazard. Once it is determined to be safe, enter utilizing appropriate entry equipment such as a ladder and tripod with harness.

- The last step is to close up and replace all manhole covers and remove all traffic control.
- All removed debris and pollutants shall be disposed of following local and state requirements.

For Maintenance Services please contact Bio Clean at 760-433-7640, or email info@biocleanenvironmental.com.

ATTACHMENT H

WQMP
Correspondence

Water Quality Management Plan Checklist

City of Brea

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of the Water Quality Management Plans (WQMPs) submitted by project applicants. The completed checklist should be transmitted to the project applicant with the project WQMP. A copy of the completed checklist should be retained with the project planning/permitting file. Upon acceptance of the project's Final WQMP, the property owner shall record a "Covenant and Agreement" with the County-Clerk Recorder or other instrument acceptable to the City to inform future property owners of the requirement to implement the approved project-specific WQMP. The recordation must be incorporated into the WQMP as an appendix prior to final approval.

WQMP (select one): ☒ Preliminary ☐ Final

City Planning Project Number: PLN-2022-00011

Project Name: Brea Gaslight Square

Project Address: 255 E. Imperial Highway, Brea, CA 92821

First Review

WQMP Received on: 06-30-2022

Review Completed on: 07-12-2022

Second Review

WQMP Received on: _____

Review Completed on: _____

Third Review

WQMP Received on: _____

Review Completed on: _____

Signature of Reviewer:  Date: 07-12-2022

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Title Page			
Name of project	X		
Application and/or Tract Number	X		
Lot number(s) if site is a portion of a Tract	X		
Site address (or addresses) and planning area number	X		
Owner/Developer name	X		
Owner/Developer address & telephone number	X		
Consulting/Engineering firm that prepared WQMP	X		
Consulting/Engineering firm address & phone number	X		
Date WQMP was prepared/revised	X		
Owner's Certification			
A signed certification statement, in which the project owner acknowledges and accepts the provisions of the WQMP, follows the title page.		X	
Table of Contents			
A Table of Contents, including a list of all figures and attachments is included.	X		
Section 1.0, Permit Numbers and Conditions of Approval			
Lists the Discretionary Permit(s).			X
The lot & tract/parcel map number describing the subject property.	X		
Lists, verbatim, the Water Quality Conditions, including condition requiring preparation of WQMP, if applicable.	X		
Provides applicable conditions from watershed-based plans including WIHMPs and TMDLs.	X		
Final Resolution of Approval, Conditional Use Permit, etc. is included as an Attachment to the WQMP.			X
Section 2.0, Project Description			
For All Projects:			
Identifies planning area or community name.	X		
Does the project description completely and accurately describe where facilities will be located, what activities will be conducted and where on the site, what kinds of materials and products will be used, how and where materials will be received and stored, and what kinds of wastes will be generated? *Development Category description on page 3 – Per the Model WQMP Requirements, the project is adding or replacing more than 50% of the property's impervious area and, as a result, will need to treat the entire 1.44-acre property.*		X	
Describes all paved areas, including the type of parking areas.	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Describes all landscaped areas.	X		
Describes ownership of all portions of project and site. – Will any infrastructure transfer to public agencies (City, County, Caltrans, etc.)? – Will a homeowners or property owners association will be formed? – Will the association be involved in long term maintenance?	X		 X X X
Identifies the potential stormwater or urban runoff pollutants reasonably expected to be associated with the project.	X		
Identifies potential HCOCs.	X		
Identifies post development drainage characteristics.	X		
For Commercial and Industrial Projects:			
– Provides Standard Industrial Classification (SIC) Code which best describes the facilities operations?	X		
– Describes the type of use (or uses) for each building or tenant space	X		
– Does project include food preparation, cooking, and eating areas (specify location and type of area)	X		
– Describes delivery areas and loading docks (specify location and design and if below grade and types of materials expected to be stored			X
– Describes outdoor materials storage areas (describe and depict location(s), specify type(s) of materials expected to be stored)			X
– Describes activities that will be routinely conducted outdoors			X
– Describes any activities associated with equipment or vehicle maintenance and repair, including washing or cleaning. Indicates number of service bays or number of fueling islands/fuel pumps, if applicable.			X
Residential Projects			
– Range of lot and home sizes;			X
– Describes all community facilities such as, laundry, car wash, swimming pools, jacuzzi, parks, open spaces, tot lots, etc.			X
Section 3.0, Site Description			
Describes project area and surrounding planning areas in sufficient detail to allow project location to be plotted on a base map.	X		
Provides site address and site size to nearest tenth acre.	X		
Identifies the zoning or land use designation.	X		
Identifies soil types and the quantity and percentage of pervious and impervious surface for pre-project and project conditions.	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Describes pre-project site drainage and how it ties into drainage of surrounding or adjacent areas and describes how planned project drainage and how it will tie into drainage of surrounding or adjacent areas.	X		
Identifies the watershed in which the project is located and the : – downstream receiving waters – known water quality impairments as included in the 303(d) List – applicable Total Maximum Daily Loads (TMDLs) – hydrologic conditions of concern, if any.	 X X X X		
Identifies known Environmentally Sensitive Areas (ESAs) and Areas of Special Biological Significance (ASBSs) within the vicinity and their proximity to the project.			X
Section 4.0, Best Management Practices			
Includes applicable performance criteria for the following: hydromodification control, LID criteria, and treatment control BMPs. *DMAs 1A and 2A comingle with onsite runoff and will need to be treated. Also project requires treatment of these DMAs due to 50% redevelopment criteria.*		X	
Do on-site BMPs include full capture certification or does a separate BMP address the full capture of trash (Connector Pipe Screen, Catch Basin Screen, or equivalent)?	X		
Includes narrative describing how site design concepts were considered and incorporated into project plans.	X		
Lists and describes all Routine Source Control BMPs (Non-structural and Structural).	X		
Describes the implementation frequency and identifies the entity or party responsible for implementation of each Non-Structural BMP.	X		
If applicable Routine Source Control BMPs were not included, was a reasonable explanation provided?	X		
Lists and describes appropriate Treatment Control BMPs and identifies the design basis (SQDF or SQDV) for the Treatment Control BMPs.			X
For Routine Non-Structural BMPs N1 (Education for Property Owners, Tenants, and Occupants) and N12 (Employee Training), does the WQMP describe the concepts that will be addressed by the education and training? Is a list of educational materials that will be used provided? Are copies of the educational materials included in an Attachment to the WQMP? *Minor error in Section IV.3.9. See redline in report.*	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Lists and describes appropriate LID and Hydromodification BMPs and identifies the design basis (SQDF or SQDV) for the LID BMPs. *Based on Simple Method used, drywell + upstream detention sizing for DMAs 1 and 2 does not provide enough static storage volume to detain the full DCV. Flows will be coming in faster than the drywell can infiltrate, which will lead to bypass of LID flows. If you wish to optimize detention storage by accounting for constant drawdown, please use the 80% Capture Efficiency Method.*		X	
Describes any regional/sub-regional BMPs that will be utilized (NOC).			X
Lists and appropriately calculates any Credits that the Project may qualify for.			X
Lists and describes alternative compliance measures (Treatment Control BMPs, regional programs, Urban Runoff Fund/Mitigation Program participation described if LID BMPs do not fulfill LID and Hydromodification requirements.			X
If applicable, Waiver Request and proof of submittal to the Regional Board Executive Officer included.			X
Section 5.0, Inspection and Maintenance Responsibility for BMPs			
Identifies the entity (or entities) responsible for the long-term inspection and maintenance of all structural source control BMPs and all Treatment Control BMPs, including name, title, company, address, and phone number.	X		
Describes the minimum frequency for inspection and maintenance to ensure the effectiveness of each structural source control BMP and each Treatment Control BMP.	X		
If ownership of the Treatment Control BMPs will be transferred to a public agency, does the WQMP include an Attachment indicating the public agency's intent to accept the Treatment Control BMPs as designed?			X
Is an appropriate mechanism for the long-term operation and maintenance, including funding, in place?	X		
Section 6.0, Location Map and Plot Plan			
Has an 11" by 17" plot plan been included?	X		
Do all figures, maps, plot plans, etc. have a legend, including a North arrow and scale?	X		
Are all facilities labeled for the intended function?	X		
Are all areas of outdoor activity labeled?	X		
Are all structural BMPs indicated (including GPS coordinates for LID BMPs)?		X	

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Is drainage flow information, including general surface flow lines, concrete or other surface ditches or channels, as well as storm drain facilities such as catch basins and underground storm drain pipes depicted? *Storm drain lines and LID BMPs are screened back instead of highlighted. Pipe flow direction should be shown as well.*		X	
Depicts where and how on-site drainage ties into the off-site drainage system.	X		
All BMPs proposed/shown on the WQMP exhibit are reflected in the Grading Plans.	X		
The following self-certification statement is provided on the WQMP exhibit: • Self-certifications from a State Licensed Professional Engineer or third-party certifications are required of all BMPs constructed on this plan or Final Certificate of Occupancy will not be granted from the City.		X	
Other			
Grading Plans have been provided and include the following statement in the construction notes of the Grading Plans: • Self-certifications from a State Licensed Professional Engineer or third-party certifications are required of all BMPs constructed on this plan or Final Certificate of Occupancy will not be granted from the City.		X	
City of Brea "Project Specific WQMP Summary Report" form and Project WQMP Summary Exhibit included?		X	
Has an electronic copy (i.e. PDF) of the WQMP been provided? A scan of the hard copy WQMP is not acceptable. The PDF shall be created from the original electronic source files to minimize file size, provide better quality, and allow for keyword search. The PDF copy shall be submitted via email or via a file transfer service to both hwen@fuscoe.com and briani@ci.brea.ca.us.	X		
Is an Appendix for County recordation of the WQMP included? Recordation of Title Page, Owner Certification Page, Engineer Certification Page, and City of Brea WQMP Summary Page must be recorded before approval can be issued.			X
Has an Appendix been provided for WQMP-related correspondence been provided? Please include email pertaining to the WQMP, previous plan check comments, or any specific instructions from plan checkers or City staff • For Final WQMP submittals, the stamped cover page of the approved Preliminary WQMP must be included in this Appendix.		X	
Is the BMP Maintenance Self-Certification Form included in the Appendix?		X	

WQMP REVIEW SUMMARY

The following is a summary of major concerns relative to this WQMP submittal:

- *Project site redevelops more than 50% of the property and, therefore, will need to provide LID treatment for the entire 1.44-acre property. In addition, the flows from the portions of the property not being redeveloped (DMAs 1A and 2A) is comingling with project flows, which would also trigger treatment requirements.*
- *Drywell sizing does not adequately address static storage needs to capture LID flows before infiltrating. Also, drawdown calculations exceed 48-hours. Per the TGD, LID BMPs must be designed to recover the DCV in less than or equal to 48 hours, if feasible, or provide additional storage volume beyond the DCV to offset the drawdown time. Alternatively, the applicant can utilize 80% Capture Efficiency Method to size drywells to account for constant drawdown. The applicant can either use the volume-based capture efficiency method or the flow-based capture efficiency method:*
    - *For the volume-based capture efficiency method, the drawdown time should be estimated using the average infiltration discharge rate during the drawdown period. The methodology presented in SOC TGD Section E.2.5 (Vertical plus Sidewall Infiltration) is a good reference. The Surface Area Correction Factor (SACF) method in the Infiltration Trench BMP Fact Sheet is also a good reference. In both of these methods, the discharge rate is determined based on the flux out of the sides plus bottom when the system is half full. This is a good approximation. The underlying point is that system will not flow at the full capacity except when full. So the dependency between flowrate and water depth needs to be accounted for in drawdown calculations.*
    - *For the flow-based capture efficiency method, the designer can use the maximum flowrate of the system when the system is full and sidewalls are fully engaged. The volume in the system is not considered in this calculation.*

REQUIRED FOR ALL SUBMITTALS AND RESUBMITTALS:
Submit an electronic copy to the Planning Division. Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

FOR FINAL APPROVAL ONLY:
Submit 2 hard copies with recorded version of the following documents:

- Title Page
- Signed Owners Cert Page
- Engineer Certification Page
- The City of Brea Project Specific WQMP Summary Report and Exhibit Pages

One hard copy will be returned to the owner upon City-stamped approval. Grading Permit will be approved upon submittal of the hard copy WQMPs. An electronic copy (PDF) is also required. Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

Reviewed by: Howard Wen, CPSWQ
Review Date: 07-12-2022
Plan Check #1

PLN-2022-00011
~~WQ XX-XXXX~~

Preliminary
County of Orange/Santa Ana Region Priority Project
Water Quality Management Plan (WQMP)

Project Name:

Brea Gaslight Square

PLAN REVIEW NO. PR XX-XX

BLD 2021-00557

255 E. IMPERIAL HIGHWAY, BREA, CA 92821

PARCEL 4 OF PARCEL MAP NO. 88-324

APN: 319-292-35

238 S. ORANGE AVENUE, BREA, CA 92821 & 242 S. ORANGE AVENUE, BREA, CA 92821

PARCEL 1 OF PARCEL MAP NO. 88-324

APN: 319-292-36

Prepared for:

One Berry, LLC - Dwight Manley

330 W Birch Street, Suite E201

Brea, CA 92821

(714) 990-8748 | dmanleyinc@aol.com

Prepared by:

Kimley Horn and Associates, Inc.

John Pollock, P.E. - RCE No. 86160

1100 W Town and Country Rd, Suite 700, Orange, CA 92868

(714) 786-6125 | john.pollock@kimley-horn.com

May 18, 2022

Telephone #	(714) 990-8748		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Owner Signature		Date	

Section II Project Description

II.1 Project Description

Provide a detailed project description including:

- Project areas;
- Land uses;
- Land cover;
- Design elements;
- A general description not broken down by drainage management areas (DMAs).

Include attributes relevant to determining applicable source controls. *Refer to Section 2.2 in the Technical Guidance Document (TGD) for information that must be included in the project description.*

Description of Proposed Project				
Development Category (From Model WQMP, Table 7.11-2; or -3): More than 50%, need to treat entire property.	Priority Project per Category 3: Restaurants where the land area of development is 5,000 square feet or more including parking area. This category is defined as facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. The project will disturb 68.0% of the property, a total of 0.95-acres within a total of 1.44-acres, consisting of 2 parcels owned by One Berry, LLC. As a result, Section 7.II-20 of Model WQMP only applies to the replacement area as described below.			
Project Area (ft^2): 41,576	Number of Dwelling Units: N/A		SIC Code: 5812	Include others.
Project Area	Pervious		Impervious	
	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
Pre-Project Conditions	10,931 sf	26.3%	30,645 sf	73.7%
Post-Project Conditions	9,862 sf	23.7%	31,714 sf	76.3%
Drainage Patterns/Connections	In the existing condition, storm water runoff from the building roofs, parking lot area, and landscape areas drain via surface flow from the northeast southeast corners of the site to an existing sidewalk parkway drain in the southwest corner of the site via a valley gutter that conveys run-off to a curb and gutter along Orange Ave and then to a curb inlet			

Drainage Patterns/Connections Treat comingled offsite flows. Treat comingled offsite flows.	For onsite DMA 2B, runoff from the proposed development, as well as run-on from offsite DMA 2A, will sheet flow to three (3) catch basins strategically placed, via a valley gutter and curb and gutters. The drop inlets will capture the runoff for the 24-hour 85th percentile storm and discharge it into a proposed proprietary underground storage vault (to attenuate flows) which will feed a proprietary Drywell system, sized to treat and percolate the disturbed area design runoff volume of the DMA 2B. All drop inlets will be fitted with Old Castle FloGuard Catch Basin Filter Inserts for full trash capture. For storm events greater than the 85th percentile storm event, storm water will overflow the eastern-most catch basin and be conveyed via a proposed parkway drain which will spill out onto the curb and gutter along Flower Avenue, flowing south to the existing catch basin just south of the parkway drain outlet, ultimately discharging onto the public storm drain system and matching existing conditions. For onsite DMA 1B, runoff from the proposed development, as well as run-on from offsite DMA 1A, will sheet flow to one (1) catch basin strategically placed, via a valley gutter and curb and gutters. The drop inlet will capture the runoff for the 24-hour 85th percentile storm and discharge it into an underground proprietary Drywell system, sized to treat and percolate the disturbed area design runoff volume of DMA 1B. The drop inlet will be fitted with an Old Castle FloGuard Catch Basin Filter Inserts for full trash capture. For storm events greater than the 85th percentile storm event, storm water will overflow the catch basin and be conveyed via proposed parkway drain which connects to the shopping center's existing on-site sidewalk parkway drain south-west, ultimately discharging onto the public storm drain system and matching existing conditions. Refer to Attachment B for DMA delineation and the WQMP Site Plan. The storm drain system conveys flows south-west where it will discharge into the Artesia-Norwalk Drain which will convey flows further south-west and discharge into Coyote Creek and drain to San Gabriel River Estuary before discharging into the Pacific Ocean.
Soil Type, Geology, and Infiltration Properties	A geotechnical and site analysis was conducted, and the results of the analysis is included in Attachment E. It is expected that the fills that will be encountered between a depth of 2-5 feet will be predominantly engineered fills as the site is currently developed. Two (2) in-situ percolation tests were performed to approximate depths of 6 to 25 feet bgs. The measured correlated infiltration rates

Change header for the rest of the report.

Section IV Best Management Practices (BMPs)

IV. 1 Project Performance Criteria

Describe project performance criteria. Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used, and the project can evaluate participation in the approved regional or sub-regional opportunities. (Please ask your assigned planner or plan checker regarding whether your project is part of an approved WIHMP or equivalent.)
- Determine applicable hydromodification control performance criteria. *Refer to Section 7.II-2.4.2.2 of the Model WQMP.*
- Determine applicable LID performance criteria. *Refer to Section 7.II-2.4.3 of the Model WQMP.*
- Determine applicable treatment control BMP performance criteria. *Refer to Section 7.II-3.2.2 of the Model WQMP.*
- Calculate the LID design storm capture volume for the project. *Refer to Section 7.II-2.4.3 of the Model WQMP.*

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?	YES ☐	NO ☒
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.	The project lies within the Coyote Creek-San Gabriel River Watershed (Attachment A). Per the hydromodification susceptibility map, the project area is within an area with potential for erosion, habitat, & physical structure susceptibility. The project area discharges storm water to an existing on-site private sidewalk parkway drain that conveys run-off to a curb and gutter along Orange Ave and then to a curb inlet catch basin on Flower Ave where it enters the public storm drain system. The storm drain system conveys flows south-west where it will discharge into the Artesia-Norwalk Drain which will convey flows further south-west and discharge into Coyote Creek and drain to San Gabriel River Estuary before discharging into the Pacific Ocean. Artesia-Norwalk Drain has Selenium and Indicator Bacteria listed on the 303(d) List. Coyote Creek, which is downstream of Artesia-Norwalk Drain, has copper, dissolved, pH, toxicity, indicator bacteria, Malathion and Iron on the 303(d) list. San Gabriel River Estuary, which is downstream of Coyote Creek, has nickel, oxygen,	

IV.3.2 Infiltration BMPs

Identify infiltration BMPs to be used in project. If design volume cannot be met, state why.

Name	Included?
Bioretention without underdrains	☐
Rain gardens	☐
Porous landscaping	☐
Infiltration planters	☐
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☒
Subsurface infiltration galleries	☐
French drains	☐
Permeable asphalt	☐
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Strom Capture Volume can be met with infiltration BMPs. If not, document how much can be met with infiltration and document why it is not feasible to meet the full volume with infiltration BMPs.

See Appendix F for Drywell calculations.

Describe drywell sizing details here. Also provide GIS Coordinates for each drywell and underground detention system.

IV.3.9 Structural Source Control BMPs

Fill out structural source control check box forms or provide a brief narrative explaining if structural source controls were not used.

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☒	☐	
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	No slopes / channels to be disturbed as part of this project.
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☒	☐	Not applicable.
S6	Dock areas	☐	☒	No dock areas proposed
S7	Maintenance bays	☐	☒	No maintenance bays proposed
S8	Vehicle wash areas	☐	☒	No vehicle wash areas proposed
S9	Outdoor processing areas	☐	☒	No outdoor processing areas proposed
S10	Equipment wash areas	☐	☒	No equipment wash areas proposed
S11	Fueling areas	☐	☒	No fueling areas proposed
S12	Hillside landscaping	☐	☒	No hillside landscaping proposed
S13	Wash water control for food preparation areas	☒	☐	Wash water for food preparation areas will be discharged to the on-site grease interceptor.
S14	Community car wash racks	☐	☒	No community car wash racks proposed

Section V Inspection/Maintenance Responsibility for BMPs

Fill out information in table below. Prepare and attach an Operation and Maintenance Plan. Identify the funding mechanism through which BMPs will be maintained. Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agencies. *Refer to Section 7.II 4.0 in the Model WQMP.*

BMP Inspection/Maintenance			
BMP	**Reponsible Party(s)**	**Inspection/ Maintenance Activities Required**	**Minimum Frequency of Activities**
Old Castle Catch Basin Filter Insert (6)	One Berry, LLC	Refer to Operations and Maintenance in Appendix J	Quarterly and at least once before the beginning of the raining season (October 1st)
Underground Drywell System (2)	One Berry, LLC	Refer to MaxWell Plus Operations and Maintenance in Appendix G	Quarterly and at least once before the beginning of the raining season (October 1st)
Underground Stormwater Storage Vault (1)	One Berry, LLC	Refer to Old Castle Stormcapture SC1 Detention System Operations and Maintenance in Appendix G	Quarterly and at least once before the beginning of the raining season (October 1st)
"No Dumping" Storm Drain Stencil	One Berry, LLC	Replace existing stencilling	Inspect annually. As-needed.
Nl - Education for Property Owners, Tenants and Occupants	One Berry, LLC	The owner shall employ an educational program to staff encompassing importance of stormwater management and BMP implementation.	Upon initial employment, Annually thereafter

Worksheet B: Simple Design Capture Volume Sizing Method DMA 1B Include 1A

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.89	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.89	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.45	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.80	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.75	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	1,078*	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	2.2	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=	2.25	
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=	0.98	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	48	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	3.92	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	275	sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

*The underground dry well system (667 CF for drywell and 327 CF for drywell storage) exceeds the Design Capture Volume of 1,078 CF. Refer to Dry Well Sizing Sheet attached hereon for more information.

An underground storage tank (X,XXX CF capacity) is proposed to attenuate flows and provide storage for the additional XXX CF of required storage. Refer to DMA Exhibit Details for more information.

Worksheet B: Simple Design Capture Volume Sizing Method DMA 2B Include 2A

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.89	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.89	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.51	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.73	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.70	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	1149	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	2.2	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=	2.25	
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=	0.98	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	48	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} x T x (1/12)$	D_{max}=	3.92	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	293	sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

*Design Capture Volume exceeds capacity of the underground dry well system (664 CF and 327 CF for drywell storage). Refer to Dry Well Sizing Sheet attached hereon for more information.

An underground storage tank is proposed to attenuate flows and provide storage for the additional 36 CF of required storage. Refer to DMA Exhibit Details for more information.

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	3	0.75
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1.5
B	Design	Tributary area size	0.25	1	0.25
		Level of pretreatment/ expected sediment loads	0.25	1	0.25
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_B = \Sigma p$			1.5
Combined Safety Factor, $S_{Total} = S_A \times S_B$					2.25
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					2.2
Design Infiltration Rate, in/hr, $K_{DESIGN} = K_{Observed} / S_{Total}$					0.98

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

Infiltration rate provided is based on the 19-25 feet depth percolation test rates observed in the field. Prior to the installation of the underground system the contractor shall perform in-situ testing to verify values presented in this report.

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Dry Well Calculations

Brea Gaslight Square
05/17/2022

Dry Well – BMP IDs: (DW-1) & (DW-2)
Field Percolation Rate: 2.2 in/hr
Factor of Safety: 2.25

Design Percolation Rate:
(2.2 in/hr) / 2.25 = **0.977 in/hr**
0.977 in/hr x (1hr/3600s) x (1ft/12in) = **0.0000226 ft/s**

Percolation occurs between 20 feet and 35 feet below grade. This provides 15 feet of infiltration depth in addition to the bottom area:

Unit Surface Area per foot of depth – 4' diameter drywell
3.14 x 2^2 = **12.57 sf/ft**

Bottom Area – total is equivalent to a 4' diameter circle
3.14 x 2^2 = **12.57 sf**

Shaft Surface Area – total is equivalent to a 4' diam. circle
15 x 12.57 = **188.55 sf**

The Total Percolation Surface Area Available
12.57 sf + 188.55 sf = **201.12 sf**

Volume Provided:
Settling Chamber Volume + Infiltration Chamber Volume (40% Rock Porosity)
20ft x [2^2 x 3.14] *(4' diam)* + 15ft x [2^2 x 3.14] x 40% = **327 CF**

Total Available Percolation Flowrate:
Design Percolation Rate * Percolation Surface Area Available
0.0000226 ft/s * 201.12 sf = **0.00455 cfs**

48-Hour Drawdown Volume Available
Available Percolation Flowrate (3600 s / 1 hr) (48 hours per storm event)
0.00455 cfs (3600/1)(48) = **786 CF**

Only 786 CF is drawn down in 48-hours. The BMP is undersized. Use capture efficiency method if infiltration of the full volume exceeds 48 hour drawdown.

The storage provided does not guarantee capture of the DCV. Using Simple Method, your system must provide static storage of the full DCV. Otherwise, use capture efficiency method to factor in constant drawdown.

(DW-1) – DMAs 1B
The required DCV is 1,078 CF. With the drywell 786 CF 48-hour drawdown volume available and the 327 CF of storage volume, no additional storage is required for this BMP.

(DW-2) – DMA 2B
The required DCV is 1,149 CF. With the drywell 786 CF 48-hour drawdown volume available and the 327 CF of storage volume, an underground storage vault is proposed to mitigate the additional 36 CF of the required 48-hour volume LID Storm event. The proposed Urban Pond Storage Vault storage capacity exceeds the required volume.

Water Quality Management Plan Checklist

City of Brea

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of the Water Quality Management Plans (WQMPs) submitted by project applicants. The completed checklist should be transmitted to the project applicant with the project WQMP. A copy of the completed checklist should be retained with the project planning/permitting file. Upon acceptance of the project's Final WQMP, the property owner shall record a "Covenant and Agreement" with the County-Clerk Recorder or other instrument acceptable to the City to inform future property owners of the requirement to implement the approved project-specific WQMP. The recordation must be incorporated into the WQMP as an appendix prior to final approval.

WQMP (select one): ☒ Preliminary ☐ Final

City Planning Project Number: PLN-2022-00011

Project Name: Brea Gaslight Square

Project Address: 255 E. Imperial Highway, Brea, CA 92821

First Review

WQMP Received on: 06-30-2022

Review Completed on: 07-12-2022

Second Review

WQMP Received on: 09-30-2022

Review Completed on: 10-05-2022

Third Review

WQMP Received on: _____

Review Completed on: _____

Signature of Reviewer:  Date: 10/5/2022

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Title Page			
Name of project	X		
Application and/or Tract Number	X		
Lot number(s) if site is a portion of a Tract	X		
Site address (or addresses) and planning area number	X		
Owner/Developer name	X		
Owner/Developer address & telephone number	X		
Consulting/Engineering firm that prepared WQMP	X		
Consulting/Engineering firm address & phone number	X		
Date WQMP was prepared/revised	X		
Owner's Certification			
A signed certification statement, in which the project owner acknowledges and accepts the provisions of the WQMP, follows the title page.		X	
Table of Contents			
A Table of Contents, including a list of all figures and attachments is included.	X		
Section 1.0, Permit Numbers and Conditions of Approval			
Lists the Discretionary Permit(s).			X
The lot & tract/parcel map number describing the subject property.	X		
Lists, verbatim, the Water Quality Conditions, including condition requiring preparation of WQMP, if applicable.	X		
Provides applicable conditions from watershed-based plans including WIHMPs and TMDLs.	X		
Final Resolution of Approval, Conditional Use Permit, etc. is included as an Attachment to the WQMP.			X
Section 2.0, Project Description			
For All Projects:			
Identifies planning area or community name.	X		
Does the project description completely and accurately describe where facilities will be located, what activities will be conducted and where on the site, what kinds of materials and products will be used, how and where materials will be received and stored, and what kinds of wastes will be generated? *Since the project is adding or replacing more than 50% of the property's impervious area, remove reference to 7.II-20 on page 3.*		X	
Describes all paved areas, including the type of parking areas.	X		
Describes all landscaped areas.	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Describes ownership of all portions of project and site. – Will any infrastructure transfer to public agencies (City, County, Caltrans, etc.)? – Will a homeowners or property owners association will be formed? – Will the association be involved in long term maintenance?	X		 X X X
Identifies the potential stormwater or urban runoff pollutants reasonably expected to be associated with the project.	X		
Identifies potential HCOCs.	X		
Identifies post development drainage characteristics.	X		
For Commercial and Industrial Projects:			
– Provides Standard Industrial Classification (SIC) Code which best describes the facilities operations?	X		
– Describes the type of use (or uses) for each building or tenant space	X		
– Does project include food preparation, cooking, and eating areas (specify location and type of area)	X		
– Describes delivery areas and loading docks (specify location and design and if below grade and types of materials expected to be stored			X
– Describes outdoor materials storage areas (describe and depict location(s), specify type(s) of materials expected to be stored)			X
– Describes activities that will be routinely conducted outdoors			X
– Describes any activities associated with equipment or vehicle maintenance and repair, including washing or cleaning. Indicates number of service bays or number of fueling islands/fuel pumps, if applicable.			X
Residential Projects			
– Range of lot and home sizes;			X
– Describes all community facilities such as, laundry, car wash, swimming pools, jacuzzi, parks, open spaces, tot lots, etc.			X
Section 3.0, Site Description			
Describes project area and surrounding planning areas in sufficient detail to allow project location to be plotted on a base map.	X		
Provides site address and site size to nearest tenth acre.	X		
Identifies the zoning or land use designation.	X		
Identifies soil types and the quantity and percentage of pervious and impervious surface for pre-project and project conditions.	X		
Describes pre-project site drainage and how it ties into drainage of surrounding or adjacent areas and describes how planned project drainage and how it will tie into drainage of surrounding or adjacent areas.	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Identifies the watershed in which the project is located and the : – downstream receiving waters – known water quality impairments as included in the 303(d) List – applicable Total Maximum Daily Loads (TMDLs) – hydrologic conditions of concern, if any.	X X X X		
Identifies known Environmentally Sensitive Areas (ESAs) and Areas of Special Biological Significance (ASBSs) within the vicinity and their proximity to the project.			X
Section 4.0, Best Management Practices			
Includes applicable performance criteria for the following: hydromodification control, LID criteria, and treatment control BMPs.	X		
Do on-site BMPs include full capture certification or does a separate BMP address the full capture of trash (Connector Pipe Screen, Catch Basin Screen, or equivalent)?	X		
Includes narrative describing how site design concepts were considered and incorporated into project plans.	X		
Lists and describes all Routine Source Control BMPs (Non-structural and Structural).	X		
Describes the implementation frequency and identifies the entity or party responsible for implementation of each Non-Structural BMP.	X		
If applicable Routine Source Control BMPs were not included, was a reasonable explanation provided?	X		
Lists and describes appropriate Treatment Control BMPs and identifies the design basis (SQDF or SQDV) for the Treatment Control BMPs.			X
For Routine Non-Structural BMPs N1 (Education for Property Owners, Tenants, and Occupants) and N12 (Employee Training), does the WQMP describe the concepts that will be addressed by the education and training? Is a list of educational materials that will be used provided? Are copies of the educational materials included in an Attachment to the WQMP?	X		
Lists and describes appropriate LID and Hydromodification BMPs and identifies the design basis (SQDF or SQDV) for the LID BMPs.	X		
Describes any regional/sub-regional BMPs that will be utilized (NOC).			X
Lists and appropriately calculates any Credits that the Project may qualify for.			X
Lists and describes alternative compliance measures (Treatment Control BMPs, regional programs, Urban Runoff Fund/Mitigation Program participation described if LID BMPs do not fulfill LID and Hydromodification requirements.			X

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
If applicable, Waiver Request and proof of submittal to the Regional Board Executive Officer included.			X
Section 5.0, Inspection and Maintenance Responsibility for BMPs			
Identifies the entity (or entities) responsible for the long-term inspection and maintenance of all structural source control BMPs and all Treatment Control BMPs, including name, title, company, address, and phone number.	X		
Describes the minimum frequency for inspection and maintenance to ensure the effectiveness of each structural source control BMP and each Treatment Control BMP.	X		
If ownership of the Treatment Control BMPs will be transferred to a public agency, does the WQMP include an Attachment indicating the public agency's intent to accept the Treatment Control BMPs as designed?			X
Is an appropriate mechanism for the long-term operation and maintenance, including funding, in place?	X		
Section 6.0, Location Map and Plot Plan			
Has an 11" by 17" plot plan been included?	X		
Do all figures, maps, plot plans, etc. have a legend, including a North arrow and scale?	X		
Are all facilities labeled for the intended function?	X		
Are all areas of outdoor activity labeled?	X		
Are all structural BMPs indicated (including GPS coordinates for LID BMPs)? *Add coordinates for detention and drywells to exhibit*		X	
Is drainage flow information, including general surface flow lines, concrete or other surface ditches or channels, as well as storm drain facilities such as catch basins and underground storm drain pipes depicted? *Show pipe flow direction.*		X	
Depicts where and how on-site drainage ties into the off-site drainage system.	X		
All BMPs proposed/shown on the WQMP exhibit are reflected in the Grading Plans.	X		
The following self-certification statement is provided on the WQMP exhibit: • Self-certifications from a State Licensed Professional Engineer or third-party certifications are required of all BMPs constructed on this plan or Final Certificate of Occupancy will not be granted from the City. *Add text to exhibit*		X	

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Other			
Grading Plans have been provided and include the following statement in the construction notes of the Grading Plans: • Self-certifications from a State Licensed Professional Engineer or third-party certifications are required of all BMPs constructed on this plan or Final Certificate of Occupancy will not be granted from the City. *Add text to exhibit*		X	
City of Brea "Project Specific WQMP Summary Report" form and Project WQMP Summary Exhibit included?		X	
Has an electronic copy (i.e. PDF) of the WQMP been provided? A scan of the hard copy WQMP is not acceptable. The PDF shall be created from the original electronic source files to minimize file size, provide better quality, and allow for keyword search. The PDF copy shall be submitted via email or via a file transfer service to both hwen@fuscoe.com and briani@ci.brea.ca.us.	X		
Is an Appendix for County recordation of the WQMP included? Recordation of Title Page, Owner Certification Page, Engineer Certification Page, and City of Brea WQMP Summary Page must be recorded before approval can be issued.			X
Has an Appendix been provided for WQMP-related correspondence been provided? Please include email pertaining to the WQMP, previous plan check comments, or any specific instructions from plan checkers or City staff • For Final WQMP submittals, the stamped cover page of the approved Preliminary WQMP must be included in this Appendix.		X	
Is the BMP Maintenance Self-Certification Form included in the Appendix? *Complete & include in attachments*		X	

WQMP REVIEW SUMMARY

The following is a summary of major concerns relative to this WQMP submittal:

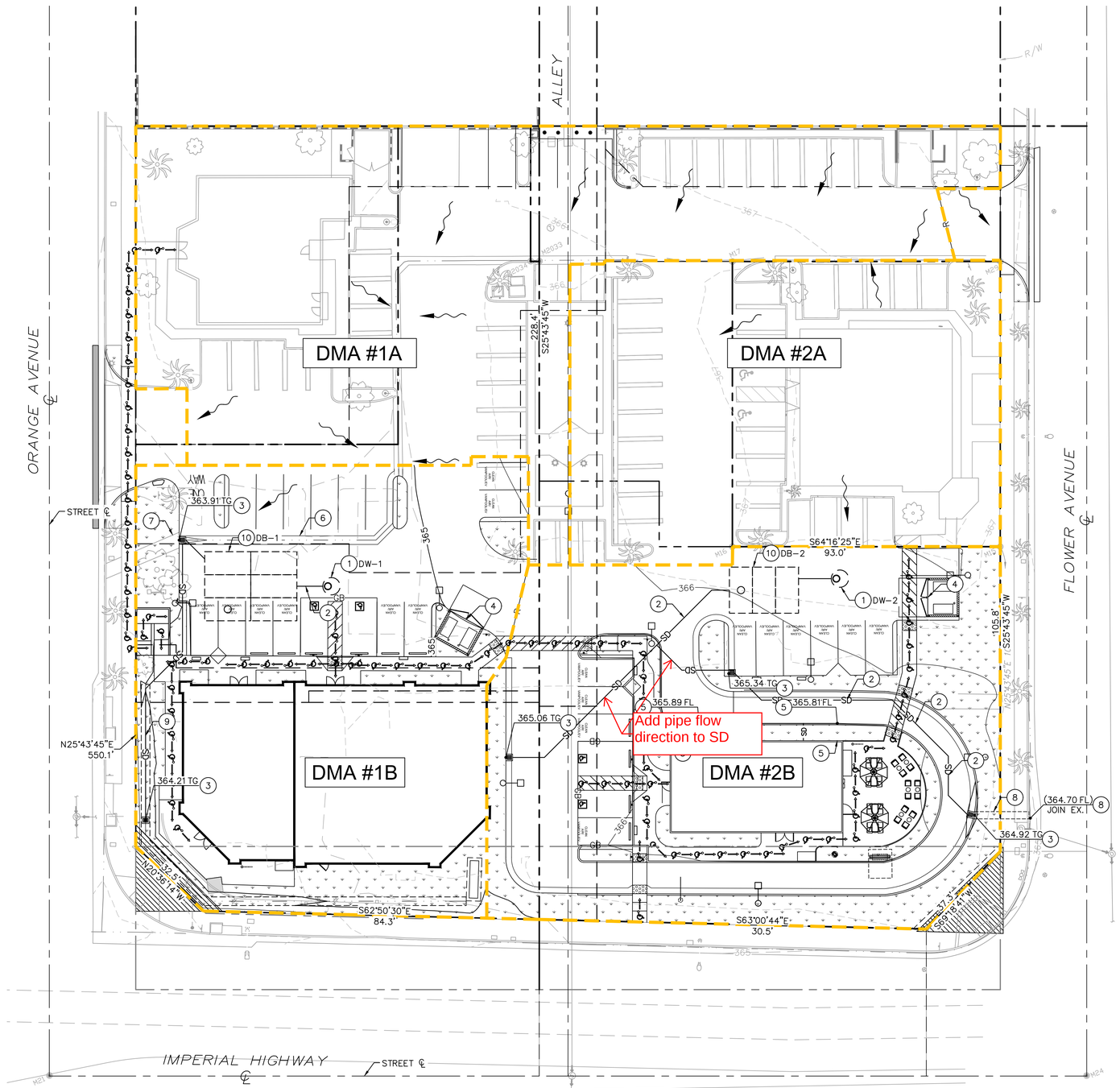
- *Remove reference to Section 7.II-20 since project site redevelops more than 50% of the property and, therefore, will need to provide LID treatment for the entire 1.44-acre property..*
- *Include GIS Coordinates for LID and Treatment Control BMPS including the storage galleries and drywells in report and on exhibit. Reattach Appendix F.*
- *Update Drywell detail sheet (Conceptual WQMP Details) to reflect DMA labeling consistent with project.*

REQUIRED FOR ALL SUBMITTALS AND RESUBMITTALS:
Submit an electronic copy to breabuildingpermits@cityofbrea.net and cc Briani@cityofbrea.net
Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

FOR FINAL APPROVAL ONLY:
Submit 2 hard copies with recorded version of the following documents:

- Title Page
- Signed Owners Cert Page
- Engineer Certification Page
- The City of Brea Project Specific WQMP Summary Report and Exhibit Pages

One hard copy will be returned to the owner upon City-stamped approval. Grading Permit will be approved upon submittal of the hard copy WQMPs. An electronic copy (PDF) is also required. Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.



CONCEPTUAL WQMP NOTES

1. PROPOSED UNDERGROUND DRY WELL AND SETTLING CHAMBER SYSTEM. REFER TO SHEET 2 FOR MORE INFORMATION.
2. 6" SDR-35 PVC STORM DRAIN PIPE SLOPED AT 0.5% MIN.
3. 24" X 24" JENSEN PRECAST DROP INLET WITH CATCH BASIN FILTER INSERT FOR TRASH CAPTURE. ALL CATCH BASINS SHALL HAVE "NO DUMPING-DRAINS TO OCEAN" PAINTED ON THE ADJACENT CURB. REFER TO SHEET 2 FOR MORE INFORMATION.
4. TRASH ENCLOSURE DRAIN WITH ACCESSIBLE GRATE. DRAIN TO SEWER.
5. ROOF DOWNSPOUTS. CONNECT TO 4" SDR-35 PVC STORM DRAIN PIPE AND DRAIN THRU CURB FACE.
6. 3' WIDE VALLEY GUTTER
7. EXISTING PARKWAY DRAIN TO REMAIN. NEW CONNECTION FOR OVERFLOW AT 2" ABOVE FLOW LINE.
8. PROPOSED 30" X 4" PARKWAY DRAIN PER SPPWC STANDARD PLAN 151-2 TYPE 2 FOR OVERFLOW AT 2" ABOVE FLOW LINE. REFER TO SHEET 2 FOR MORE INFORMATION.
9. INSTALL 4" SDR-26 PVC STORM DRAIN PIPE AT 0.5% MIN.
10. UNDERGROUND STORAGE VAULT FOR STORM WATER MANAGEMENT. REFER TO SHEET 3 FOR MORE INFORMATION.

LEGEND

- CENTER LINE
- PROPERTY LINE
- EASEMENT LINE
- APPROXIMATE LIMITS OF DISTURBANCE
- DMA LIMITS
- R — PROPOSED RIDGE LINE
- GB — PROPOSED GRADE BREAK LINE
- PROPOSED FLOW LINE
- SD — PROPOSED STORM DRAIN LINE
- SD — EXISTING STORM DRAIN LINE
- FLOW DIRECTION

WQMP DMAs

DMA #	TOTAL DRAINAGE AREA (SF)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	DESIGN CAPTURE VOLUME (CF)	STRUCTURAL BMP ID#	BMP TYPE
1A (OFFSITE RUN-ON)	24,225	19,685	4,540	1,364	DW-1, DB-1	DRYWELL, DETENTION BASIN
1B	19,462	15,485	3,977	1,078	DW-1, DB-1	DRYWELL, DETENTION BASIN
2A (OFFSITE RUN-ON)	15,198	12,493	2,705	864	DW-2, DB-2	DRYWELL, DETENTION BASIN
2B	22,114	16,229	5,885	1,149	DW-2, DB-2	DRYWELL, DETENTION BASIN
TOTAL	80,999	63,892	17,107	4,455	DW-1, DW-2, DB-1, DB-2	DRYWELL, DETENTION BASIN

ADD TEXT:

Self-certifications from a State Licensed Professional Engineer or third-party certifications are required of all BMPs constructed on this plan or Final Certificate of Occupancy will not be granted from the City

SOURCE CONTROL BMPS	
BMP ID	BMP DESCIRPTION
SC-1	PREVENT ILLICIT DISCHARGE INTO MS4 → ALL LANDSCAPE AREAS (TYP.)
SC-2	STORM DRAIN STENCILING AND SIGNAGE → ALL SD GRATED INLETS, CURB CUTS (TYP.)
SC-5	TRASH AND STORAGE AREAS
SC-6	ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS
A.	ON-SITE STORM DRAIN INLETS
D.	NEED FOR FUTURE INDOOR AND SOURCE CONTROL
E.	LANDSCAPE / OUTDOOR PESTICIDE USE
G.	FOOD PREPARATION AND / OR SERVICE
H.	REFUSE / TRASH COLLECTION AREAS
O.	FIRE SPRINKLER TEST WATER AND RELIEF POINT
P.	MISCELLANEOUS DRAIN OR WASH DOWN AREAS
Q.	PLAZA, SIDEWALKS, PARKING LOTS

SITE DESIGN BMPS	
BMP ID	BMP DESCIRPTION
SD-2	CONSERVE NATURAL AREAS, SOILS, AND VEGETATION
SD-3	MINIMIZE IMPERVIOUS AREAS
SD-4	MINIMIZE SOIL COMPACTION
SD-7	LANDSCAPING WITH NATIVE OR DROUGHT TOLERANT LANDSCAPING.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

811 Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

TB
DRAWN BY
JP
CHECKED BY
TH
RECOMMENDED

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER JOHN K. POLLOCK 86160 CIVIL STATE OF CALIFORNIA

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
JOHN POLLOCK, R.C.E. NO. 86160 DATE: 9/20/2022 EXP. 12/31/2022

BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA

CONCEPTUAL WQMP PLAN

1 OF 3

Drawing name: C:\Users\TATIAN~1.BRA\AppData\Local\Temp\AcPublish_19960\Preliminary WQMP Plan.dwg 1 — Preliminary WQMP Plan Sep 20, 2022 12:43pm by: tatiana.braun
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

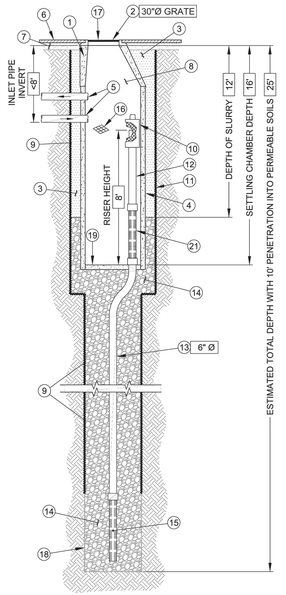
Update for DMA 1A-2A and DMA 1B-2B

The MaxWell® IV

DRAINAGE SYSTEM DETAILS AND SPECIFICATIONS

Brea Gaslight Square - DMA1

Brea, CA



AZ Lic. ROC070465 A, ROC047087 B-4, ADWR 383
CA Lic. 886759, C-42, C-57, HAZ
Also licensed in the following states: MT, NM, NV, OR, TX, UT, and WA.
U.S. Patent No. 4,823,330 - ™ Trademark 1974, 1990, 2004

DETAIL:	IV-4-SS-OC	REVISED BY:	RJA	
DRAWN ON:	08-28-19	REVISED DATE:	09-16-22	SCALE: N.T.S

ITEM NUMBERS

1. **MANHOLE CONE** - MODIFIED FLAT BOTTOM.
2. **BOLTED RING & GRATE/COVER** - DIAMETER & TYPE AS SHOWN. CLEAN CAST IRON WITH WORDING **"STORM WATER ONLY"** IN RAISED LETTERS. **BOLTED IN 2 LOCATIONS** AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.
3. **STABILIZED BACKFILL** - TWO-SACK SLURRY MIX FROM BOTTOM OF SLURRY TO 5' BELOW GRADE AROUND CHAMBER. SIX-SACK SLURRY MIX FROM 5' BELOW GRADE TO GRADE AROUND CHAMBER.
4. **PRE-CAST LINER** - 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS **TO MAXIMIZE BEARING SURFACE.**
5. **INLET PIPE/OUTLET PIPE (BY OTHERS).** SEE SEPARATE PLAN FOR INVERT ELEVATIONS.
6. **GRADED BASIN OR PAVING** (BY OTHERS).
7. **COMPACTED BASE MATERIAL**, IF REQUIRED (BY OTHERS).
8. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE SETTLING CHAMBER DEPTH AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE RISER PIPE.
9. **NON-WOVEN GEOTEXTILE SLEEVE** - MIRAFI 140 NL. MIN. 6 FT Ø, HELD APPROX. 10 FEET OFF THE BOTTOM OF EXCAVATION.
10. **PUREFLO® DEBRIS SHIELD** - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL 0.265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED**.
11. **MIN. 6' Ø DRILLED SHAFT.**
12. **RISER PIPE** - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
13. **DRAINAGE PIPE** - ADS HIGHWAY GRADE OR SCH. 40 PVC WITH TRI-A COUPLER. SUSPEND PIPE DURING BACKFILL OPERATIONS. DIAMETER AS NOTED.
14. **ROCK** - WASHED, SIZED BETWEEN 3/8" AND 1-1/2".
15. **FLOFAST® DRAINAGE SCREEN** - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. OVERALL LENGTH VARIES, UP TO 120" WITH TRI-B COUPLER.
16. **ABSORBENT** - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY. TYPICAL, 2 PER CHAMBER.
17. **FABRIC SEAL** - U.V. RESISTANT GEOTEXTILE - **TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION. GRATED ONLY.
18. **MIN 4' Ø DRILLED SHAFT.**
19. **BASE SEAL** - SIX-SACK SLURRY.
21. **DRAIN DOWN INTAKE SCREEN** - 6" Ø SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. WRAPPED WITH NON-WOVEN GEOTEXTILE FABRIC. 48" OVERALL LENGTH WITH TRI-B COUPLER.

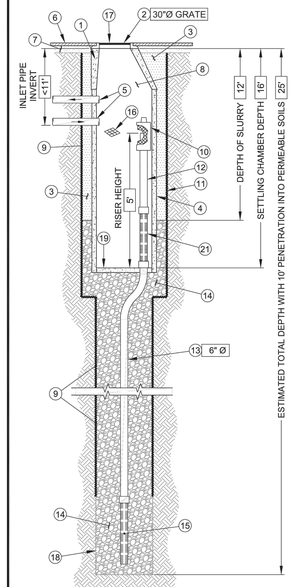
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An evolution of McGuckin Drilling
www.torrentresources.com
CALIFORNIA 909-829-0740
ARIZONA 602-268-0785

The MaxWell® IV

DRAINAGE SYSTEM DETAILS AND SPECIFICATIONS

Brea Gaslight Square - DMA2

Brea, CA



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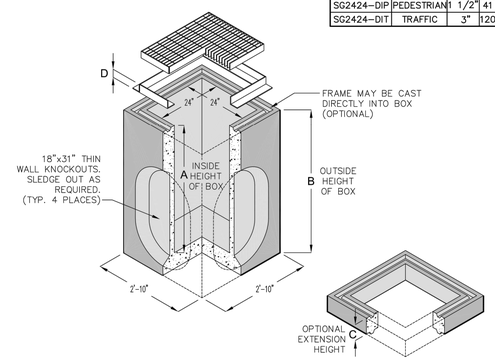
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ARIZONA 602-268-0785

DROP INLET			
MODEL NO.	A	B	*WEIGHT
DI242436	36"	42"	1900 LBS.
DI242448	48"	54"	2500 LBS.

*BOX ONLY

FRAME AND GRATE			
MODEL NO.	RATING	D	WEIGHT
SG2424-DIP	PEDESTRIAN	1 1/2"	41 LBS.
SG2424-DIT	TRAFFIC	3"	120 LBS.



EXTENSION		
MODEL NO.	C	WEIGHT
RS242406	6"	300 LBS.
RS242412	12"	600 LBS.

- FRAME AND GRATE ASSEMBLY AVALIABLE IN TRAFFIC OR PEDESTRIAN MODELS.
- DESIGN FOR H-20-44 BRIDGE LOADING.
- ASSEMBLY TO BE PLACED ON A 6" BASE OF CRUSHER RUN FOR EASE OF INSTALLATION AND EVEN LOAD DISTRIBUTION.
- FOR COMPLETE DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.
- ILLUSTRATION IS TYPICAL ONLY OF GENERAL SERIES CONFIGURATION: FOR SPECIFIC CONFIGURATION, CALL JENSEN PRECAST.

24" X 24" DRAIN INLET

JENSEN PRECAST

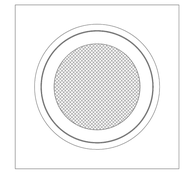
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11-28-00	

DI2424

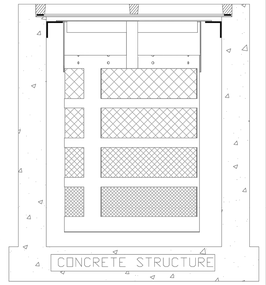
8.01

BIO CLEAN SCREENING FILTER

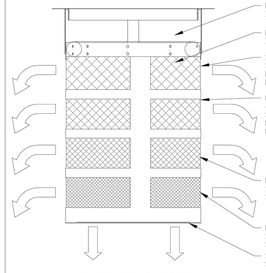
FOR USE IN GRATE INLETS



TOP VIEW



NOTES:
1. ALL HARDWARE, FLANGE, FRAME, SCREENS SHALL BE STAINLESS STEEL
2. HYDROCARBON BOOM SHALL BE 2" DIAMETER AND CONNECTED, MECHANICALLY TO THE FILTER FRAME WITH RAILS ALLOWING IT TO FLOAT ON THE WATER SURFACE REGARDLESS OF HEIGHT
3. SEE PERFORMANCE REPORTS IN MANUFACTURES SPECIFICATIONS
4. OTHER STANDARD AND CUSTOM MODEL SIZES AVAILABLE – CONTACT BIO CLEAN FOR MORE INFORMATION.
5. BASED ON 37% OPEN AREA
6. CONSIDERS A SAFETY FACTOR OF 2.0.
7. CONSIDERS A LOCAL DEPRESSION PONDING DEPTH OF 6 INCHES.
8. STORAGE CAPACITY BASED ON THE BASKET HALF FULL.



FLOW SCHEMATIC

MODEL #	TREATMENT FLOW (CFS)	BYPASS FLOW (CFS)	SOLIDS STORAGE CAPACITY (CF)
BC-GRATE-MLS 12-12-12	1.19	1.55	0.27
BC-GRATE-MLS 18-18-18	4.32	3.68	1.05
BC-GRATE-MLS 24-24-24	7.67	4.83	2.41
BC-GRATE-MLS 30-30-24	12.97	6.21	3.98
BC-GRATE-MLS 25-38-24	13.53	6.59	4.16
BC-GRATE-MLS 36-36-24	19.64	7.60	5.94
BC-GRATE-MLS 48-48-18	24.84	10.13	7.92

$Q = SD * C_d * A * \sqrt{2 * g * h}$ C_d = COEFFICIENT OF DISCHARGE = .62

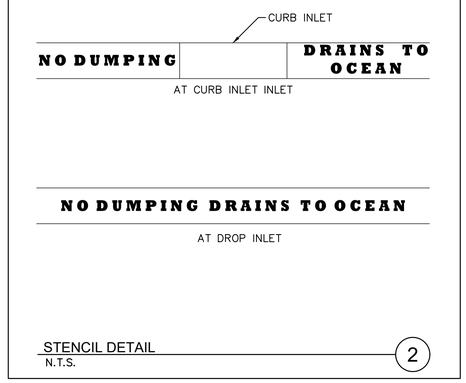
DRAWING: BIO CLEAN GRATE INLET FILTER DETAILS	MULTI-LEVEL SCREENING
TYPICAL MODEL DETAIL	
WARRANTY: 5 YEAR MANUFACTURERS	PROJECT:

BIO CLEAN ENVIRONMENTAL SERVICES, INC.
398 VIA EL CENTRO, OCEANSIDE CA 92058
PHONE: 760-433-7640 FAX: 760-433-3176

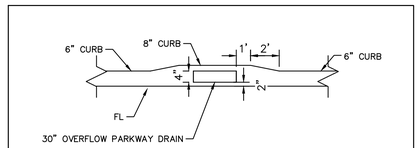
DATE: 10/12/17	SCALE: 0" = 1"	REVISIONS:	DATE:
DRAFTER: M.C.P.	UNITS = INCHES	REVISIONS:	DATE:

Bio Clean
A Forterra Company

PAGE 1



STENCIL DETAIL
N.T.S.
2



2" OVERFLOW CURB DETAIL
N.T.S.
1

Drawing name: C:\Users\TATIAN~1.BRA\AppData\Local\Temp\AcPublish_19960\Preliminary WQMP Plan.dwg 2 – Preliminary WQMP Details Sep 20, 2022 12:43pm by: tatiana.braun

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

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ISSUE	DATE	DESCRIPTION

TB — DRAWN BY
JP — CHECKED BY
TH — RECOMMENDED

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER JOHN K. POLLOCK No. C 86160 CIVIL NOT FOR CONSTRUCTION STATE OF CALIFORNIA

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
JOHN POLLOCK R.C.E. NO. 86160 DATE: 9/20/2022 EXP. 12/31/2022

BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA

CONCEPTUAL WQMP DETAILS

2 OF 3

Complete report and include in attachments

City of Brea
Project Specific WQMP Summary Report

INSTRUCTIONS: Project applicant, please fill out and check all that apply.

Project Name:	Project Address:
WQMP Application Number (BLD #):	APN(s):
Watershed:	Project Size (Acres):
New Development or Redevelopment:	Design Capture Volume (ft^3):
Land Use Type (check one): ☐ Industrial (SIC Code):_____ ☐ Commercial (SIC Code):_____ ☐ Mixed Use ☐ Residential ☐ Municipal (i.e. CIP) ☐ Other (specify): _____	Total BMP Treatment Capacity (ft^3): Hydromodification (Yes/No): Owner/Company Name: Owner Address: Contact Name: Contact Phone: HOA/POA (Yes/No):

STRUCTURAL BMP SUMMARY TABLE

Provide an itemized list of each LID and FCS BMP for each proposed project DMA. Expand this table as needed.

LID BMP Description (i.e. HSC-1, BIO-2, include manufacturer and model number if possible)	DMA ID (as noted on BMP Plot Plan)	DMA Acres	DCV (indicate units)	BMP Treatment Capacity (indicate units)	BMP GPS Coordinates
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
TOTAL					
Does BMP Capacity Exceed DCV (Y/N)?					

FCS Description	DMA ID	Location Description	FCS GPS Coordinates
1.			
2.			
3.			
4.			
5.			
6.			

Non-Structural Source Control BMP's (check all that apply):

- ☐ N1 Owner, Tenant, Occupant Education
- ☐ N2 Activity Restrictions
- ☐ N3 Common Area Landscape Mgmt
- ☐ N4 BMP Maintenance
- ☐ N5 Title 22 CCR Compliance
- ☐ N6 Local Water Quality Permit
- ☐ N7 Spill Contingency Plan
- ☐ N8 Underground Storage Tank
- ☐ N9 Hazardous Materials Disclosure
- ☐ N10 Uniform Fire Code
- ☐ N11 Common Area Litter Control
- ☐ N12 Employee Training
- ☐ N13 Loading Dock Good Housekeeping
- ☐ N14 Common Area Catch Basin Inspection
- ☐ N15 Street Sweeping Private Streets & Parking Lots
- ☐ N16 Retail Gasoline Outlets

Structural Source Control BMP's (check all that apply):

- ☐ S1 Storm Drain System Stenciling/Signage
- ☐ S2 Outdoor Material Storage Areas
- ☐ S3 Trash Storage Areas
- ☐ S4 Efficient Irrigation Systems & Landscape Design
- ☐ S5 Protect Slopes & Channels
- ☐ S6 Loading Dock Areas
- ☐ S7 Maintenance Bays
- ☐ S8 Vehicle Wash Areas
- ☐ S9 Outdoor Process Areas
- ☐ S10 Equipment Wash Areas
- ☐ S11 Fueling Areas
- ☐ S12 Hillside Landscaping
- ☐ S13 Wash Water Controls for Food Prep Areas
- ☐ S14 Community Car Wash Racks

Project WQMP Summary Exhibit

This WQMP Summary Exhibit ("Summary Exhibit") is to ensure there is a consistent and clarified exhibit included as part of the WQMP submittal process. The purpose of this Summary Exhibit is for it to be used by City inspectors to verify that post-construction structural BMPs are implemented correctly at the project site and as described in the approved WQMP. Though similar, the required elements of this Summary Exhibit are separate from the WQMP Plot Plan that is otherwise found in the WQMP report, as it should only include information relevant to the understanding of stormwater BMP operations and maintenance (i.e. no construction notes) and minimize use of topo lines, elevation callouts, etc. The Summary Exhibit shall include the following elements:

- Drainage Management Areas (DMAs) and flow information (i.e. surface flow arrows and pipe flow arrows),
- BMPs (LID and Structural Source Control – i.e. trash enclosures, catch basin stenciling),
- FCS – Full Capture Systems for trash TMDLs,
- Other structural water quality devices (i.e. roof downspout filters),
- All connections between on-site stormwater structures and off-site storm drains,
- And list of structural BMP ID (CASQA-appropriate).

Where applicable, the applicant shall input concise BMP sizing information in tabular form in the Summary Exhibit. This BMP sizing information should include:

- DMA ID,
- BMP ID (i.e. MWS #1, CDS #1, INF #1) and TGD BMP ID (i.e. BIO-1, BIO-7, INF-1, HSC-2),
- BMP description (i.e. dimensions, model number),
- And BMP location coordinates.

Color can be used to highlight the information above but should not be used for other plan details. Details unrelated to stormwater should be turned off/screened back/de-emphasized where possible. If using a hatch for pavement or landscaping, ensure it is also screened back and not distracting from BMPs.

Complete & Include in attachments

BMP Maintenance Self-Certification Form for the City of Brea

In addition to routine annual inspections conducted by the City for proper maintenance of post-construction stormwater control measures or Best Management Practices (BMPs) on the property, the City of Brea requires that the party responsible for maintenance of these BMPs receive proper orientation and training on their operations and maintenance. This form is to be completed by the owner representative and shall be made available to the City Authorized Inspector upon request. Should the maintenance provider or facility maintenance representative change at any time, the owner representative shall complete this form with the new responsible party for BMP maintenance.

Property Information	BMP O&M
Project Name:	Responsible Party: (Owner, management company or HOA/POA)
Legal Owner of Record:	Contact Name:
Address:	Address:
Telephone:	Telephone:
Email:	Email:

As the party responsible for operation and maintenance of the BMPs specified in the approved Water Quality Management Plan (WQMP) for the subject property, I hereby certify under penalty of law that I, or persons under my supervision, are qualified and competent to carry out the inspection and maintenance the BMPs in a manner consistent with the approved WQMP Operation and Maintenance (O&M) Plan.

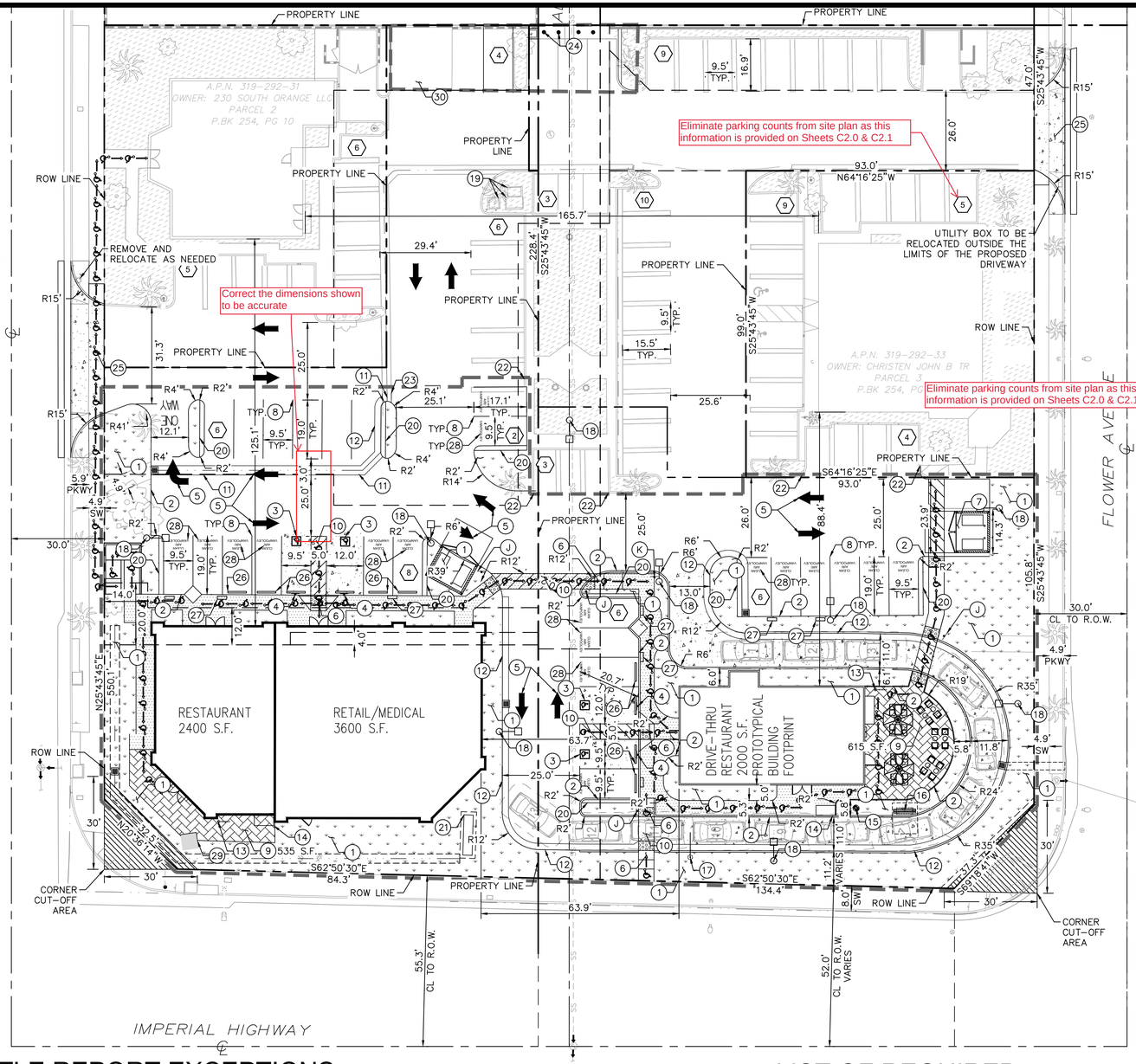
_____ _____

Maintenance Representative Signature Date

As the owner representative of the **[insert project name]** for which a Water Quality Management Plan (WQMP) was approved by the City, I hereby certify under penalty of law that all BMPs contained within the approved Project WQMP have been maintained and inspected in accordance with the schedule and frequency outlined in the approved WQMP Operation and Maintenance (O&M) Plan. The maintenance activities and inspections conducted have been performed by qualified and knowledgeable individuals listed above. To the best of my knowledge, the information submitted is true and accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and citations for violating water quality regulations.

_____ _____

Owner/Representative Signature Date



LEGEND:

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EASEMENT LINE
- APPROXIMATE LIMIT OF WORK LINE
- LANDSCAPE/PLANTER AREA
- COLORED CONCRETE/ENHANCED PAVING
- EXISTING LANDSCAPE/PLANTER AREA
- STANDARD CONCRETE PAVEMENT
- HEAVY DUTY CONCRETE PAVEMENT
- ACCESSIBLE ROUTE (LOCATION PURPOSES ONLY, DO NOT PAINT)
- SIGN POST
- ACCESSIBLE PARKING SPACE
- (X) NUMBER OF PARKING SPACES

CONSTRUCTION NOTES:

1. LANDSCAPE/PLANTER AREA
2. CONCRETE CURB
3. ACCESSIBLE PARKING STALL STRIPPING
4. ACCESSIBLE PARKING STALL SIGN
5. DIRECTIONAL MARKING PER PLAN
6. ACCESSIBLE RAMP WITH DETECTABLE WARNING (TRUNCATED DOMES)
7. COVERED CMU WALL TRASH ENCLOSURE AND RECYCLING BIN STORAGE
8. STANDARD 90° PARKING STALL STRIPING.
9. OUTDOOR COVERED PATIO TO BE STAINED STANDARD DUTY CONCRETE PAVEMENT
10. ACCESSIBLE PATH OF TRAVEL STRIPING.
11. PROPOSED 3' WIDE VALLEY GUTTER
12. CURB AND GUTTER
13. SHORT TERM BIKE RACK. HOURLY USE.
14. LONG TERM BIKE LOCKER. DAY USE (EMPLOYEES).
15. PREVIEW BOARD
16. ORDER BOARD
17. HEADACHE BAR
18. SITE LIGHTING
19. EXISTING TRANSFORMER AND ELECTRICAL APPURTENANCES TO REMAIN
20. 18" WALK-OFF CURB
21. INSTALL MONUMENT SIGN
22. EXISTING CURB TO REMAIN
23. EXISTING VALLEY GUTTER TO REMAIN
24. PROPOSED BOLLARDS.
25. EXISTING DRIVEWAY APPROACH TO BE DEMOLISHED AND RECONSTRUCTED PER CITY OF BREA STD. PLAN NO. 105-0.
26. WHEELSTOPS
27. E/V CHARGING STATION. CONDUIT TO BE RAN TO STALL.
28. "CLEAN AIR/VAN POOL/EV" IN 12" HIGH WHITE LETTERS AT THE END OF PARKING STALL
29. EXISTING SCULPTURE TO REMAIN. A PROTECTIVE FENCE, STRUCTURE, OR OTHER ACCEPTABLE METHOD SHALL BE REQUIRED DURING CONSTRUCTION FOR THE PROTECTION OF THE SCULPTURE. A COMPREHENSIVE MAINTENANCE PLAN SHALL BE RECORDED AS AN EXHIBIT TO THE PROPERTY'S CC&R'S, AS A CONDITION OF APPROVAL.
30. EXISTING GARAGE TO REMAIN.
31. EXISTING STREET LIGHT TO REMAIN

Add height restrictions to table with proposed building heights

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF BREA IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCELS 1 AND 4 OF PARCEL MAP NO. 88-324, IN THE CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 254, PAGES 10, 11 AND 12 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS AMENDED BY CERTIFICATE OF CORRECTION RECORDED JULY 30, 1991 AS INSTRUMENT NO. 91-401275 OF OFFICIAL RECORDS.

EXCEPT THOSE PORTIONS OF PARCELS 12 AND 4 AS CONVEYED TO THE CITY OF BREA BY THE DEED RECORDED NOVEMBER 29, 1990 AS INSTRUMENT NO. 90-629407 OF OFFICIAL RECORDS.

ALSO EXCEPT ALL COAL, LIGNITE, COAL OIL, PETROLEUM, NAPHTHA, ALPHALTUM, BREA, BITUMEN, NATURAL GAS AND OTHER HYDROCARBONS AND LIKE SUBSTANCES WHICH NOW EXIST UPON, IN OR UNDER SAID LOTS, BUT WITH NO RIGHT OF ENTRY UPON THE SURFACE OF SAID LOTS FOR THE TAKING AND DEVELOPING OF SAID SUBSTANCES, AS RESERVED AND EXCEPTED IN DEEDS OF RECORD.

PARCEL B:
A RECIPROCAL NON-EXCLUSIVE EASEMENT FOR PEDESTRIAN AND VEHICULAR TRAFFIC AND FOR THE PARKING OF AUTOMOBILES OVER AND ACROSS THOSE PORTIONS OF PARCELS 2 AND 34 OF SAID PARCEL MAP NO. 88-324 SHOWN AS PARKING AREAS ON EXHIBIT NO. 2 ATTACHED TO IN DOCUMENT ENTITLED "RECIPROCAL COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTRUMENT NO. 91-024934 OF OFFICIAL RECORDS OF THE COUNTY OF ORANGE.
PARCEL C:

A RECIPROCAL NON-EXCLUSIVE PRIVATE DRAINAGE EASEMENT AS SHOWN ON SAID PARCEL MAP 88-324, OVER THOSE PORTIONS OF PARCELS 2 AND 3 DESIGNATED THEREON.

SITE DATA

PROJECT DESCRIPTION:	DEMOLITION OF EXISTING PARKING LOT AND BUILDING. NEW CONSTRUCTION OF ONE (1) DRIVE THRU RESTAURANT BUILDING, ONE (1) RESTAURANT AND RETAIL/MEDICAL USE BUILDING, AND ASSOCIATED PARKING AREA..
ADDRESS:	255 EAST IMPERIAL HIGHWAY, BREA, CA 92821
APN:	319-292-35 & 319-292-36
ZONING DISTRICT:	C-P(PD) (COMMERCIAL, ADMINISTRATIVE, AND PROFESSIONAL OFFICE) (EXISTING) MU-III - MIXED USED 3 (PROPOSED)
ADJACENT ZONING DISTRICTS:	N: R-3 - RESIDENTIAL NE: R-3 - RESIDENTIAL E: PF - PUBLIC FACILITIES S: C-G - GENERAL COMMERCIAL W: MU-I - MIXED USE I
EXISTING LAND USE: PROPOSED LAND USE:	COMMERCIAL COMMERCIAL
ADJACENT LAND USE:	E: FACILITIES S: COMMERCIAL W: COMMERCIAL N: RESIDENTIAL
BUILDING DEMO SQUARE FOOTAGE:	BUILDING 1: 2799 S.F. BUILDING 3: 3166 S.F. BUILDING 2: 2799 S.F. BUILDING 4: 10109 S.F.
TOTAL BUILDING DEMO SQUARE FOOTAGE:	18,873 S.F.
FLOOD ZONE:	ZONE X - AREAS DETERMINED TO BE OUTSIDE THE 0.02% ANNUAL CHANCE FLOODPLAIN.

TOTAL PARCEL AREA:	62,843 S.F.	(1.44 AC)	100%
TOTAL DISTURBED AREA:	41,576 S.F.	(0.95 AC)	66.1%
FLOOR AREA RATIO (FAR):	14,422 S.F.	(0.33 AC)	22.9%
TOTAL PAD AREA:	8,000 S.F.	(0.18 AC)	
TOTAL COMMERCIAL CENTER AREA:	82,083 S.F.	(1.88 AC)	
SITE COVERAGE			
TOTAL DISTURBED AREA:	41,576 S.F.	(0.95 AC)	100%
BUILDING AREA:	8,000 S.F.	(0.18 AC)	19.2%
IMPERVIOUS AREA:	23,714 S.F.	(0.54 AC)	57.0%
LANDSCAPE AREA:	9,862 S.F.	(0.23 AC)	23.8%

PARKING SUMMARY:

DRIVE-THRU RESTAURANT, RESTAURANT, & RETAIL/MEDICAL: 2,615 S.F. (1 STALL/75 S.F.) + 2,935 S.F. (1 STALL/75 S.F.) + 3,600 S.F. (5.5 STALLS/1,000 S.F.) + 2,556 S.F. (5.5 STALLS/1,000 S.F.) + 2,716 S.F. (5.5 STALLS/1,000 S.F.) = 123 STALLS REQUIRED PER CITY CODE. 12 CARS REMOVED FOR DRIVE THRU CREDIT. 111 = PARKING REQUIRED

- ADA PARKING FOR 101-150 PARKING STALLS = 5 ADA PARKING STALLS REQUIRED, PER 2019 CBC.
- FUTURE EV FOR 101-150 PARKING STALLS = 13 FUTURE EV STALLS REQUIRED PER 2021 CALGREEN.
- NUMBER OF REQUIRED DESIGNATED STALLS FOR LOW-EMITTING, FUEL-EFFICIENT, CARPOOL/VANPOOL, AND ELECTRIC VEHICLES (PER 2021 CALIFORNIA GREEN BUILDING STANDARDS) = 18.

TOTAL NUMBER OF PARKING SPACES PROVIDED = 104

DRIVE-THRU RESTAURANT, RESTAURANT, & RETAIL/MEDICAL

PARKING TABLE:	REQUIRED	PROVIDED	
STANDARD	94	86	
COMPACT (C)	-	-	
MOTORCYCLE	-	-	
DESIGNATED	18	18	
EV CHARGING	13	13	(EV STALLS ARE ALSO DESIGNATED FOR VANPOOL)
ACCESSIBLE	5	6	
TOTAL:	111	104**	

*266' OF CAR STACK BEHIND THE PICK UP WINDOW HAS BEEN PROVIDED PER THE CITY'S CODE REQUIREMENTS.
**REFER TO THE PARKING EXHIBIT FOR A BREAKDOWN OF SHARED PARKING AVAILABLE.
- 12 CAR QUEUE PROVIDED FROM PICK-UP WINDOW TO DRIVE THRU ENTRANCE.
- 12 OFFSITE PARKING STALLS AVAILABLE AT 245 S ORANGE AVENUE, BREA, CA 92821 PARKING STRUCTURE.
-5 BIKE RACK CAPACITY PROVIDED FOR SHORT TERM.
-BICYCLE STORAGE LOCKER PROVIDED AT EACH BUILDING.

TITLE REPORT EXCEPTIONS

BASED UPON TITLE REPORT NO. 19000090277, DATED NOVEMBER 21, 2019 AS PREPARED BY STEWART TITLE COMPANY.

7. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED OCTOBER 8, 1985 AS INSTRUMENT NO. 85-385428 OF OFFICIAL RECORDS (PLOTTED HEREON). TO BE QUITCLAIMED.
9. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED AUGUST 9, 1988 AS INSTRUMENT NO. 88-390076; THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "QUITCLAIM OF EASEMENT" RECORDED SEPTEMBER 20, 1988 AS INSTRUMENT NO. 88-476713 BOTH OFFICIAL RECORDS (PLOTTED HEREON). TO BE QUITCLAIMED.
11. AN EASEMENT OR OTHER PROVISIONS FOR THE PURPOSE OF PRIVATE DRAINAGE, PUBLIC UTILITY, SEWER, ALLEY, EMERGENCY INGRESS AND EGRESS AND RIGHTS INCIDENTAL THERETO AS SHOWN ON THE RECORDED PARCEL MAP NO. 88-324, RECORDED JULY 27, 1990 IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS (PLOTTED HEREON).
12. THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE PUBLIC STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED OR SEVERED BY [THE MAP OF SAID PARCEL MAP NO. 88-324], WHICH AFFECTS IMPERIAL HWY. (PLOTTED HEREON).
13. PROVISIONS, HEREIN RECITED, OF THE DEDICATION STATEMENT ON THE MAP OF THE TRACT SHOWN ON PARCEL MAP NO. 88-324 PROVISIONS: AS FOLLOWS:
WE ALSO HEREBY RESERVE TO OURSELVES, OUR HEIRS, AND ASSIGNS: 1) A RECIPROCAL INGRESS, EGRESS EASEMENT FOR VEHICLES AND PEDESTRIANS BETWEEN PARCELS 1, 2, 3 & 4. 2) A RECIPROCAL PRIVATE DRAINAGE EASEMENT BETWEEN PARCELS 1, 2, 3 & 4 AND THE ALLEY (RECIPROCAL INGRESS/EGRESS EASEMENT BLANKET IN NATURE OVER PARCELS 1-4, RECIPROCAL PRIVATE DRAINAGE EASEMENT PLOTTED HEREON).
14. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF PACIFIC BELL, ITS SUCCESSORS AND ASSIGNS AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 4, 1990 AS INSTRUMENT 90-469325, AFFECTS AS DESCRIBED THEREIN (PLOTTED HEREON).
15. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED " RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTR. # 91-24934, OF OFFICIAL RECORDS.
SAID DOCUMENT WAS MODIFIED BY AN INSTRUMENT RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91-099351, OF OFFICIAL RECORDS (BLANKET IN NATURE OVER ALL PARKING AREAS WITHIN PARCEL 1, 2, 3, AND 4 OF PARCEL MAP NO. 88-324).

LIST OF REQUIRED ENTITLEMENTS

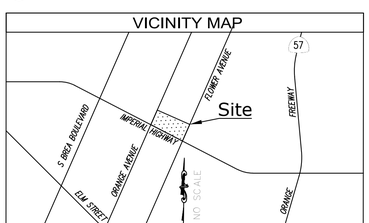
1. PLAN REVIEW NO. 2022-03 - FOR THE NEW CONSTRUCTION OF TWO BUILDINGS.
2. GENERAL PLAN AMENDMENT NO. 2022-02 (OFFICE/FINANCIAL COMMERCIAL (C-P (PD) TO MIXED USE III (MU-III).
3. ZONE CHANGE NO. 2022-02 (C-P(PD) TO MU-III).
4. CONDITIONAL USE PERMIT NO. 2022-03 - TO ALLOW THE DRIVE THROUGH RESTAURANT.
5. AMENDMENT TO CONDITIONAL USE PERMIT NO. 90-20 - AMENDMENT TO THE BREA GASLIGHT SQUARE SIGN PROGRAM.

SIGN INFORMATION

(J) CMUTCD SIGN R1-5 - "YIELD TO PEDESTRIANS. DO NOT BLOCK PEDESTRIAN PATHWAY"

(K) CMUTCD SIGN R5-1 - "DO NOT ENTER". FOUND ON DRIVE-THRU EXIT ON PLAN.

VICINITY MAP



ZONING CONFORMANCE TABLE

	REQUIRED	PROPOSED
PARKING SPACES	111	104 92 STALLS 12 OFFSITE PARKING
LOT AREA	7,000 SF (0.16 AC) MIN.	1.44 AC
LOT DIMENSIONS	50 FT X 120 FT MIN.	300 FT X 275 FT
SETBACKS	BUILDING/LANDSCAPE FRONT: 10'/8' REAR: 10'/0' SIDE (W):0'/8' SIDE (E): 0'/8'	BUILDING/LANDSCAPE FRONT: 15'/8' REAR: 10'/0' SIDE (W):15'/8' SIDE (E): 15'/8'

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

811 Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

TB
DRAWN BY
JP
CHECKED BY
TH
RECOMMENDED

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER JOHN K. POLLOCK 86160 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

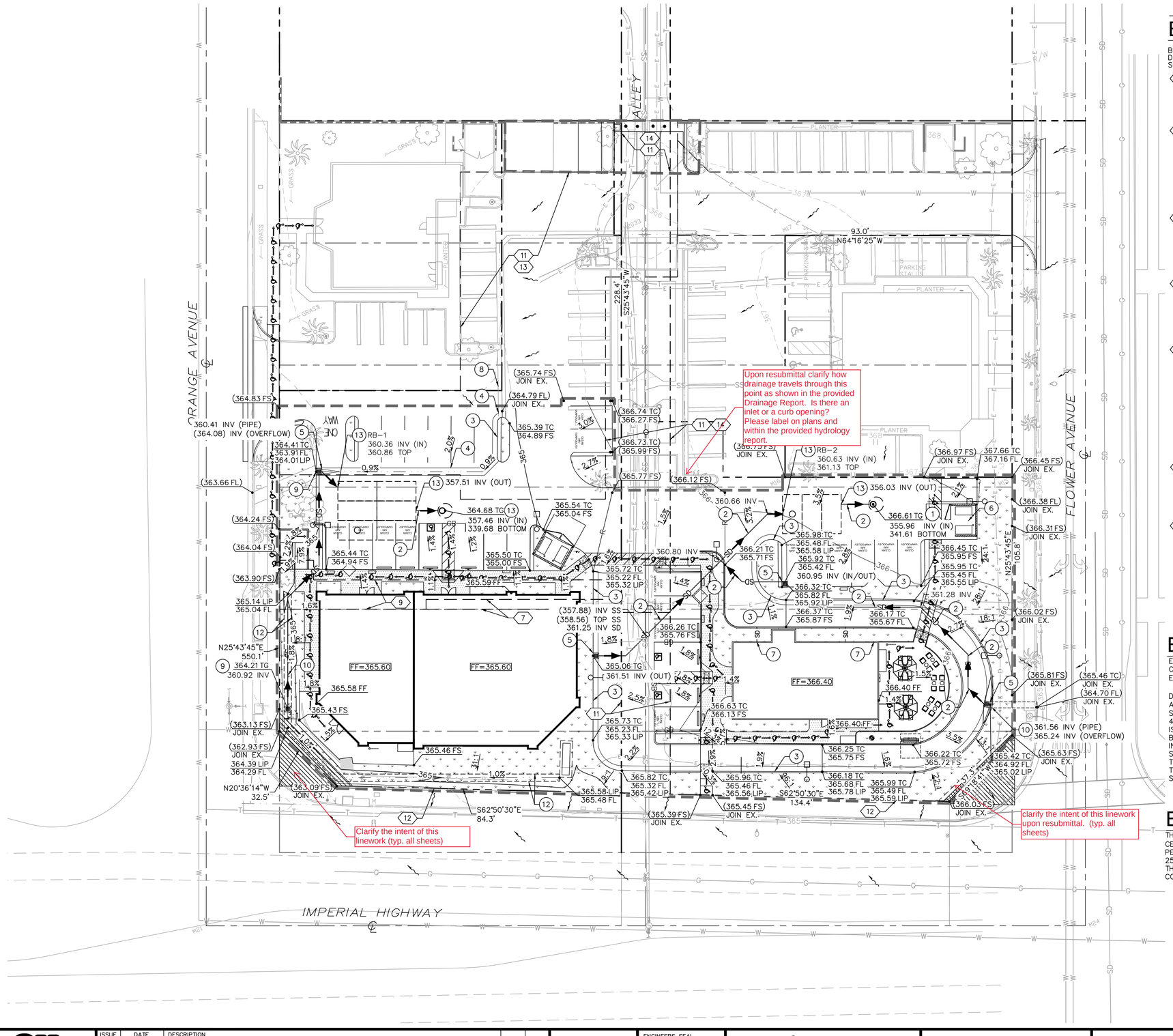
PREPARED UNDER THE DIRECT SUPERVISION OF:
JOHN POLLOCK, R.C.E. NO. 86160
DATE: 9/20/2022
EXP. 12/31/2022

BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA
PRELIMINARY SITE PLAN

C1.0

Drawing name: K:\ORA_LDEV\194440001 - brea gaslight square\CAD\Exhibits\Planning\C1.0 - Preliminary Site Plan.dwg Sep 20, 2022 12:21pm by: tatiana.braun
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TITLE REPORT EXCEPTIONS

BASED UPON TITLE REPORT NO. 19000090277, DATED NOVEMBER 21, 2019 AS PREPARED BY STEWART TITLE COMPANY.

7. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED OCTOBER 8, 1985 AS INSTRUMENT NO. 85-385428 OF OFFICIAL RECORDS (PLOTTED HEREON). TO BE QUITCLAIMED.

9. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED AUGUST 9, 1988 AS INSTRUMENT NO. 88-390076; THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "QUITCLAIM OF EASEMENT" RECORDED SEPTEMBER 20, 1988 AS INSTRUMENT NO. 88-476713 BOTH OFFICIAL RECORDS (PLOTTED HEREON). TO BE QUITCLAIMED.

11. AN EASEMENT OR OTHER PROVISIONS FOR THE PURPOSE OF PRIVATE DRAINAGE, PUBLIC UTILITY, SEWER, ALLEY, EMERGENCY INGRESS AND EGRESS AND RIGHTS INCIDENTAL THERETO AS SHOWN ON THE RECORDED PARCEL MAP NO. 88-324 RECORDED JULY 27, 1990 (AND CERTIFICATE OF CORRECTION RECORDED AUGUST 12, OF PARCEL MAPS).

12. THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE PUBLIC STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED OR SEVERED BY [THE MAP OF SAID PARCEL MAP NO. 88-324], WHICH AFFECTS IMPERIAL HWY. (PLOTTED HEREON).

13. PROVISIONS, HEREIN RECITED, OF THE DEDICATION STATEMENT ON THE MAP OF THE TRACT SHOWN ON PARCEL MAP NO. 88-324 PROVISIONS AS FOLLOWS:
WE ALSO HEREBY RESERVE TO OURSELVES, OUR HEIRS, AND ASSIGNS: 1) A RECIPROCAL INGRESS, EGRESS EASEMENT FOR VEHICLES AND PEDESTRIANS BETWEEN PARCELS 1, 2, 3 & 4, 2) A RECIPROCAL PRIVATE DRAINAGE EASEMENT BETWEEN PARCELS 1, 2, 3 & 4 AND THE ALLEY (RECIPROCAL INGRESS/EGRESS EASEMENT BLANKET IN NATURE OVER PARCELS 1-4, RECIPROCAL PRIVATE DRAINAGE EASEMENT PLOTTED HEREON).

14. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF PACIFIC BELL, ITS SUCCESSORS AND ASSIGNS AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 4, 1990 AS INSTRUMENT 90-469325, AFFECTS AS DESCRIBED THEREIN (PLOTTED HEREON).

15. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED " RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTR. # 91-24934, OF OFFICIAL RECORDS.
SAID DOCUMENT WAS MODIFIED BY AN INSTRUMENT RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91-099351, OF OFFICIAL RECORDS (BLANKET IN NATURE OVER ALL PARKING AREAS WITHIN PARCEL 1, 2, 3, AND 4 OF PARCEL MAP NO. 88-324).

LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE / LEASE LINE
- EASEMENT LINE / SETBACK LINE
- APPROXIMATE LIMITS OF DISTURBANCE
- R — PROPOSED RIDGE LINE
- GB — PROPOSED GRADE BREAK LINE
- 366.00 TC / 366.50 FS — PROPOSED SPOT ELEVATION
- (366.75 TC) / (366.25 FS) — EXISTING SPOT ELEVATION
- PROPOSED FLOW LINE
- SD — PROPOSED STORM DRAIN LINE
- SD — EXISTING STORM DRAIN LINE
- EXISTING FLOW DIRECTION
- PROPOSED STORM DRAIN PIPE FLOW DIRECTION

Add existing and proposed contours to the ledgend

GRADING AND DRAINAGE NOTES

1. PROPOSED UNDERGROUND DRY WELL AND SETTLING CHAMBER SYSTEM. REFER TO SHEET C3.1 FOR MORE INFORMATION.
2. 6" SDR-35 PVC STORM DRAIN PIPE SLOPED AT 0.5% MIN.
3. CONCRETE CURB AND GUTTER.
4. CONCRETE VALLEY GUTTER.
5. 24" X 24" JENSEN PRECAST DROP INLET WITH CATCH BASIN FILTER INSERT FOR TRASH CAPTURE. ALL CATCH BASINS SHALL HAVE "NO DUMPING-DRAINS TO OCEAN" PAINTED ON THE ADJACENT CURB. REFER TO SHEET C3.1 FOR MORE INFORMATION.
6. TRASH ENCLOSURE DRAIN WITH ACCESSIBLE GRATE. DRAIN TO SEWER. SEE SHEET C4.0 FOR MORE INFORMATION.
7. ROOF DOWNSPOUTS. CONNECT TO 4" SDR-35 PVC STORM DRAIN PIPE AND DRAIN THRU CURB FACE.
8. EXISTING VALLEY GUTTER TO REMAIN
9. EXISTING PARKWAY DRAIN TO REMAIN. NEW CONNECTION FOR OVERFLOW AT 2" ABOVE FLOW LINE. REFER TO SHEET C3.1 FOR MORE INFORMATION.
10. 30" X 4" PARKWAY DRAIN PER SPPWC STANDARD PLAN 151-2 TYPE 2 FOR OVERFLOW AT 2" ABOVE FLOW LINE. REFER TO SHEET C3.1 FOR MORE INFORMATION.
11. INSTALL 4" SDR-26 PVC STORM DRAIN PIPE AT 0.5% MIN.
12. VEGETATED SWALE
13. UNDERGROUND DETENTION VAULT FOR STORM WATER MANAGEMENT. REFER TO SHEET C3.2 FOR MORE INFORMATION.

BENCHMARK

ELEVATIONS SHOWN HEREON ARE BASED UPON COUNTY OF ORANGE BENCHMARK 2C-113-99, ELEVATION 368.96 FEET (NAVD 88).

DESCRIBED BY OCS 2003 - FOUND 3 ½" OCS ALUMINUM BENCHMARK DISK STAMPED "2C-113-99" SET IN THE TOP OF THE NORTHWEST CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ON THE EASTERLY SIDE OF BREA BOULEVARD 0.1 MILES NORTHERLY OF THE INTERSECTION OF BREA BOULEVARD AND ASH STREET, 23 FT. NORTHERLY OF THE CENTERLINE OF THE RAILROAD TRACKS, 42 FT. SOUTHEASTERLY OF THE CENTERLINE OF BREA BOULEVARD. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED UPON THE CENTERLINE OF FLOWER AVENUE, BEING N25°43'45"E PER PARCEL MAP NO. 88-324, RECORDED IN BOOK 254 PAGES 10 THROUGH 12 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.

ESTIMATED EARTHWORK QUANTITIES

CUT:	306 CY
CUU:	169 CY
NET:	137 CY (EXPORT)

NOTE: THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S).

THE EARTHWORK QUANTITIES ABOVE ARE FOR PERMIT PURPOSES ONLY. THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, OVER- EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, FOOTINGS, SLABS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE NEW PAVEMENTS, ETC. THE CONTRACTOR SHALL RELY ON THEIR OWN EARTHWORK ESTIMATES FOR BIDDING PURPOSES.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

SCALE
1" = 10'
WHEN PRINTED AT FULL SIZE (24"X36")

Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

DRAWN BY: TB
CHECKED BY: JP
RECOMMENDED: TH

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER JOHN K. POLLOCK No. 86160 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
JOHN POLLOCK R.C.E. NO. 86160
DATE: 9/20/2022
EXP. 12/31/2022

BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA
PRELIMINARY GRADING PLAN

C3.0

Drawing name: K:\ORA_LDEV\194440001 - brea gaslight square\CAD\Exhibits\Planning\C3.0 - Preliminary Grading Plan.dwg C3.0 - Preliminary Grading Plan Sep 20, 2022 12:22pm by: tatiana.braun
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

WQMP REVIEW SUMMARY

The following is a summary of major concerns relative to this WQMP submittal:

- Verify that all APNs are accounted for in the Project Information Table.
- Update drywell descriptions to include DMA 1A and DMA 2A on page 17.
- Update the "BMP Maintenance Self-Certification Form for the City of Brea" to include the site address and project name where applicable.

REQUIRED FOR ALL SUBMITTALS AND RESUBMITTALS:
Submit an electronic copy to breabuildingpermits@cityofbrea.net and cc Briani@cityofbrea.net
Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

FOR FINAL APPROVAL ONLY:
Submit 2 hard copies with recorded version of the following documents:

- Title Page
- Signed Owners Cert Page
- Engineer Certification Page
- The City of Brea Project Specific WQMP Summary Report and Exhibit Pages

One hard copy will be returned to the owner upon City-stamped approval. Grading Permit will be approved upon submittal of the hard copy WQMPs. An electronic copy (PDF) is also required.
Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

Section I Permit(s) and Water Quality Conditions of Approval or Issuance

Provide discretionary or grading/building permit information and water quality conditions of approval, or permit issuance, applied to the project. If conditions are unknown, please request applicable conditions from staff. *Refer to Section 2.1 in the Technical Guidance Document (TGD) available on the OC Planning website (ocplanning.net).*

Project Infomation			
Permit/Application No. (If applicable)	PLN-2022-00011	Grading or Building Permit No. (If applicable)	BLD-XXXX-XXXXX (Building) BLD-XXXX-XXXXX (Grading)
Address of Project Site (or Tract Map and Lot Number if no address) and APN	255 E. Imperial Highway Brea, CA 92821 APN: 319-292-35 238 S. Orange Avenue, Brea, CA 92821 242 S. Orange Avenue, Brea, CA 92821 APN: 319-292-36		City of Brea planning documents show 319-292-31 & 319-292-33 as well. Verify.
Water Quality Conditions of Approval or Issuance			
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	Prior to issuance of any building permits, the Applicant shall submit a final Water Quality Management Plan (WQMP) for review and approval.		
Conceptual WQMP			

DMA 1B DCV:

Area = 0.45 ac

Impervious (imp): 0.80 unitless

Runoff Coefficient: 0.75 unitless (C = 0.75 x imp) + 0.15

Runoff Volume: 1,078 cf (DCV = C x $d_{remainder}$ x A x 43560 x (1/12))

DMA 2A DCV:

Area = 0.35 ac

Impervious (imp): 0.82 unitless

Runoff Coefficient: 0.77 unitless (C = 0.75 x imp) + 0.15

Runoff Volume: 864 cf (DCV = C x $d_{remainder}$ x A x 43560 x (1/12))

DMA 2B DCV:

DMA 1A and DMA 2A are included in infiltration

Area = 0.51 ac

Impervious (imp): 0.73 unitless

Runoff Coefficient: 0.70 unitless (C = 0.75 x imp) + 0.15

Runoff Volume: 1,149 cf (DCV = C x $d_{remainder}$ x A x 43560 x (1/12))

The project is utilizing two (2) proprietary underground dry well systems (DW-1 & DW-2) to infiltrate the DCV for DMA 1B and DMA 2B, respectively. The effective infiltration depth is limited to 25 feet. The system selected will meet the required drawdown criteria. See Attachment F for LID BMP Calculations.

In addition, static storage not contained by the drywells of the DCV is met by underground storage vaults upstream of the drywells. Detention basin DB-1 offsets storage capacity of DW-1 for DMA 1A and DMA 1B. Detention basin DB-2 offsets storage capacity of DW-2 for DMA 2A and DMA 2B. See Attachment F for LID BMP Calculations.

In addition, in order to meet the full trash capture requirement, the project is utilizing full trash capture catch basin filter inserts at each of the drop inlets prior to the underground drywell systems and underground storage vault.

BMP Maintenance Self-Certification Form for the City of Brea

In addition to routine annual inspections conducted by the City for proper maintenance of post-construction stormwater control measures or Best Management Practices (BMPs) on the property, the City of Brea requires that the party responsible for maintenance of these BMPs receive proper orientation and training on their operations and maintenance. This form is to be completed by the owner representative and shall be made available to the City Authorized Inspector upon request. Should the maintenance provider or facility maintenance representative change at any time, the owner representative shall complete this form with the new responsible party for BMP maintenance.

Property Information	BMP O&M
Project Name: Brea Gaslight Square	Responsible Party: (Owner, management company or HOA/POA) Owner
Legal Owner of Record: One Berry LLC	Contact Name: Dwight Manley
Address: 330 W. Birch Street, Suite E201 Brea, CA 92821	Address: 330 W. Birch Street, Suite E201 Brea, CA 92821
Telephone: (714) 990-8748	Telephone: (714) 990-8748
Email: dmanleyinc@aol.com	Email: dmanleyinc@aol.com

As the party responsible for operation and maintenance of the BMPs specified in the approved Water Quality Management Plan (WQMP) for the subject property, I hereby certify under penalty of law that I, or persons under my supervision, are qualified and competent to carry out the inspection and maintenance the BMPs in a manner consistent with the approved WQMP Operation and Maintenance (O&M) Plan.

_____ _____

Maintenance Representative Signature Date

As the owner representative of the [insert project name] for which a Water Quality Management Plan (WQMP) was approved by the City, I hereby certify under penalty of law that all BMPs contained within the approved Project WQMP have been maintained and inspected in accordance with the schedule and frequency outlined in the approved WQMP Operation and Maintenance (O&M) Plan. The maintenance activities and inspections conducted have been performed by qualified and knowledgeable individuals listed above. To the best of my knowledge, the information submitted is true and accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and citations for violating water quality regulations.

_____ _____

Owner/Representative Signature Date

BMP Maintenance Self-Certification Form for the City of Brea

In addition to routine annual inspections conducted by the City for proper maintenance of post-construction stormwater control measures or Best Management Practices (BMPs) on the property, the City of Brea requires that the party responsible for maintenance of these BMPs receive proper orientation and training on their operations and maintenance. This form is to be completed by the owner representative and shall be made available to the City Authorized Inspector upon request. Should the maintenance provider or facility maintenance representative change at any time, the owner representative shall complete this form with the new responsible party for BMP maintenance.

Property Information	BMP O&M
Project Name:	**Responsible Party:** (Owner, management company or HOA/POA)
Legal Owner of Record:	**Contact Name:**
Address:	**Address:**
Telephone:	**Telephone:**
Email:	**Email:**

As the party responsible for operation and maintenance of the BMPs specified in the approved Water Quality Management Plan (WQMP) for the subject property, I hereby certify under penalty of law that I, or persons under my supervision, are qualified and competent to carry out the inspection and maintenance the BMPs in a manner consistent with the approved WQMP Operation and Maintenance (O&M) Plan.

_____ _____

Maintenance Representative Signature Date

As the owner representative of the **[insert project name]** for which a Water Quality Management Plan (WQMP) was approved by the City, I hereby certify under penalty of law that all BMPs contained within the approved Project WQMP have been maintained and inspected in accordance with the schedule and frequency outlined in the approved WQMP Operation and Maintenance (O&M) Plan. The maintenance activities and inspections conducted have been performed by qualified and knowledgeable

individuals listed above. To the best of my knowledge, the information submitted is true and accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and citations for violating water quality regulations.

Owner/Representative Signature	Date

ATTACHMENT I

BMP Self Certification Form

BMP Maintenance Self-Certification Form for the City of Brea

In addition to routine annual inspections conducted by the City for proper maintenance of post-construction stormwater control measures or Best Management Practices (BMPs) on the property, the City of Brea requires that the party responsible for maintenance of these BMPs receive proper orientation and training on their operations and maintenance. This form is to be completed by the owner representative and shall be made available to the City Authorized Inspector upon request. Should the maintenance provider or facility maintenance representative change at any time, the owner representative shall complete this form with the new responsible party for BMP maintenance.

Property Information	BMP O&M
Project Name: Brea Gaslight Square	**Responsible Party:** (Owner, management company or HOA/POA) Owner
Legal Owner of Record: One Berry LLC	**Contact Name:** Dwight Manley
Address: 255 E. Imperial Highway, Brea, CA 92821	**Address:** 330 W. Birch Street, Suite E201 Brea, CA 92821
Telephone: (714) 990-8748	**Telephone:** (714) 990-8748
Email: dmanleyinc@aol.com	**Email:** dmanleyinc@aol.com

As the party responsible for operation and maintenance of the BMPs specified in the approved Water Quality Management Plan (WQMP) for the subject property, I hereby certify under penalty of law that I, or persons under my supervision, are qualified and competent to carry out the inspection and maintenance the BMPs in a manner consistent with the approved WQMP Operation and Maintenance (O&M) Plan.

_____ _____

Maintenance Representative Signature Date

As the owner representative of the Brea Gaslight Square for which a Water Quality Management Plan (WQMP) was approved by the City, I hereby certify under penalty of law that all BMPs contained within the approved Project WQMP have been maintained and inspected in accordance with the schedule and frequency outlined in the approved WQMP Operation and Maintenance (O&M) Plan. The maintenance activities and inspections conducted have been performed by qualified and knowledgeable

individuals listed above. To the best of my knowledge, the information submitted is true and accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and citations for violating water quality regulations.

Owner/Representative Signature	Date

Brea Gaslight Square

NOISE AND VIBRATION ANALYSIS

CITY OF BREA

PREPARED BY:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 584-3148

JANUARY 24, 2023

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **III**
APPENDICES ..... **IV**
LIST OF EXHIBITS ..... **IV**
LIST OF TABLES ..... **V**
LIST OF ABBREVIATED TERMS ..... **VI**
EXECUTIVE SUMMARY **1**
1 INTRODUCTION **3**
1.1 Site Location 3
1.2 Project Description 3
2 FUNDAMENTALS **7**
2.1 Range of Noise 7
2.2 Noise Descriptors 8
2.3 Sound Propagation 8
2.4 Noise Control 9
2.5 Noise Barrier Attenuation 9
2.6 Land Use Compatibility With Noise 10
2.7 Community Response to Noise 10
2.8 Vibration 11
3 REGULATORY SETTING **13**
3.1 State of California Noise Requirements 13
3.2 City of Brea General Plan Noise Element 13
3.3 City of Brea Municipal Code Standards 14
3.4 Construction Vibration Standards 16
4 SIGNIFICANCE CRITERIA **17**
4.1 Noise Level Increases (Threshold A) 17
4.2 Vibration (Threshold B) 18
4.3 CEQA Guidelines Not Further Analyzed (Threshold C) 18
4.4 Significance Criteria Summary 19
5 EXISTING NOISE LEVEL MEASUREMENTS **21**
5.1 Measurement Procedure and Criteria 21
5.2 Noise Measurement Locations 21
5.3 Noise Measurement Results 22
6 RECEIVER LOCATIONS **25**
7 OPERATIONAL NOISE IMPACTS **29**
7.1 Operational Noise Sources 29
7.2 Reference Noise Levels 29
7.3 CadnaA Noise Prediction Model 32
7.4 Project Operational Noise Levels 32
7.5 Project Operational Noise Level Compliance 33
7.6 Project Operational Noise Level Increases 34
7.7 Off-Site Traffic Noise Analysis 37
8 CONSTRUCTION IMPACTS **39**

8.1 Construction Noise Levels 39
8.2 Construction Reference Noise Levels 39
8.3 Construction Noise Analysis 41
8.4 Construction Noise Level Compliance 42
8.5 Construction Vibration Analysis 43
9 REFERENCES 45
10 CERTIFICATION 46

APPENDICES

APPENDIX 3.1: CITY OF BREA MUNICIPAL CODE
APPENDIX 5.1: STUDY AREA PHOTOS
APPENDIX 5.2: NOISE LEVEL MEASUREMENT WORKSHEETS
APPENDIX 7.1: CADNAA OPERATIONAL NOISE MODEL INPUTS
APPENDIX 8.1: CADNAA CONSTRUCTION NOISE MODEL INPUTS

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP 4
EXHIBIT 1-B: SITE PLAN 5
EXHIBIT 2-A: TYPICAL NOISE LEVELS 7
EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION 10
EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION 12
EXHIBIT 3-A: NOISE/LAND USE COMPATIBILITY 15
EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS 23
EXHIBIT 6-A: RECEIVER LOCATIONS 27
EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS 30
EXHIBIT 8-A: CONSTRUCTION NOISE SOURCE LOCATIONS 40

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS 1
TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY 19
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS 22
TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS 31
TABLE 7-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS 33
TABLE 7-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS 33
TABLE 7-4: OPERATIONAL NOISE LEVEL COMPLIANCE 34
TABLE 7-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES 35
TABLE 7-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES 36
TABLE 8-1: CONSTRUCTION REFERENCE NOISE LEVELS 41
TABLE 8-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY 42
TABLE 8-3: CONSTRUCTION NOISE LEVEL COMPLIANCE 42
TABLE 8-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT 43
TABLE 8-5: PROJECT CONSTRUCTION VIBRATION LEVELS 44

LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Brea Gaslight Square
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Brea Gaslight Square development ("Project"). The Project site is located between Orange Avenue and Flower Avenue and north of Imperial Highway (State Route or SR-90) at 255 Imperial Highway (SR-90) in the City of Brea. This noise study has been prepared to satisfy applicable City of Brea noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Operational Noise	7	*Less Than Significant*	-
Construction Noise	8	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Brea Gaslight Square ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Project is located between located between Orange Avenue and Flower Avenue and north of Imperial Highway (State Route or SR-90) at 255 Imperial Highway (SR-90) in the City of Brea, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project involves the redevelopment of approximately 0.95-acre of a 1.88-acre Project site. The site is currently occupied with six commercial/office buildings. The southern 0.95-acre portion of the Project site is proposed to be redeveloped with two proposed commercial buildings. As part of the Project, four of the existing commercial/office buildings would be demolished, including two 2,799 square foot (s.f.) office buildings, a 3,166 s.f. office building, and a two-story office/commercial building that contains 10,109 s.f. of floor space. Two new commercial buildings would be constructed on-site. A 6,000 s.f. commercial building is proposed at the northeast corner of South Orange Avenue and Imperial Highway, which would include a 2,400 s.f. sit-down restaurant and 3,600 s.f. of retail or medical office uses as shown on Exhibit 1-B. In addition, an approximate 2,000 s.f. drive-through restaurant is proposed at the northwest corner of South Flower Avenue and Imperial Highway. Future tenants of the new, proposed buildings are unknown at this time.

The on-site Project-related noise sources are expected to include: roof-top air conditioning units, outdoor courtyard activity, drive-through speakerphones, trash enclosure activity, and vehicle movements. This noise analysis is intended to describe the noise level impacts associated with the expected typical operational activities at the Project site.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (3) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used metric is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Brea relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of-sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

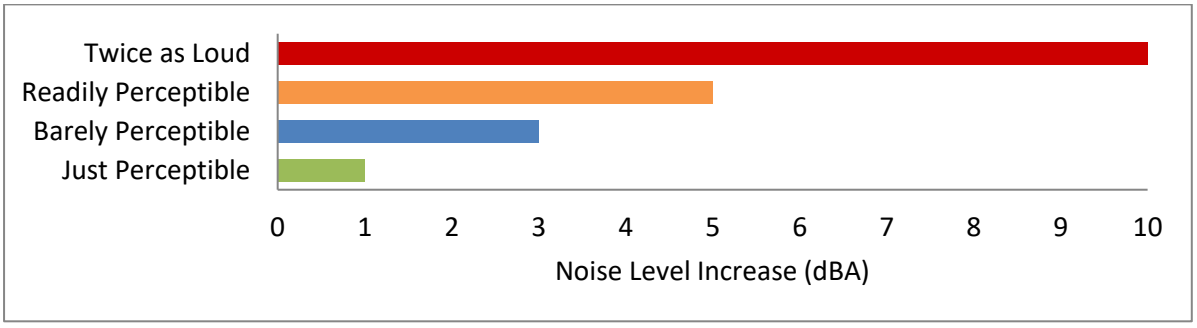
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



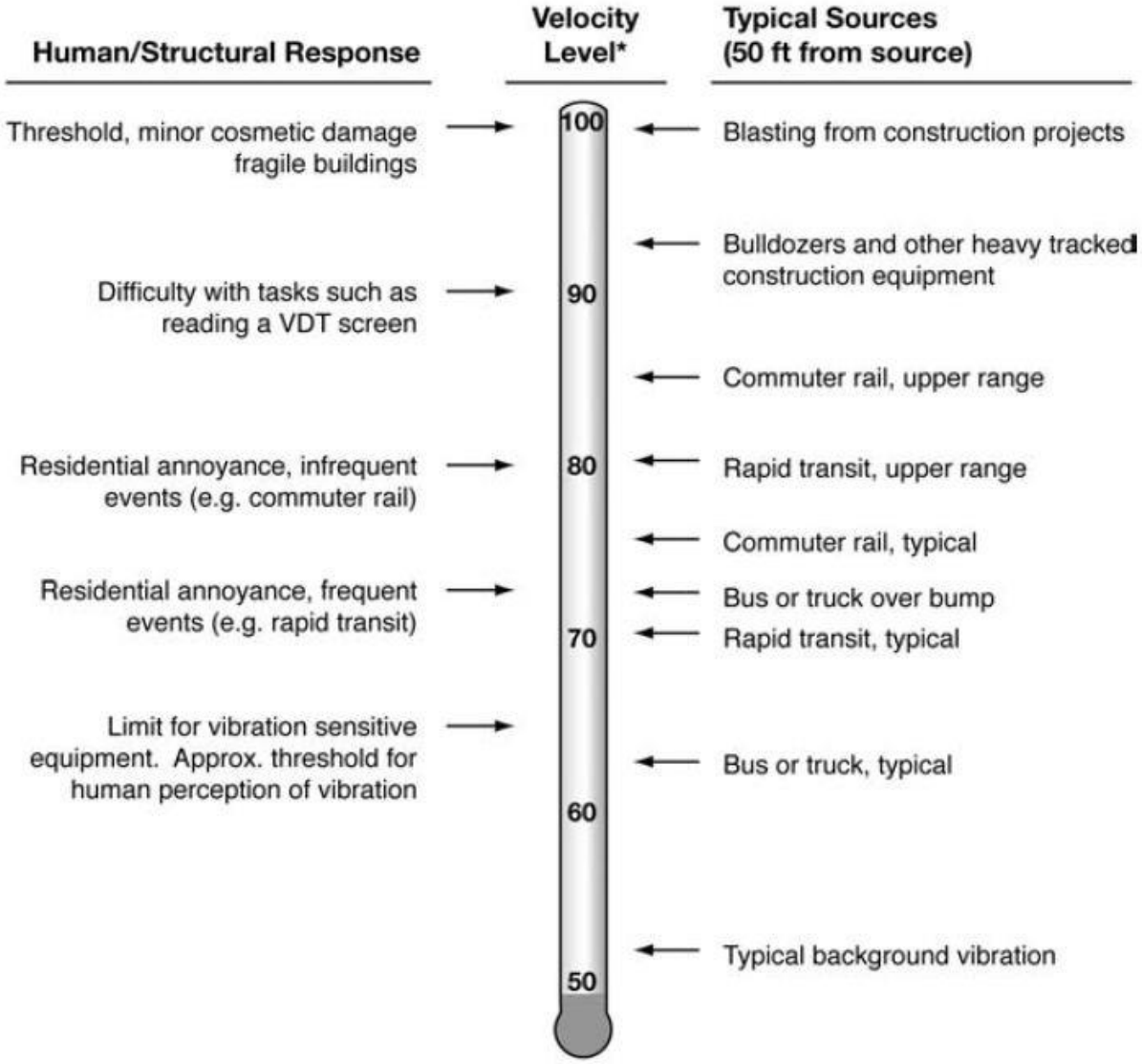
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (8) ,(8) vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF BREA GENERAL PLAN NOISE ELEMENT

The City of Brea has adopted a Noise Element of the General Plan to *substantially reduce noise and its impacts within the urban environment, with a focus on protecting residential neighborhoods, school, and similar sensitive receivers*. (10) The Noise Element identifies several policies to minimize the impacts of excessive noise levels throughout the community. To *minimize the exposure of residents to unhealthful or excessive noise levels*, the Noise Element contains the following policies related to the Project:

Policy PS-9.1 *Evaluate the need to require acoustical studies for development proposals that address both direct and indirect, particularly traffic, noise impacts, and require such studies, with appropriate mitigation included, as warranted.*

Policy PS-9.3 *Ensure that acceptable noise levels are maintained near schools, hospitals, convalescent homes, and other noise sensitive areas in accordance with the City's Municipal Code and noise standards contained in the General Plan.*

Policy PS-11.1 *Require the inclusion of noise mitigation measures, techniques, and design features in the planning, design, and construction of future development and redevelopment projects.*

Policy PS-11.2 *Require that mixed-use structures be designed to prevent transfer of noise and vibration from commercial/retail to residential use.*

Policy PS-11.3 *Minimize stationary noise sources and noise emanating from construction activities and special events.*

Policy PS-11.4 *Require that new non-residential development plan delivery areas away from existing residential areas.*

Policy PS-11.5 Continue active enforcement to limit commercial and industrial delivery hours adjoining residential areas.

In addition, the Noise Element indicates that the *city will use land use compatibility standards when planning and making development decisions in order to ensure that noise producers do not adversely affect sensitive receptors. The City's primary goal with regard to community noise is to minimize the exposure of residents to unhealthful or excessive noise levels to the extent possible.*

3.2.1 LAND USE COMPATIBILITY

The noise criteria identified in the City of Brea Noise Element (Figure 14) are guidelines to evaluate the land use compatibility of transportation related noise. The noise/land use compatibility criteria, shown on Exhibit 3-A, provides the city with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Noise/Land Use Compatibility* matrix describes categories of compatibility and not specific noise standards. The office/commercial use of the Project is considered *normally acceptable* with unmitigated exterior noise levels of less than 65 dBA CNEL based on the Noise/Land Use Compatibility criteria shown on Exhibit 3-A. Residential designated land uses in the Project study area are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with exterior noise levels of up to 65 dBA CNEL. For *conditionally acceptable* exterior noise levels for Project land uses, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice*. (10)

3.3 CITY OF BREA MUNICIPAL CODE STANDARDS

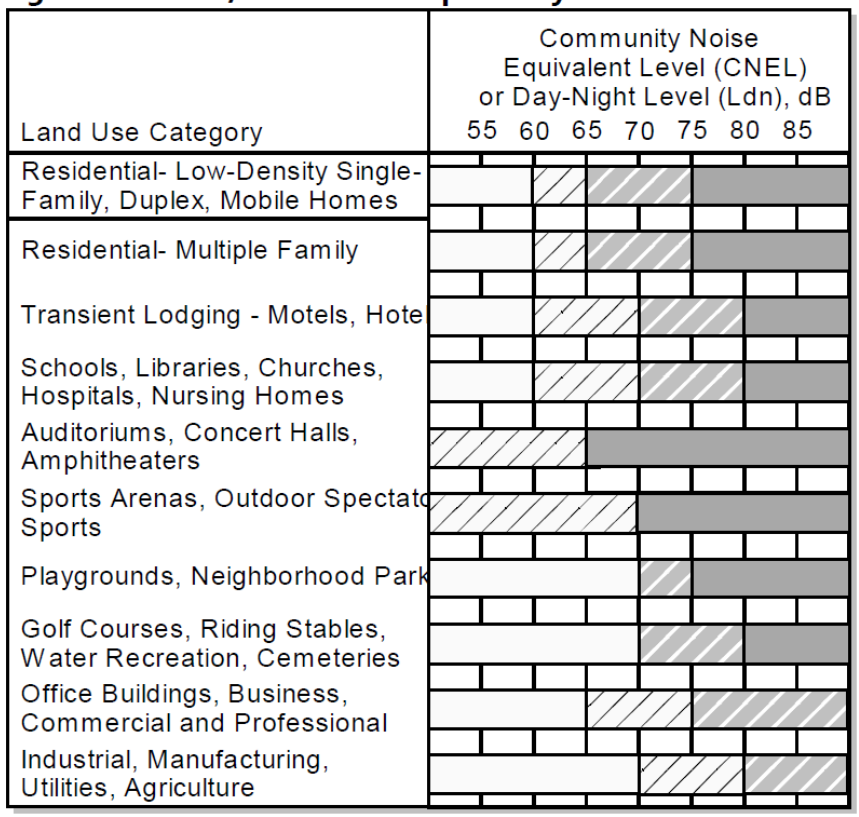
To analyze noise impacts originating from a designated fixed location or private property such as the Brea Gaslight Square Project, stationary-source (operational) noise levels and noise from construction activities are typically evaluated against standards established under the City's Municipal Code.

3.3.1 OPERATIONAL NOISE STANDARDS

For noise-sensitive residential property, the City of Brea Municipal Code, Section 8.20.050, identifies exterior noise levels standards of 55 dBA L_{eq} for the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA L_{eq} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. Per Section 8.20.050[A] the following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone. Further, Section 8.20.050[C] indicates that if the existing ambient noise level already exceeds any of the exterior noise level limit categories, then the standard shall be adjusted to reflect the ambient conditions. The City of Brea Municipal Code Noise Standards are included in Appendix 3.1.

EXHIBIT 3-A: NOISE/LAND USE COMPATIBILITY

Figure 14. Noise/Land Use Compatibility



Nature of the noise environment where the CNEL or Ldn level is:

Below 55 dB
Relatively quiet suburbar urban areas, no arterial streets within 1 block, no freeways within 1/4 mile.

55-65 dB
Most somewhat noisy urban areas, near but no directly adjacent to high volumes of traffic.

65-75 dB
Very noisy urban areas n arterials, freeways or airports.

75+ dB
Extremely noisy urban areas adjacent to freewa or under airport traffic patterns. Hearing damag with constant exposure outdoors.

Normally Acceptable
Specified land use is satisfactory, based on the assumption that any buildings are of normal conventional construc-tion, without any special noise insulation require-ments

Conditionally Acceptable
New construction or development should be undertaken only after a detailed analysis of noise reduction require-ments is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply sys-tems or air condition-ing, will normally suffice.

Normally Unacceptable
New construction or development should generally be discour-aged. If new construc-tion or development does proceed, a de-tailed analysis of noise reduction requirements must be made and needed noise insulation features included in design.

Clearly Unacceptable
New construction or development should generally not be undertaken.

Source: City of Brea General Plan Noise Element, Figure 14.

3.3.2 CONSTRUCTION NOISE STANDARDS

The City of Brea has set restrictions to control noise impacts associated with the construction of the proposed Project. Section 8.20.070[E] of the City's Municipal Code states: *Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday, shall be exempted from the provisions of the Municipal Code Noise Control Chapter 8.20.* Neither the City's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179).

3.4 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration (8). To analyze vibration impacts originating from the operation and construction of the Brea Gaslight Square, vibration-generating activities are appropriately evaluated against standards established under the Municipal Code, if such standards exist. However, the City of Brea does not identify specific construction vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (11 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders a noise impact significant.* (12) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

The Federal Interagency Committee on Noise (FICON) (13) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders a noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (12) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any

increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (14 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.4, the vibration impacts originating from the construction of Brea Gaslight Square, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest airport is the Fullerton Municipal Airport located roughly 5.5 miles southwest of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Even though Section 8.20.050 of the Municipal Code limits the use of the 55 dBA L_{eq} daytime noise standard to residential properties, the same 55 dBA L_{eq} exterior noise level standard has been used to assess the potential operational noise level impacts at the nearby Laurel Elementary School and CC's Learning Center. Consistent with General Plan Policy PS-9.3 the application of the residential noise standard is limited to noise sensitive areas, this includes schools, hospitals, and convalescent homes. Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	Nighttime
Off-Site Traffic[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
	If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
Operational	Exterior Noise Level Standards[2,6]	55 dBA L_{eq}	50 dBA L_{eq}
	If ambient is < 60 dBA Leq[1]	≥ 5 dBA L_{eq} Project increase	
	If ambient is 60 - 65 dBA Leq[1]	≥ 3 dBA L_{eq} Project increase	
	If ambient is > 65 dBA Leq[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Permitted between 7:00 a.m. and 7:00 p.m. on any day except for Sunday or a Federal holiday[3]		
	Noise Level Threshold[4]	80 dBA L_{eq}	70 dBA L_{eq}
	Vibration Level Threshold[5]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] City of Brea Municipal Code Section 8.20.050.
[3] City of Brea Municipal Code Section 8.20.070[E].
[4] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[5] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
[6] Even though the Municipal Code limits the use of the 55 dBA L_{eq} daytime standard to affected residential properties, the same 55 dBA L_{eq} daytime exterior noise level standard has been used to assess the potential noise level impacts at the Laurel Elementary School and CC's Learning Center.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at eight locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Friday, July 15th, 2022. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (15)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the energy average hourly sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located north of the Project site near the commercial building at 230 S Orange Avenue.	56.7	53.8	61.1
L2	Located north of the Project site in the parking lot near the noise sensitive residence at 229 S Flower Avenue.	58.2	53.2	61.4
L3	Located north of the Project site near the commercial building at 235 S Flower Avenue.	54.0	51.6	58.8
L4	Located northeast of the Project site near the non-residential building at 200 S Flower Avenue.	53.6	49.1	57.0
L5	Located southeast of the Project site near the Laurel Elementary School at 200 S Flower Avenue.	57.9	55.7	62.8
L6	Located south of the Project site near CC's Learning Center at 300 E Imperial Highway.	58.2	54.2	61.7
L7	Located south of the Project site near the noise sensitive residence at 309 S Flower Avenue.	66.7	64.5	71.6
L8	Located south of the Project site near the noise sensitive residence at 310 S Orange Avenue.	65.5	63.2	70.3

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 6-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, eight receiver locations in the vicinity of the Project site were identified. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents the non-residential Curtis Orthodontics office building at 230 S Orange Avenue, approximately 48 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R1 is placed at the building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing residence at 229 S Flower Ave, approximately 121 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the non-residential Brea Dentistry office building at 235 S Flower Ave, approximately 21 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R3 is placed at the building façade. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents Laurel Elementary School at 200 S Flower Ave, approximately 314 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R4 is placed at the building façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the Laurel Elementary School at 200 S Flower Ave, approximately 166 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R5 is placed at the building façade. A 24-hour noise

measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents CC's Learning Center at 320 S Flower Ave, approximately 240 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, R6 is placed at the building façade. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

R7: Location R7 represents the existing residence at 309 S Flower Ave, approximately 190 feet south of the Project site. R7 is placed at the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L7, to describe the existing ambient noise environment.

R8: Location R8 represents the existing residence at 310 S Orange Ave, approximately 194 feet south of the Project site. R8 is placed at the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L8, to describe the existing ambient noise environment.

EXHIBIT 6-A: RECEIVER LOCATIONS



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7 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 6, resulting from the operation of the proposed Brea Gaslight Square Project. Exhibit 7-A identifies the noise source locations used to assess the operational noise levels.

7.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, outdoor courtyard activity, drive-through speakerphones, trash enclosure activity, and vehicle movements.

7.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 7-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, outdoor courtyard activity, drive-through speakerphones, trash enclosure activity, and vehicle movements all operating at the same time. These sources of noise activity will likely vary throughout the day.

7.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precision sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (15)

7.2.2 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from Lennox SCA120 series 10-ton model packaged air conditioning unit. At a uniform reference distance of 50 feet, the roof-top air conditioning units generate a reference noise level of 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS



TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level (dBA Leq) @ 50 Feet	Sound Power Level (dBA)[6]
		Day	Night		
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Outdoor Courtyard Activity	5'	60	30	59.8	91.5
Drive-Through Speakerphone	3'	60	30	50.0	84.0
Trash Enclosure Activity	5'	60	30	57.3	89.0
Vehicle Movements	5'	60	60	52.6	81.1

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

7.2.3 OUTDOOR COURTYARD ACTIVITY

To describe the outdoor common area courtyards activity areas, a reference noise level measurement was taken. At 50 feet, the reference noise level is 59.8 dBA L_{eq}.at a noise source height of 5 feet. The reference noise level measurement includes outdoor eating, drinking, with laughing and talking.

7.2.4 DRIVE-THROUGH SPEAKERPHONE ACTIVITY

To describe the potential noise level impacts associated with the planned drive-thru speakerphones, this analysis relies on the drive-through intercom system manufactured by HME. This type of system is commonly used by the quick service restaurant (QSR) industry for drive-thru communications. The HME SPP2 speaker post intercom system produces a maximum noise level of 84 dBA at one foot from the speaker post. The system may also be equipped with an automatic volume control that can automatically reduce the sound levels as the ambient noise level decreases. The reference speakerphone noise level describes continuous drive-through operations and does not include any periods of inactivity.

7.2.5 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for each of the Project buildings.

7.2.6 VEHICLE MOVEMENTS

To describe the on-site vehicle movement activity a reference noise level of 52.6 dBA L_{eq} at 50 feet is used. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The on-site vehicle movement activity noise levels are mainly due cars pulling in and out of parking spaces.

7.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 7.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include roof-top air conditioning units, outdoor courtyard activity, drive-through speakerphones, trash enclosure activity, and vehicle movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 7-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 39.6 to 63.5 dBA L_{eq}.

TABLE 7-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)							
	R1	R2	R3	R4	R5	R6	R7	R8
Roof-Top Air Conditioning Units	49.5	45.0	51.2	36.9	42.3	42.6	33.1	44.0
Outdoor Courtyard Activity	49.1	47.2	60.0	46.6	52.6	50.2	37.5	50.9
Drive-Through Speakerphone	19.0	13.8	39.3	26.9	32.6	31.4	17.7	17.0
Trash Enclosure Activity	50.6	45.1	57.3	39.4	45.8	41.1	28.1	25.2
Vehicle Movements	53.8	47.3	57.6	34.7	44.5	41.1	28.3	32.5
Total (All Noise Sources)	**57.2**	**52.3**	**63.5**	**48.0**	**54.3**	**51.8**	**39.6**	**51.8**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

Table 7-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 36.4 to 61.0 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 7-1 and Appendix 7.1.

TABLE 7-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)							
	R1	R2	R3	R4	R5	R6	R7	R8
Roof-Top Air Conditioning Units	47.1	42.6	48.8	34.5	39.9	40.2	30.7	41.5
Outdoor Courtyard Activity	45.2	43.3	56.0	42.6	48.6	46.2	33.5	47.0
Drive-Through Speakerphone	15.0	9.8	35.3	22.9	28.6	27.4	13.7	13.0
Trash Enclosure Activity	46.7	41.1	53.3	35.4	41.8	37.1	24.1	21.2
Vehicle Movements	53.8	47.3	57.6	34.7	44.5	41.1	28.3	32.5
Total (All Noise Sources)	**55.7**	**50.3**	**61.0**	**44.4**	**51.0**	**48.5**	**36.4**	**48.2**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

7.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Brea exterior noise level standards at nearby noise-sensitive receiver locations. Table 7-4 shows the operational noise levels associated with Brea Gaslight Square Project will not exceed the City of Brea daytime and nighttime exterior noise level standards. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 7-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	Office	57.2	55.7	-[5]	-[5]	No	No
R2	Residential	52.3	50.3	58.2	53.2	No	No
R3	Office	63.5	61.0	-[5]	-[5]	No	No
R4	School	48.0	44.4	53.6	49.1	No	No
R5	School	54.3	51.0	57.9	55.7	No	No
R6	School	51.8	48.5	58.2	54.2	No	No
R7	Residential	39.6	36.4	66.7	64.5	No	No
R8	Residential	51.8	48.2	65.5	63.2	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 7-2 and 7-3.
[3] Exterior noise level standards adjusted to reflect the ambient conditions (see Table 5-1) per the City of Brea Municipal Code Section 8.20.050[C].
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
[5] Receiver does represent a noise sensitive land use.
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

7.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby noise sensitive receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 7-5 and 7-6, respectively. As indicated on Table 7-5, the Project will generate a daytime operational noise level increases ranging from 0.0 to 1.6 dBA L_{eq} at the nearest noise sensitive receiver locations. Table 7-6 shows that the Project will generate a nighttime operational noise level increases ranging from 0.0 to 1.8 dBA L_{eq} at the nearest noise sensitive receiver locations. Project-related operational noise level increases will not exceed the operational noise level increase significance criteria presented in Table 4-1, and, therefore, the increases at the sensitive receiver locations will be *less than significant.*

TABLE 7-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R2	52.3	L2	58.2	59.2	1.0	5.0	No
R4	48.0	L4	53.6	54.7	1.1	5.0	No
R5	54.3	L5	57.9	59.5	1.6	5.0	No
R6	51.8	L6	58.2	59.1	0.9	5.0	No
R7	39.6	L7	66.7	66.7	0.0	1.5	No
R8	51.8	L8	65.5	65.7	0.2	1.5	No

[1] See Exhibit 8-A for the receiver locations. Potential impacts are limited to noise sensitive receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 7-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 7-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R2	50.3	L2	53.2	55.0	1.8	5.0	No
R4	44.4	L4	49.1	50.4	1.3	5.0	No
R5	51.0	L5	55.7	57.0	1.3	5.0	No
R6	48.5	L6	54.2	55.2	1.0	5.0	No
R7	36.4	L7	64.5	64.5	0.0	5.0	No
R8	48.2	L8	63.2	63.3	0.1	5.0	No

[1] See Exhibit 8-A for the receiver locations. Potential impacts are limited to noise sensitive receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 7-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

7.7 OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project would influence the traffic noise levels in surrounding off-site areas and at the Project site. According to the January 20, 2023, *Brea Gaslight Square Trip Generation Assessment prepared by Urban Crossroads, Inc*., the proposed Project is anticipated to generate a net increase of 510 daily trips. (16)

The off-site Project-related traffic represents an incremental increase to the existing roadway volumes. Due to the low trip generation, the Project is not expected to create a "barely perceptible" noise level increase of 3 dBA CNEL at nearby sensitive land uses adjacent to study area roadways since a doubling of the existing traffic volumes would be required to generate a 3 dBA CNEL increase. (4) For example, the existing 2022 average daily traffic volumes (ADT) on Flower Avenue north of Imperial Highway is approximately 2,300. The Project-related off-site traffic noise levels increase due to the additional Project trips are estimated at less than 1 dBA CNEL. Due to the low traffic volumes, the Project related off-site traffic noise increases are considered *less than significant* and no further analysis is required.

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8 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 8-A shows the construction noise source locations in relation to the nearby receiver locations previously described in Section 8. According to the City's Municipal Code, *Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday, shall be exempted from the provisions of the Municipal Code Noise Control Chapter 8.20.*

In addition, neither the City of Brea General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179).

8.1 CONSTRUCTION NOISE LEVELS

The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

- Demolition/Crushing
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

8.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (17) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 8-A: CONSTRUCTION NOISE SOURCE LOCATIONS



8.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 8-1 presents the combined construction reference noise levels for the loudest construction equipment, assuming they operate at the same time. As shown on Table 8-2, the construction noise levels are expected to range from 45.4 to 77.8 dBA L_{eq} at the nearby receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 8-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Demolition/ Crushing	Demolition Equipment	82	86	118
	Backhoes	74		
	Concrete Saw	83		
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

[1] FHWA Roadway Construction Noise Model (RCNM).
[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calibrated using the CadnaA noise model at the reference distance to the noise source.

TABLE 8-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition/ Crushing	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	74.7	71.7	74.7	72.7	74.7	68.7	74.7
R2	68.8	65.8	68.8	66.8	68.8	62.8	68.8
R3	77.8	74.8	77.8	75.8	77.8	71.8	77.8
R4	58.4	55.4	58.4	56.4	58.4	52.4	58.4
R5	66.8	63.8	66.8	64.8	66.8	60.8	66.8
R6	64.5	61.5	64.5	62.5	64.5	58.5	64.5
R7	51.4	48.4	51.4	49.4	51.4	45.4	51.4
R8	64.7	61.7	64.7	62.7	64.7	58.7	64.7

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 8.1.

8.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will not exceed the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 8-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 8-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	74.7	80	No
R2	68.8	80	No
R3	77.8	80	No
R4	58.4	80	No
R5	66.8	80	No
R6	64.5	80	No
R7	51.4	80	No
R8	64.7	80	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 8-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

8.5 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 8-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 8-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089
Vibratory Roller	0.210

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 8-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 21 to 314 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.005 to 0.273 PPV (in/sec). Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at the noise sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site.

Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 8-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R1	48'	0.001	0.013	0.029	0.033	0.079	0.079	0.3	No
R2	121'	0.000	0.003	0.007	0.008	0.020	0.020	0.3	No
R3	21'	0.004	0.045	0.099	0.116	0.273	0.273	0.3	No
R4	314'	0.000	0.001	0.002	0.002	0.005	0.005	0.3	No
R5	166'	0.000	0.002	0.004	0.005	0.012	0.012	0.3	No
R6	240'	0.000	0.001	0.003	0.003	0.007	0.007	0.3	No
R7	190'	0.000	0.002	0.004	0.004	0.010	0.010	0.3	No
R8	194'	0.000	0.002	0.004	0.004	0.010	0.010	0.3	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-A.
[2] Distance from receiver building facade to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 8-5).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

9 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2019.
10. **City of Brea.** *General Plan Noise Element.* Updated 2021.
11. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
12. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
13. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
14. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
15. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
16. **Urban Crossroads, Inc.** *Brea Gaslight Square Trip Generation Assessment.* January 20, 2023.
17. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

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10 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Brea Gaslight Square Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

Bill Lawson, P.E., INCE
Principal
URBAN CROSSROADS, INC.
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Newport Beach, CA 92658
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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of San Diego • March, 2018
Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF BREA MUNICIPAL CODE

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CHAPTER 8.20: NOISE CONTROL

Section

8.20.010 Declaration of policy
8.20.020 Definitions
8.20.030 Noise level measurement criteria
8.20.040 Designated noise zone
8.20.050 Exterior noise standards
8.20.060 Interior noise standards
8.20.070 Special provisions
8.20.080 Motor vehicle racing
8.20.090 Schools, hospitals and churches
8.20.100 Air conditioning; refrigeration; pool filters and fans
8.20.110 Noise level measurement
8.20.120 Manner of enforcement

§ 8.20.010 DECLARATION OF POLICY.

A. In order to control unnecessary, excessive and annoying sounds emanating from areas of the city, it is hereby declared to be the policy of the city to prohibit such sounds generated from all sources as specified in this chapter.

B. It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to the public interest.

('61 Code, § 7B.1) (Ord. 812, passed - -)

§ 8.20.020 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

AMBIENT NOISE LEVEL. The all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

CUMULATIVE PERIOD. An additive period of time composed of individual time segments which may be continuous or interrupted.

DECIBEL (dB). A unit which denotes the ratio between two (2) quantities which are proportional to power: the number of decibels corresponding to the ratio or two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

DWELLING UNIT. A single unit providing complete, independent living facilities for one (1) or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

EMERGENCY MACHINERY, VEHICLE, OR WORK. Any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

FIXED NOISE SOURCE. A stationary device which creates sounds while fixed or motionless, including but not limited to industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

GRADING. Any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

IMPACT NOISE. The noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

MOBILE NOISE SOURCE. Any noise source other than a fixed noise source.

NOISE LEVEL. The “A” weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micronewtons per square meter. The unit of measurement shall be designated as dB(A).

PERSON. A person, firm, association, co-partnership, joint venture, corporation or any entity, public or private in nature.

RESIDENTIAL PROPERTY. A parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

SIMPLE TONE NOISE. A noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

SOUND LEVEL METER. An instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

SOUND PRESSURE LEVEL OF A SOUND, IN DECIBELS. Twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

('61 Code, § 7B.2) (Ord. 812, passed - -)

§ 8.20.030 NOISE LEVEL MEASUREMENT CRITERIA.

Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in § 8.20.020.

('61 Code, § 7B.3) (Ord. 812, passed - -)

§ 8.20.040 DESIGNATED NOISE ZONE.

The entire territory of the city is hereby designated as “Noise Zone 1.”

('61 Code, § 7B.4) (Ord. 812, passed - -)

§ 8.20.050 EXTERIOR NOISE STANDARDS.

A. The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

NOISE STANDARDS

Noise Zone	***Noise Level***	***Time Period***

1	55 dB(A)	7:00 a.m. - 10:00 p.m.
1	50 dB(A)	10:00 p.m. - 7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

B. It shall be unlawful for any person at any location within the city to create any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, to exceed:

1. The noise standard for a cumulative period of more than 30 minutes in any hour; or

2. The noise standard plus five (5) dB(A) for a cumulative period of more than 15 minutes in any hour; or

3. The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

4. The noise standards plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

5. The noise standard plus twenty (20) dB(A) for any period of time.

C. In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

('61 Code, § 7B.5) (Ord. 812, passed - -)

§ 8.20.060 INTERIOR NOISE STANDARDS.

A. The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

INTERIOR NOISE STANDARDS

Noise Zone	*Noise Level*	*Time Period*
1	55 dB(A)	7:00 a.m. - 10:00 p.m.
1	45 dB(A)	10:00 p.m. - 7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

B. It shall be unlawful for any person at any location within the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, to exceed:

1. The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

2. The interior noise standard plus five (5) dB(A) for a cumulative period of more than one (1) minute in any hour; or

3. The interior noise standard plus ten (10) dB(A) for any period of time.

C. In the event the ambient noise level exceeds any of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

('61 Code, § 7B.6) (Ord. 812, passed - -)

§ 8.20.070 SPECIAL PROVISIONS.

The following activities shall be exempted from the provisions of this chapter:

A. Activities conducted on the grounds of any public nursery, elementary, intermediate or secondary school or college.

B. Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a permit as required by this code.

C. Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.

D. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

E. Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

F. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

G. Mobile noise sources associated with agricultural operations; provided such operations do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

H. Mobile noise sources associated with agricultural pest control through pesticide application, provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural Commissioner.

I. Noise sources, associated with the maintenance of real property, provided said activities take place between 7:00 a.m. and 7:00 p.m. on any day.

J. Any activity to the extent regulation thereof has been preempted by state or federal law.

('61 Code, § 7B.7) (Ord. 812, passed - -)

§ 8.20.080 MOTOR VEHICLE RACING.

It shall be unlawful to conduct motor vehicle racing, testing, timing or similar noise-producing activities at raceways, speedways, off-road vehicle courses, drag strips or other similar places, including, but not limited to, the operation of midget race cars, drag cars, motorcycles, off-road vehicles, and specialty automobiles, between the hours of 11:30 p.m. and 7:00 a.m.

('61 Code, § 7B.8) (Ord. 812, passed - -)

§ 8.20.090 SCHOOLS, HOSPITALS AND CHURCHES.

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while same is in use to exceed the noise limits as specified in § 8.20.050 proscribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth of a mile of the institution indicating the presence of a school, church or hospital.

('61 Code, § 7B.9) (Ord. 812, passed - -)

§ 8.20.100 AIR CONDITIONING; REFRIGERATION; POOL FILTERS AND FANS.

During the five (5) year period following the effective date of this chapter, the noise standards enumerated in §§ 8.20.050 and 8.20.060 shall be increased eight (8) dB(A) where the alleged offensive noise source is an air conditioning, or refrigeration system, fan, or swimming pool filter, or associated equipment which was installed prior to the effective date of this chapter.

('61 Code, § 7B.10) (Ord. 812, passed - -)

§ 8.20.110 NOISE LEVEL MEASUREMENT.

The location selected for measuring exterior noise levels shall be at any point on the affected property. Interior noise measurements shall be made within the affected dwelling unit. The measurement shall be made at a point at least four (4) feet from the wall, ceiling or floor nearest the alleged offensive noise source and may be made with the windows of the affected unit open.

('61 Code, § 7B.11) (Ord. 812, passed - -)

§ 8.20.120 MANNER OF ENFORCEMENT.

A. The Police Department, the Code Enforcement Officer and their duly authorized representatives are directed to enforce the provisions of this chapter.

B. No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his or her duty.

('61 Code, § 7B.12) (Ord. 812, passed - -)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:14783



14783_L1_X_1.North



14783_L1_X_2.South



14783_L1_X_3.East



14783_L1_X_4.West

JN:14783



14783_L2_Z_1.North



14783_L2_Z_2.South



14783_L2_Z_3.East



14783_L2_Z_4.West



14783_L3_I_1.North



14783_L3_I_2.South



14783_L3_I_3.East



14783_L3_I_4.West



14783_L4_U_1.North



14783_L4_U_2.South



14783_L4_U_3.East



14783_L4_U_4.West



14783_L5_G_1.North



14783_L5_G_2.South



14783_L5_G_3.East



14783_L5_G_4.West



14783_L6_Y_1.North
33, 54' 54.980000"117, 53' 54.430000"



14783_L6_Y_2.South
33, 54' 54.740000"117, 53' 54.270000"



14783_L6_Y_3.East
33, 54' 54.850000"117, 53' 54.270000"



14783_L6_Y_4.West
33, 54' 54.850000"117, 53' 54.290000"



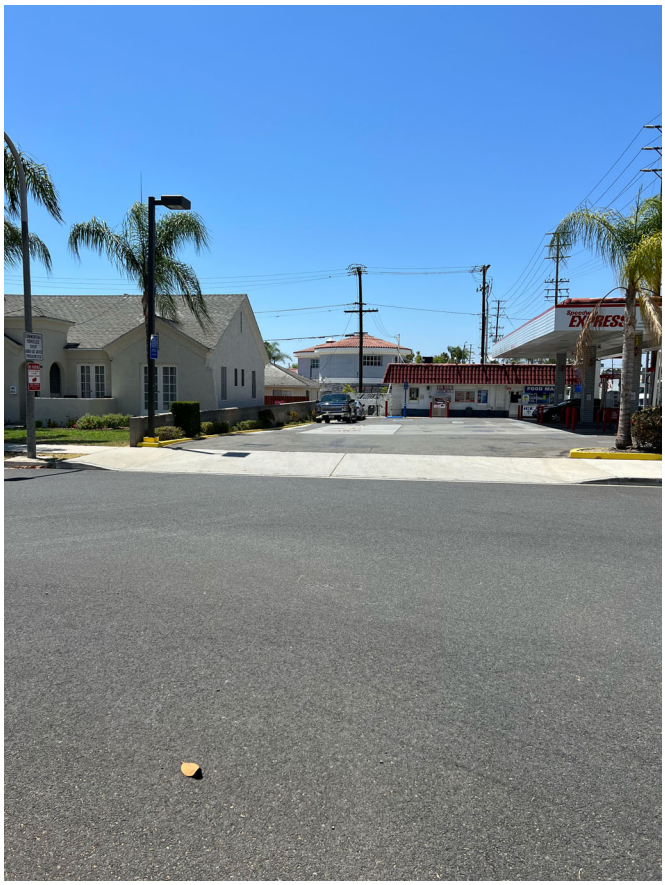
14783_L8_H_1.North



14783_L8_H_2.South
33, 54' 56.960000"117, 53' 57.640000"



14783_L8_H_3.East
33, 54' 57.070000"117, 53' 57.560000"



14783_L8_H_4.West
33, 54' 57.050000"117, 53' 57.620000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

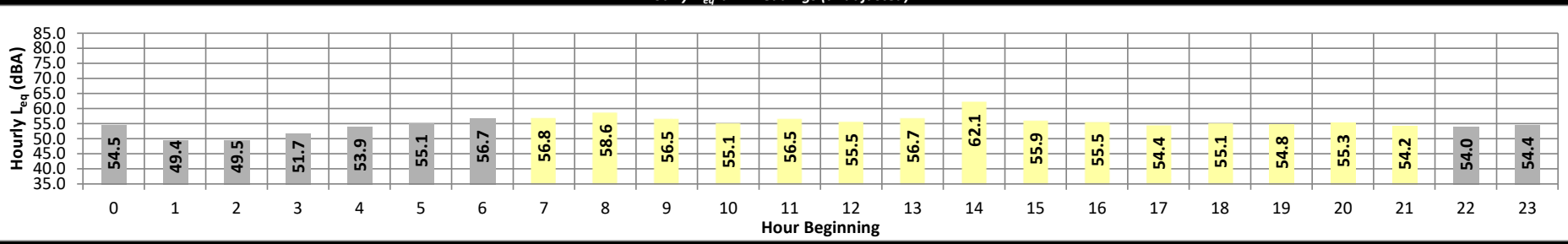
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24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 | *Location:* L1 - Located north of the Project site near the commercial | *Meter:* Piccolo II | *JN:* 14783

Project: Brea Gaslight | *Source:* building at 230 S Orange Avenue. | *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	54.5	66.1	46.6	65.5	64.9	61.0	58.7	52.3	49.6	47.2	46.9	46.7	54.5	10.0	64.5
	1	49.4	54.5	46.2	54.3	54.0	53.2	52.6	50.0	48.1	46.7	46.6	46.3	49.4	10.0	59.4
	2	49.5	55.4	45.4	55.1	54.8	54.0	53.3	50.1	48.0	45.9	45.7	45.5	49.5	10.0	59.5
	3	51.7	57.7	46.2	57.5	57.2	56.1	55.4	52.6	50.2	47.0	46.7	46.4	51.7	10.0	61.7
	4	53.9	61.0	47.0	60.8	60.5	59.1	57.9	54.5	51.8	48.0	47.5	47.1	53.9	10.0	63.9
	5	55.1	60.7	49.6	60.3	59.9	59.1	58.4	56.0	54.1	50.6	50.2	49.7	55.1	10.0	65.1
	6	56.7	63.7	50.1	63.2	62.6	61.3	60.6	57.4	55.2	51.4	50.7	50.3	56.7	10.0	66.7
Day	7	56.8	62.9	51.1	62.4	61.8	60.7	60.1	57.8	55.8	52.4	51.8	51.2	56.8	0.0	56.8
	8	58.6	66.0	50.4	65.5	65.1	64.3	63.8	59.2	55.1	51.6	51.0	50.5	58.6	0.0	58.6
	9	56.5	63.3	50.6	62.9	62.4	61.2	60.4	57.1	55.0	51.6	51.1	50.7	56.5	0.0	56.5
	10	55.1	60.5	49.7	60.2	59.8	58.9	58.3	56.0	54.1	50.9	50.3	49.8	55.1	0.0	55.1
	11	56.5	62.8	52.9	62.3	61.8	60.2	59.4	56.8	55.6	53.5	53.3	52.9	56.5	0.0	56.5
	12	55.5	64.3	50.5	63.6	62.9	60.3	58.6	55.7	53.9	51.3	50.9	50.6	55.5	0.0	55.5
	13	56.7	66.5	50.3	65.8	64.8	62.2	60.5	56.3	54.4	51.4	50.8	50.4	56.7	0.0	56.7
	14	62.1	74.7	51.5	73.0	72.2	67.9	66.8	61.4	55.8	52.6	52.1	51.7	62.1	0.0	62.1
	15	55.9	61.3	52.2	61.0	60.5	59.5	58.8	56.6	55.0	52.9	52.6	52.3	55.9	0.0	55.9
	16	55.5	62.4	50.5	62.0	61.5	60.1	58.7	56.1	54.1	51.4	51.0	50.6	55.5	0.0	55.5
	17	54.4	60.1	50.1	59.7	59.2	58.1	57.2	55.0	53.6	51.0	50.6	50.2	54.4	0.0	54.4
	18	55.1	61.5	50.2	61.0	60.6	59.4	58.3	55.7	53.9	51.2	50.8	50.3	55.1	0.0	55.1
	19	54.8	62.5	49.8	62.1	61.3	59.4	58.1	55.0	53.4	50.8	50.4	50.0	54.8	5.0	59.8
	20	55.3	63.5	50.1	62.8	62.0	60.1	58.7	55.6	53.8	51.1	50.7	50.3	55.3	5.0	60.3
	21	54.2	61.0	49.9	60.4	59.7	58.2	57.1	54.8	53.3	50.8	50.4	50.0	54.2	5.0	59.2
Night	22	54.0	60.5	49.0	60.2	59.6	58.4	57.5	54.8	52.5	49.9	49.5	49.1	54.0	10.0	64.0
	23	54.4	64.2	49.0	63.4	62.2	59.9	58.1	54.2	52.0	49.7	49.4	49.1	54.4	10.0	64.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.2	60.1	49.7	59.7	59.2	58.1	57.1	54.8	53.3	50.8	50.3	49.8
	Max	62.1	74.7	52.9	73.0	72.2	67.9	66.8	61.4	55.8	53.5	53.3	52.9
Energy Average		56.7	Average:		63.0	62.4	60.7	59.7	56.6	54.5	51.6	51.2	50.8
Night	Min	49.4	54.5	45.4	54.3	54.0	53.2	52.6	50.0	48.0	45.9	45.7	45.5
	Max	56.7	66.1	50.1	65.5	64.9	61.3	60.6	57.4	55.2	51.4	50.7	50.3
Energy Average		53.8	Average:		60.0	59.5	58.0	57.0	53.6	51.3	48.5	48.1	47.8

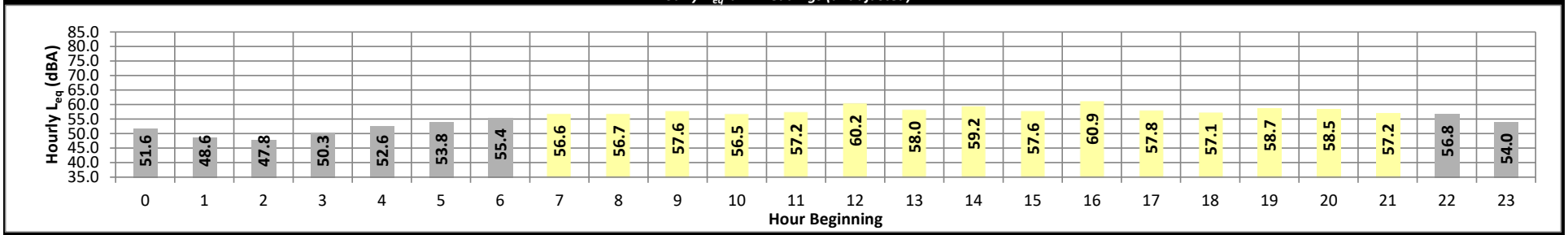
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
61.1	**56.7**	**53.8**

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 *Location:* L2 - Located north of the Project site in the parking lot near *Meter:* Piccolo II *JN:* 14783

Project: Brea Gaslight *Source:* the noise sensitive residence at 229 S Flower Avenue. *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.6	60.9	45.9	60.2	59.2	56.3	55.0	51.9	49.3	46.8	46.5	46.0	51.6	10.0	61.6
	1	48.6	54.0	44.9	53.7	53.3	52.3	51.8	49.6	47.2	45.4	45.2	45.0	48.6	10.0	58.6
	2	47.8	53.9	43.2	53.7	53.4	52.3	51.5	48.7	46.0	43.7	43.5	43.3	47.8	10.0	57.8
	3	50.3	57.9	44.3	57.6	57.2	55.5	54.1	51.1	48.2	45.0	44.7	44.4	50.3	10.0	60.3
	4	52.6	60.3	45.4	60.0	59.6	57.8	56.7	53.2	50.3	46.3	45.9	45.5	52.6	10.0	62.6
	5	53.8	60.6	47.3	60.3	59.9	58.6	57.5	54.8	52.3	48.5	48.0	47.4	53.8	10.0	63.8
	6	55.4	62.1	49.0	61.8	61.2	59.7	59.0	56.4	54.0	50.2	49.7	49.2	55.4	10.0	65.4
Day	7	56.6	62.5	52.3	62.1	61.7	60.6	59.7	57.4	55.5	53.2	52.7	52.4	56.6	0.0	56.6
	8	56.7	63.4	52.9	62.8	62.2	60.9	59.7	57.1	55.5	53.5	53.3	53.0	56.7	0.0	56.7
	9	57.6	64.3	54.6	63.6	62.9	61.1	60.2	57.8	56.6	55.0	54.8	54.6	57.6	0.0	57.6
	10	56.5	61.2	54.3	60.6	60.1	59.1	58.5	57.1	56.0	54.7	54.5	54.3	56.5	0.0	56.5
	11	57.2	61.3	54.3	60.9	60.6	59.9	59.2	57.9	56.7	54.9	54.6	54.4	57.2	0.0	57.2
	12	60.2	65.6	57.3	64.9	64.3	63.2	62.6	60.8	59.5	57.7	57.5	57.4	60.2	0.0	60.2
	13	58.0	64.7	55.4	64.2	63.3	61.6	60.4	58.1	57.0	55.8	55.6	55.4	58.0	0.0	58.0
	14	59.2	67.6	54.7	67.2	66.9	65.0	63.7	58.4	56.9	55.2	55.0	54.8	59.2	0.0	59.2
	15	57.6	63.5	54.3	63.0	62.6	61.4	60.6	58.0	56.5	54.8	54.6	54.4	57.6	0.0	57.6
	16	60.9	72.0	55.3	70.6	69.5	66.9	64.6	60.4	57.2	55.8	55.6	55.3	60.9	0.0	60.9
	17	57.8	62.4	55.6	62.0	61.7	60.4	59.7	58.3	57.3	56.0	55.9	55.7	57.8	0.0	57.8
	18	57.1	63.0	54.1	62.6	62.0	60.3	59.3	57.6	56.3	54.7	54.4	54.2	57.1	0.0	57.1
	19	58.7	64.3	56.6	63.6	63.1	61.8	60.8	58.8	57.9	56.9	56.8	56.6	58.7	5.0	63.7
	20	58.5	64.6	55.8	64.0	63.5	62.1	60.8	58.7	57.7	56.3	56.1	55.9	58.5	5.0	63.5
	21	57.2	61.6	54.9	61.2	60.7	59.6	59.0	57.8	56.6	55.3	55.1	54.9	57.2	5.0	62.2
Night	22	56.8	60.8	54.8	60.5	60.2	59.3	58.6	57.1	56.3	55.2	55.0	54.8	56.8	10.0	66.8
	23	54.0	61.4	50.1	60.8	59.9	57.9	56.6	54.4	52.8	50.6	50.4	50.2	54.0	10.0	64.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	56.5	61.2	52.3	60.6	60.1	59.1	58.5	57.1	55.5	53.2	52.7	52.4
	Max	60.9	72.0	57.3	70.6	69.5	66.9	64.6	60.8	59.5	57.7	57.5	57.4
Energy Average		58.2	Average:		63.6	63.0	61.6	60.6	58.3	56.9	55.3	55.1	54.9
Night	Min	47.8	53.9	43.2	53.7	53.3	52.3	51.5	48.7	46.0	43.7	43.5	43.3
	Max	56.8	62.1	54.8	61.8	61.2	59.7	59.0	57.1	56.3	55.2	55.0	54.8
Energy Average		53.2	Average:		58.7	58.2	56.6	55.7	53.0	50.7	48.0	47.7	47.3

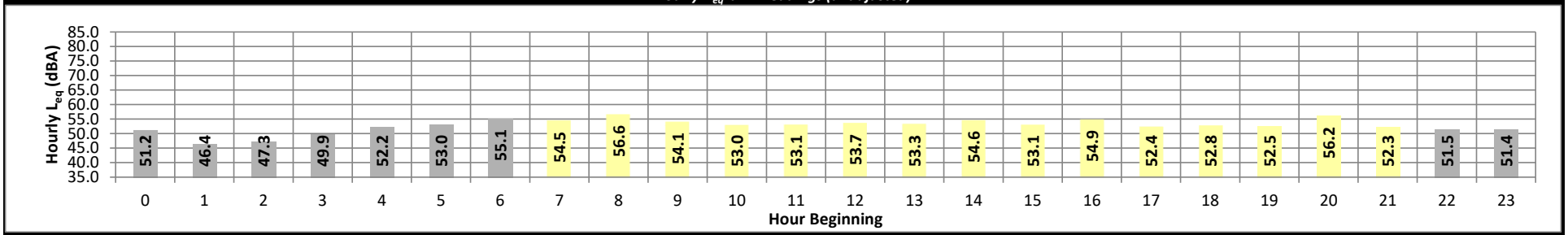
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
61.4	**58.2**	**53.2**

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 *Location:* L3 - Located north of the Project site near the commercial *Meter:* Piccolo II *JN:* 14783

Project: Brea Gaslight *Source:* building at 235 S Flower Avenue. *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.2	62.0	42.1	61.4	60.7	58.1	56.4	49.6	46.3	42.9	42.6	42.2	51.2	10.0	61.2
	1	46.4	53.7	41.3	53.4	52.8	51.4	50.5	46.9	44.3	41.8	41.6	41.4	46.4	10.0	56.4
	2	47.3	55.1	41.8	54.8	54.2	52.3	51.2	47.9	45.0	42.5	42.2	42.0	47.3	10.0	57.3
	3	49.9	57.2	43.9	56.9	56.3	54.5	53.7	50.7	47.9	44.5	44.2	44.0	49.9	10.0	59.9
	4	52.2	60.3	44.1	60.0	59.4	57.4	56.6	52.7	49.9	45.3	44.7	44.2	52.2	10.0	62.2
	5	53.0	59.6	46.2	59.3	58.7	57.2	56.4	54.2	51.6	47.6	46.9	46.4	53.0	10.0	63.0
	6	55.1	64.2	47.7	63.3	62.2	60.3	58.6	55.6	53.5	49.1	48.3	47.8	55.1	10.0	65.1
Day	7	54.5	61.6	48.5	61.1	60.4	58.9	57.9	55.3	53.3	49.7	49.2	48.7	54.5	0.0	54.5
	8	56.6	65.2	48.0	64.4	63.7	61.9	60.9	58.1	53.0	49.4	48.8	48.2	56.6	0.0	56.6
	9	54.1	60.5	48.3	60.1	59.7	58.6	57.8	55.0	52.5	49.4	48.9	48.4	54.1	0.0	54.1
	10	53.0	60.0	47.2	59.0	58.4	57.0	56.1	53.8	52.0	48.5	48.0	47.4	53.0	0.0	53.0
	11	53.1	58.6	48.5	58.3	57.9	56.6	55.8	53.9	52.5	49.5	49.1	48.6	53.1	0.0	53.1
	12	53.7	62.5	49.1	61.5	59.9	57.5	56.4	54.2	52.4	50.2	49.7	49.2	53.7	0.0	53.7
	13	53.3	60.4	47.4	60.0	59.5	58.0	57.1	53.9	51.8	48.7	48.0	47.5	53.3	0.0	53.3
	14	54.6	62.6	48.8	61.9	61.4	59.3	58.3	55.2	52.6	49.9	49.4	48.9	54.6	0.0	54.6
	15	53.1	59.6	48.3	59.1	58.4	56.9	56.0	53.8	52.1	49.4	48.9	48.4	53.1	0.0	53.1
	16	54.9	65.6	47.6	65.1	64.5	61.4	58.4	53.6	51.8	48.6	48.1	47.7	54.9	0.0	54.9
	17	52.4	58.4	48.0	58.0	57.5	56.1	55.2	53.0	51.6	49.0	48.5	48.1	52.4	0.0	52.4
	18	52.8	60.3	47.2	59.9	59.2	57.3	56.2	53.3	51.6	48.5	47.8	47.3	52.8	0.0	52.8
	19	52.5	59.2	47.2	58.7	58.2	56.8	55.8	53.1	51.3	48.4	47.9	47.3	52.5	5.0	57.5
	20	56.2	69.6	47.0	68.2	67.2	62.7	58.9	53.2	51.5	48.2	47.6	47.1	56.2	5.0	61.2
	21	52.3	58.4	47.2	58.0	57.5	56.2	55.6	53.1	51.3	48.2	47.7	47.3	52.3	5.0	57.3
Night	22	51.5	58.7	46.1	58.1	57.3	55.5	54.7	52.3	50.3	47.1	46.6	46.2	51.5	10.0	61.5
	23	51.4	60.1	45.4	59.5	58.5	56.4	54.8	51.7	49.6	46.3	45.9	45.5	51.4	10.0	61.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.3	58.4	47.0	58.0	57.5	56.1	55.2	53.0	51.3	48.2	47.6	47.1
	Max	56.6	69.6	49.1	68.2	67.2	62.7	60.9	58.1	53.3	50.2	49.7	49.2
Energy Average		54.0	Average:		60.9	60.2	58.4	57.1	54.2	52.1	49.0	48.5	48.0
Night	Min	46.4	53.7	41.3	53.4	52.8	51.4	50.5	46.9	44.3	41.8	41.6	41.4
	Max	55.1	64.2	47.7	63.3	62.2	60.3	58.6	55.6	53.5	49.1	48.3	47.8
Energy Average		51.6	Average:		58.5	57.8	55.9	54.8	51.3	48.7	45.2	44.8	44.4

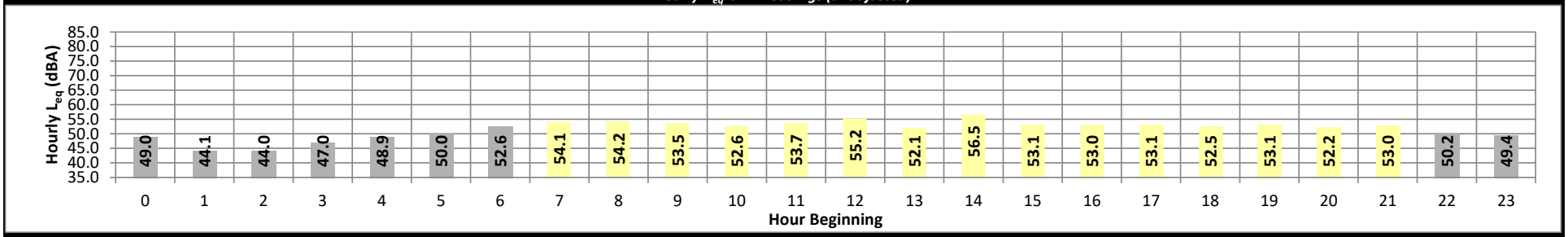
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
58.8	**54.0**	**51.6**

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 | *Location:* L4 - Located northeast of the Project site near the non- | *Meter:* Piccolo II | *JN:* 14783

Project: Brea Gaslight | *Source:* residential building at 200 S Flower Avenue. | *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.0	61.1	41.8	60.4	59.1	55.7	53.6	46.3	44.1	42.2	42.0	41.9	49.0	10.0	59.0
	1	44.1	51.7	41.0	51.4	51.0	49.5	47.6	43.5	42.3	41.4	41.3	41.1	44.1	10.0	54.1
	2	44.0	51.7	41.1	51.3	50.9	49.2	47.4	43.4	42.2	41.5	41.4	41.2	44.0	10.0	54.0
	3	47.0	57.2	41.9	56.8	56.0	53.3	50.6	45.8	43.7	42.3	42.2	42.0	47.0	10.0	57.0
	4	48.9	58.4	42.4	58.0	57.6	55.9	53.4	48.0	45.3	43.0	42.8	42.5	48.9	10.0	58.9
	5	50.0	59.1	43.9	58.7	58.2	56.3	54.4	49.3	46.9	44.6	44.3	44.0	50.0	10.0	60.0
	6	52.6	61.6	45.6	61.3	60.7	58.9	57.4	52.4	49.3	46.5	46.1	45.7	52.6	10.0	62.6
Day	7	54.1	61.9	48.1	61.5	61.0	59.4	58.0	54.4	51.9	49.2	48.7	48.3	54.1	0.0	54.1
	8	54.2	63.4	46.8	63.0	62.5	60.8	58.9	53.9	50.6	47.5	47.2	46.9	54.2	0.0	54.2
	9	53.5	62.9	45.9	62.4	61.7	59.9	58.5	53.2	49.4	46.7	46.4	46.1	53.5	0.0	53.5
	10	52.6	63.4	46.1	62.6	61.3	58.4	57.1	51.8	48.9	46.8	46.5	46.2	52.6	0.0	52.6
	11	53.7	62.6	47.2	62.3	61.9	60.4	58.2	53.0	50.4	48.1	47.7	47.3	53.7	0.0	53.7
	12	55.2	64.8	47.0	64.2	62.9	61.5	60.1	55.5	51.3	48.3	47.8	47.2	55.2	0.0	55.2
	13	52.1	60.8	44.9	60.5	60.2	58.5	56.9	52.0	48.6	45.6	45.3	45.0	52.1	0.0	52.1
	14	56.5	65.7	45.9	65.2	64.5	63.1	61.6	57.1	51.8	47.1	46.5	46.0	56.5	0.0	56.5
	15	53.1	61.7	45.6	61.3	60.9	59.4	58.0	53.1	49.7	46.5	46.1	45.8	53.1	0.0	53.1
	16	53.0	62.3	45.2	62.0	61.4	59.3	57.6	52.8	49.3	46.2	45.7	45.3	53.0	0.0	53.0
	17	53.1	62.0	45.2	61.7	61.1	59.4	58.1	53.0	49.3	46.2	45.7	45.3	53.1	0.0	53.1
	18	52.5	60.4	45.1	60.1	59.7	58.2	57.2	53.1	49.4	46.2	45.7	45.3	52.5	0.0	52.5
	19	53.1	62.4	45.3	61.9	61.3	59.4	58.0	53.0	49.2	46.3	45.9	45.5	53.1	5.0	58.1
	20	52.2	61.4	44.9	60.8	60.3	58.6	57.2	52.2	48.7	45.7	45.4	45.0	52.2	5.0	57.2
	21	53.0	61.6	46.0	61.3	60.8	59.1	57.6	53.0	49.4	46.9	46.5	46.1	53.0	5.0	58.0
Night	22	50.2	59.0	44.4	58.7	58.2	56.6	54.8	49.3	47.2	45.1	44.9	44.6	50.2	10.0	60.2
	23	49.4	57.8	44.4	57.6	57.2	55.6	53.7	48.8	46.6	44.9	44.7	44.5	49.4	10.0	59.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.1	60.4	44.9	60.1	59.7	58.2	56.9	51.8	48.6	45.6	45.3	45.0
	Max	56.5	65.7	48.1	65.2	64.5	63.1	61.6	57.1	51.9	49.2	48.7	48.3
Energy Average		53.6	Average:		62.1	61.4	59.7	58.2	53.4	49.8	46.9	46.5	46.1
Night	Min	44.0	51.7	41.0	51.3	50.9	49.2	47.4	43.4	42.2	41.4	41.3	41.1
	Max	52.6	61.6	45.6	61.3	60.7	58.9	57.4	52.4	49.3	46.5	46.1	45.7
Energy Average		49.1	Average:		57.1	56.5	54.5	52.6	47.4	45.3	43.5	43.3	43.1

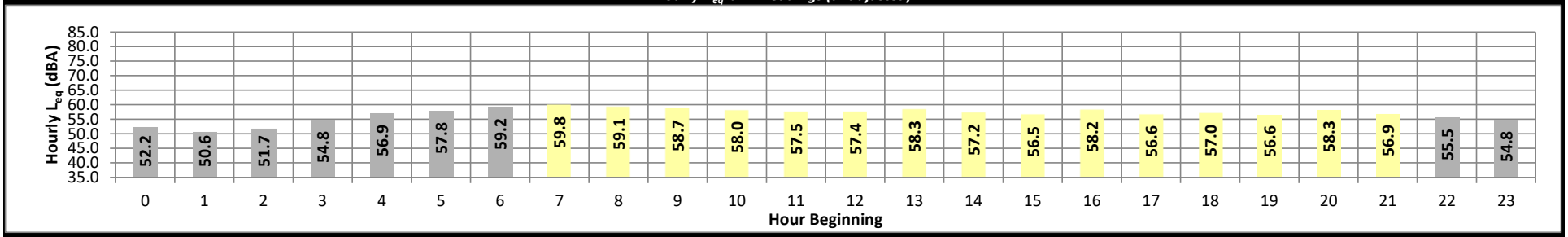
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
57.0	**53.6**	**49.1**

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 | *Location:* L5 - Located southeast of the Project site near the Laurel | *Meter:* Piccolo II | *JN:* 14783

Project: Brea Gaslight | *Source:* Elementary School at 200 S Flower Avenue. | *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	52.2	61.1	41.7	60.7	60.1	58.4	57.2	53.0	48.5	42.6	42.1	41.8	52.2	10.0	62.2
	1	50.6	58.6	41.2	58.3	58.0	57.0	55.8	51.1	46.8	42.0	41.6	41.3	50.6	10.0	60.6
	2	51.7	60.2	41.6	60.0	59.7	58.5	57.2	51.9	47.0	42.4	42.0	41.7	51.7	10.0	61.7
	3	54.8	62.4	46.8	62.1	61.8	60.6	59.4	55.6	51.9	47.4	47.1	46.9	54.8	10.0	64.8
	4	56.9	65.3	44.9	64.9	64.4	63.2	61.8	57.9	53.8	46.7	45.7	45.0	56.9	10.0	66.9
	5	57.8	64.7	46.6	64.4	64.1	63.0	62.1	59.2	55.8	48.4	47.5	46.8	57.8	10.0	67.8
	6	59.2	66.0	49.1	65.7	65.2	64.1	63.2	60.3	57.8	51.8	50.3	49.3	59.2	10.0	69.2
Day	7	59.8	67.0	50.2	66.5	66.0	64.7	63.6	61.1	58.1	52.3	51.1	50.3	59.8	0.0	59.8
	8	59.1	65.4	49.9	65.0	64.6	63.6	62.8	60.4	58.0	52.4	51.1	50.1	59.1	0.0	59.1
	9	58.7	65.4	49.7	65.0	64.7	63.8	62.8	59.7	57.1	51.5	50.5	49.9	58.7	0.0	58.7
	10	58.0	64.7	49.2	64.4	64.0	63.0	61.9	58.9	56.5	51.4	50.4	49.4	58.0	0.0	58.0
	11	57.5	63.3	50.5	63.0	62.7	61.8	61.0	58.7	56.3	52.0	51.2	50.6	57.5	0.0	57.5
	12	57.4	64.8	51.1	64.2	63.5	61.7	60.7	58.3	56.1	52.7	52.0	51.3	57.4	0.0	57.4
	13	58.3	68.9	49.4	67.8	66.7	64.6	63.4	57.8	55.6	51.2	50.4	49.6	58.3	0.0	58.3
	14	57.2	63.6	50.6	63.2	62.8	61.7	60.8	58.0	55.9	52.2	51.5	50.8	57.2	0.0	57.2
	15	56.5	63.6	49.3	63.1	62.5	60.8	59.7	57.5	55.3	51.2	50.3	49.5	56.5	0.0	56.5
	16	58.2	68.2	49.9	67.9	67.4	64.6	61.7	57.5	55.4	51.3	50.7	50.1	58.2	0.0	58.2
	17	56.6	63.7	50.3	63.0	62.3	60.8	59.6	57.4	55.6	51.9	51.2	50.5	56.6	0.0	56.6
	18	57.0	64.6	49.7	64.1	63.5	61.8	60.5	57.9	55.6	51.2	50.4	49.8	57.0	0.0	57.0
	19	56.6	64.0	49.4	63.6	63.0	61.7	60.1	57.2	55.3	51.1	50.2	49.5	56.6	5.0	61.6
	20	58.3	69.1	48.9	68.5	67.4	64.5	61.8	57.6	55.4	50.8	49.8	49.1	58.3	5.0	63.3
	21	56.9	64.5	49.4	64.0	63.3	61.4	60.0	57.7	55.7	51.5	50.5	49.5	56.9	5.0	61.9
Night	22	55.5	62.8	47.4	62.3	61.7	60.3	59.2	56.7	54.1	48.9	48.2	47.5	55.5	10.0	65.5
	23	54.8	62.2	45.9	62.0	61.6	60.1	58.8	55.8	52.9	47.5	46.7	46.1	54.8	10.0	64.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	56.5	63.3	48.9	63.0	62.3	60.8	59.6	57.2	55.3	50.8	49.8	49.1
	Max	59.8	69.1	51.1	68.5	67.4	64.7	63.6	61.1	58.1	52.7	52.0	51.3
Energy Average		57.9	Average:		64.9	64.3	62.7	61.4	58.4	56.1	51.7	50.8	50.0
Night	Min	50.6	58.6	41.2	58.3	58.0	57.0	55.8	51.1	46.8	42.0	41.6	41.3
	Max	59.2	66.0	49.1	65.7	65.2	64.1	63.2	60.3	57.8	51.8	50.3	49.3
Energy Average		55.7	Average:		62.3	61.8	60.6	59.4	55.7	52.0	46.4	45.7	45.1

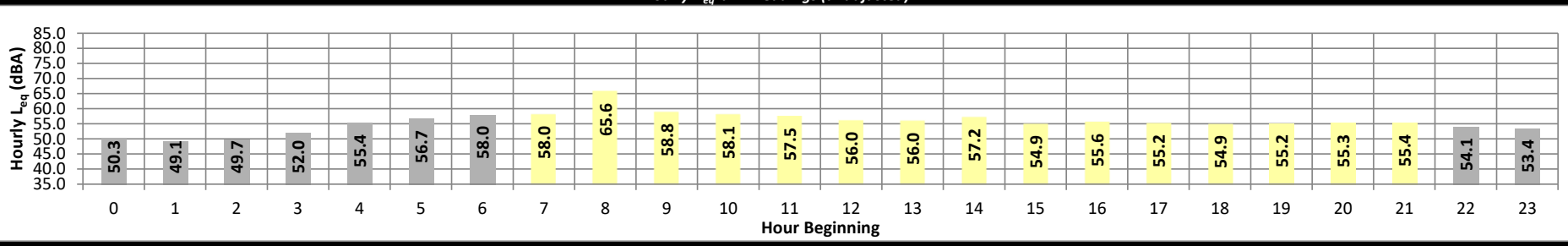
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
62.8	**57.9**	**55.7**

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 *Location:* L6 - Located south of the Project site near CC's Learning Center *Meter:* Piccolo II *JN:* 14783

Project: Brea Gaslight *Source:* at 300 E Imperial Highway. *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.3	60.1	41.8	59.6	58.9	56.2	54.5	50.8	46.6	42.7	42.4	42.0	50.3	10.0	60.3
	1	49.1	58.6	41.4	58.3	57.7	55.5	54.0	48.7	45.0	42.2	42.0	41.6	49.1	10.0	59.1
	2	49.7	59.6	41.0	59.1	58.5	56.3	54.6	49.3	44.9	41.7	41.5	41.2	49.7	10.0	59.7
	3	52.0	61.2	42.3	60.9	60.4	58.4	57.0	52.1	47.8	43.3	42.9	42.5	52.0	10.0	62.0
	4	55.4	66.0	43.4	65.4	64.5	61.7	59.9	55.3	51.2	44.7	44.1	43.6	55.4	10.0	65.4
	5	56.7	66.5	45.8	66.1	65.3	62.8	61.1	57.1	53.3	47.2	46.6	46.0	56.7	10.0	66.7
	6	58.0	67.3	47.3	66.8	66.2	63.8	62.1	58.4	55.4	49.3	48.5	47.6	58.0	10.0	68.0
Day	7	58.0	65.6	49.4	65.1	64.6	63.1	62.0	58.9	56.2	51.2	50.3	49.6	58.0	0.0	58.0
	8	65.6	74.3	50.7	73.5	72.7	71.3	70.4	67.6	61.5	52.9	52.0	51.1	65.6	0.0	65.6
	9	58.8	68.2	49.2	67.8	66.9	64.6	63.2	58.7	56.0	51.0	50.2	49.4	58.8	0.0	58.8
	10	58.1	67.5	48.6	67.0	66.3	64.1	62.3	58.3	55.2	50.5	49.7	48.8	58.1	0.0	58.1
	11	57.5	68.4	48.3	67.4	66.2	63.2	61.3	57.3	54.6	50.1	49.2	48.5	57.5	0.0	57.5
	12	56.0	64.7	48.5	64.3	63.7	61.3	59.8	56.4	53.9	50.0	49.3	48.6	56.0	0.0	56.0
	13	56.0	65.5	48.1	64.9	64.2	61.6	59.8	55.9	53.5	49.6	48.8	48.2	56.0	0.0	56.0
	14	57.2	67.1	48.2	66.8	66.3	64.2	62.2	55.5	53.2	49.7	49.1	48.3	57.2	0.0	57.2
	15	54.9	63.3	47.2	62.8	62.2	60.0	58.7	55.4	53.1	48.9	48.1	47.4	54.9	0.0	54.9
	16	55.6	64.6	47.8	64.3	63.7	61.6	59.7	55.5	53.0	49.2	48.6	48.0	55.6	0.0	55.6
	17	55.2	64.7	47.9	64.1	63.3	60.9	59.1	55.0	52.6	49.2	48.6	48.1	55.2	0.0	55.2
	18	54.9	63.9	46.8	63.5	62.8	60.5	58.9	55.0	52.4	48.4	47.6	46.9	54.9	0.0	54.9
	19	55.2	65.2	47.0	64.7	63.8	60.9	59.0	55.0	52.7	48.5	47.8	47.2	55.2	5.0	60.2
	20	55.3	65.0	46.9	64.5	63.8	61.3	59.4	55.1	52.5	48.2	47.6	47.0	55.3	5.0	60.3
	21	55.4	64.4	47.1	64.1	63.4	60.7	59.1	55.7	53.2	48.5	47.9	47.3	55.4	5.0	60.4
Night	22	54.1	63.2	46.0	62.6	61.8	59.5	58.0	54.5	51.5	47.3	46.7	46.2	54.1	10.0	64.1
	23	53.4	63.3	44.9	62.8	62.0	59.3	57.5	53.6	50.2	45.9	45.4	45.1	53.4	10.0	63.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.9	63.3	46.8	62.8	62.2	60.0	58.7	55.0	52.4	48.2	47.6	46.9
	Max	65.6	74.3	50.7	73.5	72.7	71.3	70.4	67.6	61.5	52.9	52.0	51.1
Energy Average		58.2	Average:		65.6	64.9	62.6	61.0	57.0	54.2	49.7	49.0	48.3
Night	Min	49.1	58.6	41.0	58.3	57.7	55.5	54.0	48.7	44.9	41.7	41.5	41.2
	Max	58.0	67.3	47.3	66.8	66.2	63.8	62.1	58.4	55.4	49.3	48.5	47.6
Energy Average		54.2	Average:		62.4	61.7	59.3	57.6	53.3	49.6	44.9	44.4	44.0

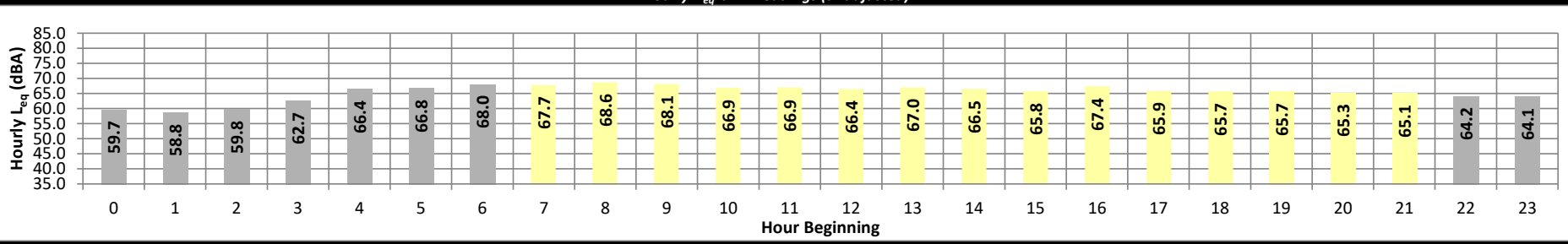
24-Hour CNEL	*Leq (dBA)* *Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
61.7	**58.2**	**54.2**

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 *Location:* L7 - Located south of the Project site near the noise sensitive *Meter:* Piccolo II *JN:* 14783

Project: Brea Gaslight *Source:* residence at 309 S Flower Avenue. *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	59.7	69.4	43.9	69.1	68.6	66.4	64.7	60.0	54.3	45.8	44.9	44.1	59.7	10.0	69.7
	1	58.8	69.3	42.7	68.9	68.4	66.1	64.1	58.4	51.5	43.6	43.1	42.7	58.8	10.0	68.8
	2	59.8	70.7	42.2	70.2	69.5	66.8	65.2	59.3	52.5	44.2	43.1	42.4	59.8	10.0	69.8
	3	62.7	71.9	44.7	71.6	71.2	69.5	68.3	63.1	57.1	46.5	45.6	44.9	62.7	10.0	72.7
	4	66.4	77.4	46.1	76.6	76.1	73.1	71.1	66.2	61.6	49.3	47.1	46.2	66.4	10.0	76.4
	5	66.8	75.8	51.1	75.4	74.9	72.7	71.4	67.8	63.7	54.4	52.6	51.3	66.8	10.0	76.8
	6	68.0	76.2	53.6	75.8	75.3	73.4	72.1	69.1	65.8	56.9	55.1	53.9	68.0	10.0	78.0
Day	7	67.7	74.4	54.2	74.1	73.7	72.4	71.6	69.2	66.6	58.0	56.0	54.8	67.7	0.0	67.7
	8	68.6	75.9	57.2	75.5	75.0	73.5	72.3	69.8	67.3	60.3	58.9	57.5	68.6	0.0	68.6
	9	68.1	78.0	54.0	77.6	77.1	74.2	72.2	68.5	65.1	57.1	55.4	54.2	68.1	0.0	68.1
	10	66.9	74.5	54.9	74.2	73.7	72.4	70.9	67.9	65.1	58.0	56.4	55.2	66.9	0.0	66.9
	11	66.9	74.7	55.8	74.5	74.1	72.3	70.8	67.7	65.0	59.0	57.8	56.4	66.9	0.0	66.9
	12	66.4	74.5	55.4	74.0	73.5	71.6	70.4	67.2	64.6	58.1	56.7	55.7	66.4	0.0	66.4
	13	67.0	77.7	54.0	77.0	76.0	72.7	70.4	67.0	64.4	57.1	55.6	54.2	67.0	0.0	67.0
	14	66.5	75.3	54.9	75.0	74.3	72.0	70.2	66.9	64.3	58.0	56.3	55.2	66.5	0.0	66.5
	15	65.8	74.0	54.7	73.5	72.9	70.8	69.5	66.7	64.0	57.6	56.2	54.9	65.8	0.0	65.8
	16	67.4	78.3	54.3	77.3	76.5	72.7	70.8	67.3	64.7	57.5	56.1	54.6	67.4	0.0	67.4
	17	65.9	74.1	54.7	73.6	72.9	71.0	69.5	66.7	64.1	58.2	56.4	54.9	65.9	0.0	65.9
	18	65.7	73.9	53.5	73.6	73.2	71.2	69.7	66.4	63.8	56.9	55.4	53.7	65.7	0.0	65.7
	19	65.7	74.6	54.3	74.2	73.4	71.0	69.5	66.4	63.8	57.1	56.1	54.6	65.7	5.0	70.7
	20	65.3	73.4	52.1	73.0	72.3	70.5	69.2	66.3	63.6	55.9	54.0	52.3	65.3	5.0	70.3
	21	65.1	72.9	53.6	72.5	72.0	70.2	69.0	66.3	63.2	56.7	55.2	53.8	65.1	5.0	70.1
Night	22	64.2	72.5	49.9	72.2	71.7	69.8	68.7	65.2	61.4	53.4	51.6	50.1	64.2	10.0	74.2
	23	64.1	74.9	48.6	74.5	73.7	70.0	67.9	64.0	60.0	51.3	49.9	48.9	64.1	10.0	74.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	65.1	72.9	52.1	72.5	72.0	70.2	69.0	66.3	63.2	55.9	54.0	52.3
	Max	68.6	78.3	57.2	77.6	77.1	74.2	72.3	69.8	67.3	60.3	58.9	57.5
Energy Average		66.7	Average:		74.6	74.0	71.9	70.4	67.3	64.6	57.7	56.2	54.8
Night	Min	58.8	69.3	42.2	68.9	68.4	66.1	64.1	58.4	51.5	43.6	43.1	42.4
	Max	68.0	77.4	53.6	76.6	76.1	73.4	72.1	69.1	65.8	56.9	55.1	53.9
Energy Average		64.5	Average:		72.7	72.1	69.8	68.2	63.7	58.6	49.5	48.1	47.2

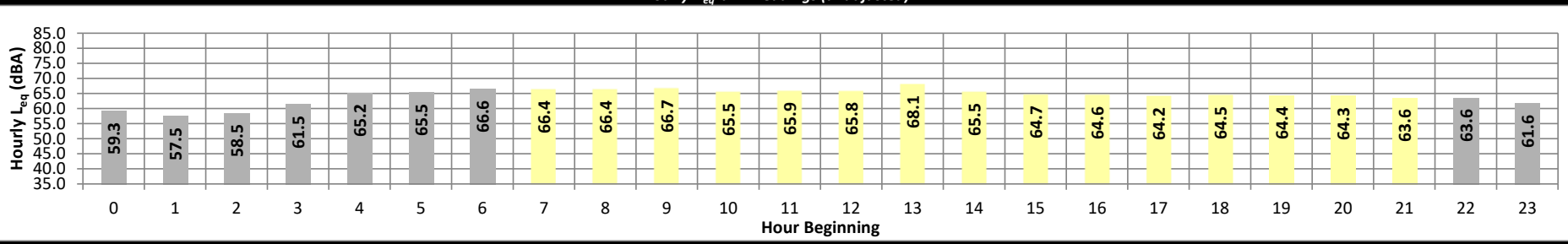
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
71.6	**66.7**	**64.5**

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 | *Location:* L8 - Located south of the Project site near the noise sensitive | *Meter:* Piccolo II | *JN:* 14783

Project: Brea Gaslight | *Source:* residence at 310 S Orange Avenue. | *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	59.3	69.2	50.5	68.7	68.1	65.6	64.0	59.3	55.0	51.2	50.9	50.6	59.3	10.0	69.3
	1	57.5	66.3	50.5	65.9	65.5	63.8	62.4	57.5	53.5	50.9	50.7	50.5	57.5	10.0	67.5
	2	58.5	68.5	48.7	68.2	67.6	65.6	63.6	58.2	53.3	49.3	49.0	48.8	58.5	10.0	68.5
	3	61.5	71.8	50.0	71.3	70.7	68.6	66.7	60.9	56.3	50.6	50.3	50.1	61.5	10.0	71.5
	4	65.2	75.8	50.9	75.5	74.9	72.4	70.2	64.6	59.4	52.7	51.8	51.0	65.2	10.0	75.2
	5	65.5	74.9	52.6	74.4	73.9	71.9	70.4	65.9	61.6	54.2	53.3	52.7	65.5	10.0	75.5
	6	66.6	75.5	54.5	75.2	74.7	72.7	71.1	67.1	63.2	56.9	55.6	54.8	66.6	10.0	76.6
Day	7	66.4	75.0	55.6	74.6	74.0	72.1	70.7	67.1	64.2	58.1	57.1	55.9	66.4	0.0	66.4
	8	66.4	74.7	56.0	74.3	73.7	72.4	70.8	67.0	64.3	58.5	57.2	56.2	66.4	0.0	66.4
	9	66.7	76.7	56.4	76.3	75.5	72.9	70.9	66.7	63.6	58.4	57.4	56.6	66.7	0.0	66.7
	10	65.5	73.6	55.7	73.3	73.0	71.3	69.7	66.0	63.3	57.5	56.6	55.9	65.5	0.0	65.5
	11	65.9	75.1	56.2	74.8	74.4	72.7	70.4	65.5	63.0	58.0	57.2	56.5	65.9	0.0	65.9
	12	65.8	75.2	56.5	74.7	73.9	71.6	70.4	65.8	62.7	58.2	57.3	56.7	65.8	0.0	65.8
	13	68.1	78.1	60.1	77.8	77.0	74.0	72.3	67.0	65.1	62.4	61.7	60.4	68.1	0.0	68.1
	14	65.5	76.3	55.9	75.6	74.7	71.7	69.7	64.9	62.2	57.5	56.6	56.0	65.5	0.0	65.5
	15	64.7	73.4	56.2	72.9	72.4	70.5	68.8	64.9	62.1	57.7	57.0	56.3	64.7	0.0	64.7
	16	64.6	72.9	55.6	72.5	71.9	70.0	68.7	65.2	62.3	57.2	56.4	55.8	64.6	0.0	64.6
	17	64.2	74.6	55.7	73.8	72.5	69.5	67.7	64.3	62.1	57.1	56.5	55.9	64.2	0.0	64.2
	18	64.5	74.4	55.2	73.8	73.0	70.5	68.5	64.4	61.7	56.9	56.1	55.4	64.5	0.0	64.5
	19	64.4	74.6	54.8	74.2	73.6	70.9	68.2	63.9	61.3	56.5	55.7	54.9	64.4	5.0	69.4
	20	64.3	74.4	54.5	73.7	72.8	70.2	68.2	64.2	61.4	56.4	55.5	54.9	64.3	5.0	69.3
	21	63.6	72.5	54.7	72.2	71.7	69.2	67.4	63.9	61.1	56.5	55.5	54.9	63.6	5.0	68.6
Night	22	63.6	73.4	53.3	73.0	72.3	70.2	68.4	63.4	59.5	54.5	53.8	53.4	63.6	10.0	73.6
	23	61.6	69.9	52.7	69.5	69.1	67.6	66.3	62.3	58.8	53.6	53.2	52.8	61.6	10.0	71.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.6	72.5	54.5	72.2	71.7	69.2	67.4	63.9	61.1	56.4	55.5	54.9
	Max	68.1	78.1	60.1	77.8	77.0	74.0	72.3	67.1	65.1	62.4	61.7	60.4
Energy Average		65.5	Average:		74.3	73.6	71.3	69.5	65.4	62.7	57.8	56.9	56.1
Night	Min	57.5	66.3	48.7	65.9	65.5	63.8	62.4	57.5	53.3	49.3	49.0	48.8
	Max	66.6	75.8	54.5	75.5	74.9	72.7	71.1	67.1	63.2	56.9	55.6	54.8
Energy Average		63.2	Average:		71.3	70.7	68.7	67.0	62.1	57.8	52.6	52.1	51.6

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
70.3	**65.5**	**63.2**

APPENDIX 7.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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14783 - Brea Gaslight

CadnaA Noise Prediction Model: 14783-02.cna
Date: 11.01.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	57.2	55.7	62.4	55.0	50.0	0.0				5.00	a	6061509.43	2281126.95	5.00
RECEIVERS		R2	52.5	50.4	57.2	55.0	50.0	0.0				5.00	a	6061628.93	2281151.26	5.00
RECEIVERS		R3	63.5	61.0	67.8	55.0	50.0	0.0				5.00	a	6061635.97	2281005.07	5.00
RECEIVERS		R4	48.9	45.8	52.7	55.0	50.0	0.0				5.00	a	6061895.78	2281193.36	5.00
RECEIVERS		R5	54.2	51.0	57.9	55.0	50.0	0.0				5.00	a	6061841.83	2280894.78	5.00
RECEIVERS		R6	52.3	49.0	55.9	55.0	50.0	0.0				5.00	a	6061598.21	2280607.90	5.00
RECEIVERS		R7	54.4	51.1	58.0	55.0	50.0	0.0				5.00	a	6061528.67	2280675.11	5.00
RECEIVERS		R8	53.4	50.0	56.9	55.0	50.0	0.0				5.00	a	6061299.51	2280785.53	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6061405.92	2280983.54	25.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6061595.89	2280907.46	20.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6061556.23	2280925.67	20.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6061418.83	2281021.12	25.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6061488.68	2280985.15	25.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6061472.08	2280951.95	25.00
POINTSOURCE		CAR01	81.1	81.1	81.1	Lw	81.1					5.00	a	6061645.68	2280962.33	5.00
POINTSOURCE		CAR02	81.1	81.1	81.1	Lw	81.1					5.00	a	6061628.85	2280970.86	5.00
POINTSOURCE		CAR03	81.1	81.1	81.1	Lw	81.1					5.00	a	6061608.11	2280980.08	5.00
POINTSOURCE		CAR04	81.1	81.1	81.1	Lw	81.1					5.00	a	6061578.13	2280988.38	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		CAR05	81.1	81.1	81.1	Lw	81.1					5.00	a	6061567.76	2280958.18	5.00
POINTSOURCE		CAR06	81.1	81.1	81.1	Lw	81.1					5.00	a	6061559.92	2280997.60	5.00
POINTSOURCE		CAR07	81.1	81.1	81.1	Lw	81.1					5.00	a	6061538.94	2281007.98	5.00
POINTSOURCE		CAR08	81.1	81.1	81.1	Lw	81.1					5.00	a	6061527.65	2280989.07	5.00
POINTSOURCE		CAR09	81.1	81.1	81.1	Lw	81.1					5.00	a	6061524.19	2281023.65	5.00
POINTSOURCE		CAR10	81.1	81.1	81.1	Lw	81.1					5.00	a	6061522.11	2281052.93	5.00
POINTSOURCE		CAR11	81.1	81.1	81.1	Lw	81.1					5.00	a	6061505.05	2281034.49	5.00
POINTSOURCE		CAR12	81.1	81.1	81.1	Lw	81.1					5.00	a	6061482.92	2281042.10	5.00
POINTSOURCE		CAR13	81.1	81.1	81.1	Lw	81.1					5.00	a	6061465.17	2281052.24	5.00
POINTSOURCE		CAR14	81.1	81.1	81.1	Lw	81.1					5.00	a	6061444.88	2281061.69	5.00
POINTSOURCE		CAR15	81.1	81.1	81.1	Lw	81.1					5.00	a	6061580.90	2280944.58	5.00
POINTSOURCE		CAR16	81.1	81.1	81.1	Lw	81.1					5.00	a	6061598.42	2280936.97	5.00
POINTSOURCE		CAR17	81.1	81.1	81.1	Lw	81.1					5.00	a	6061616.64	2280928.44	5.00
POINTSOURCE		CAR18	81.1	81.1	81.1	Lw	81.1					5.00	a	6061638.08	2280905.38	5.00
POINTSOURCE		CAR19	81.1	81.1	81.1	Lw	81.1					5.00	a	6061635.08	2280884.17	5.00
POINTSOURCE		CAR20	81.1	81.1	81.1	Lw	81.1					5.00	a	6061621.02	2280871.26	5.00
POINTSOURCE		CAR21	81.1	81.1	81.1	Lw	81.1					5.00	a	6061600.50	2280870.57	5.00
POINTSOURCE		CAR22	81.1	81.1	81.1	Lw	81.1					5.00	a	6061582.28	2280878.64	5.00
POINTSOURCE		CAR23	81.1	81.1	81.1	Lw	81.1					5.00	a	6061566.38	2280886.25	5.00
POINTSOURCE		CAR24	81.1	81.1	81.1	Lw	81.1					5.00	a	6061545.86	2280895.93	5.00
POINTSOURCE		CAR25	81.1	81.1	81.1	Lw	81.1					5.00	a	6061529.95	2280904.46	5.00
POINTSOURCE		CAR26	81.1	81.1	81.1	Lw	81.1					5.00	a	6061510.82	2280913.91	5.00
POINTSOURCE		CAR27	81.1	81.1	81.1	Lw	81.1					5.00	a	6061498.14	2280928.44	5.00
POINTSOURCE		CAR28	81.1	81.1	81.1	Lw	81.1					5.00	a	6061504.59	2280942.04	5.00
POINTSOURCE		CAR29	81.1	81.1	81.1	Lw	81.1					5.00	a	6061511.97	2280956.56	5.00
POINTSOURCE		CAR30	81.1	81.1	81.1	Lw	81.1					5.00	a	6061518.88	2280972.47	5.00
POINTSOURCE		CAR31	81.1	81.1	81.1	Lw	81.1					5.00	a	6061635.67	2280942.74	5.00
POINTSOURCE		CAR32	81.1	81.1	81.1	Lw	81.1					5.00	a	6061617.78	2280952.04	5.00
POINTSOURCE		CAR33	81.1	81.1	81.1	Lw	81.1					5.00	a	6061599.71	2280959.20	5.00
POINTSOURCE		CAR34	81.1	81.1	81.1	Lw	81.1					5.00	a	6061486.79	2281023.08	5.00
POINTSOURCE		CAR35	81.1	81.1	81.1	Lw	81.1					5.00	a	6061468.00	2281030.06	5.00
POINTSOURCE		CAR36	81.1	81.1	81.1	Lw	81.1					5.00	a	6061444.56	2281040.80	5.00
POINTSOURCE		CAR37	81.1	81.1	81.1	Lw	81.1					5.00	a	6061427.92	2281049.39	5.00
POINTSOURCE		CAR38	81.1	81.1	81.1	Lw	81.1					5.00	a	6061540.29	2281045.27	5.00
POINTSOURCE		CAR39	81.1	81.1	81.1	Lw	81.1					5.00	a	6061483.75	2281069.07	5.00
POINTSOURCE		CAR40	81.1	81.1	81.1	Lw	81.1					5.00	a	6061468.36	2281077.84	5.00
POINTSOURCE		CAR41	81.1	81.1	81.1	Lw	81.1					5.00	a	6061451.54	2281085.72	5.00
POINTSOURCE		DT01	84.0	84.0	84.0	Lw	84		900.00	0.00	270.00	3.00	a	6061603.03	2280876.57	3.00
POINTSOURCE		PICNIC01	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061617.72	2280883.78	5.00
POINTSOURCE		PICNIC02	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061616.08	2280886.71	5.00
POINTSOURCE		PICNIC03	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061624.82	2280892.14	5.00
POINTSOURCE		PICNIC04	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061621.80	2280893.58	5.00
POINTSOURCE		PICNIC05	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061622.37	2280901.89	5.00
POINTSOURCE		PICNIC06	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061625.64	2280902.61	5.00
POINTSOURCE		PICNIC07	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061615.31	2280907.36	5.00
POINTSOURCE		PICNIC08	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061612.58	2280901.55	5.00
POINTSOURCE		PICNIC09	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061608.78	2280892.57	5.00
POINTSOURCE		PICNIC10	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061605.90	2280886.61	5.00
POINTSOURCE		PICNIC11	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061413.95	2280960.56	5.00
POINTSOURCE		PICNIC12	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061408.52	2280963.27	5.00
POINTSOURCE		PICNIC13	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061403.21	2280965.77	5.00
POINTSOURCE		PICNIC14	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061393.77	2280974.67	5.00
POINTSOURCE		PICNIC15	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061388.99	2280988.34	5.00
POINTSOURCE		PICNIC16	91.5	91.5	91.5	Lw	91.5		900.00	0.00	270.00	5.00	a	6061389.43	2280996.26	5.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6061508.28	2281006.82	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6061503.90	2281012.59	5.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6061660.21	2280946.42	5.00
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6061662.51	2280953.34	5.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						6.00	a		6061746.20	2281090.74	6.00	0.00
												6061626.68	2281147.29	6.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		15.00	a	6061555.61	2280944.45	15.00	0.00
									6061569.54	2280937.28	15.00	0.00
									6061572.01	2280942.10	15.00	0.00
									6061580.34	2280937.67	15.00	0.00
									6061578.65	2280933.12	15.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6061608.34	2280919.18	15.00	0.00
									6061594.93	2280890.28	15.00	0.00
									6061541.80	2280915.41	15.00	0.00
BUILDING			BUILDING00002	x	0		20.00	a	6061412.90	2281033.64	20.00	0.00
									6061503.52	2280990.28	20.00	0.00
									6061485.94	2280949.91	20.00	0.00
									6061464.33	2280942.10	20.00	0.00
									6061400.14	2280972.57	20.00	0.00
									6061393.37	2280993.66	20.00	0.00

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APPENDIX 8.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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14783 - Brea Gaslight

CadnaA Noise Prediction Model: 14783-02_Construction.cna
Date: 11.01.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	74.7	74.7	81.4	55.0	50.0	0.0				5.00	a	6061509.43	2281126.95	5.00
RECEIVERS		R2	68.8	68.8	75.5	55.0	50.0	0.0				5.00	a	6061628.93	2281151.26	5.00
RECEIVERS		R3	77.8	77.8	84.4	55.0	50.0	0.0				5.00	a	6061635.97	2281005.07	5.00
RECEIVERS		R4	58.4	58.4	65.1	55.0	50.0	0.0				5.00	a	6061895.78	2281193.36	5.00
RECEIVERS		R5	66.8	66.8	73.5	55.0	50.0	0.0				5.00	a	6061841.83	2280894.78	5.00
RECEIVERS		R6	64.5	64.5	71.2	55.0	50.0	0.0				5.00	a	6061598.21	2280607.90	5.00
RECEIVERS		R7	51.4	51.4	58.1	55.0	50.0	0.0				5.00	a	6061528.67	2280675.11	5.00
RECEIVERS		R8	64.7	64.7	71.4	55.0	50.0	0.0				5.00	a	6061299.51	2280785.53	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	118.0	118.0	118.0	82.1	82.1	82.1	Lw	118					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a			6061384.78	2280959.46	8.00	0.00
						6061372.62	2280990.82	8.00	0.00
						6061429.41	2281111.89	8.00	0.00
						6061534.11	2281062.87	8.00	0.00
						6061535.19	2281065.57	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6061555.30	2281055.79	8.00	0.00
				6061539.51	2281021.83	8.00	0.00
				6061600.90	2280992.47	8.00	0.00
				6061603.06	2280997.15	8.00	0.00
				6061688.43	2280957.42	8.00	0.00
				6061643.28	2280861.17	8.00	0.00
				6061608.80	2280847.81	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						6.00	a		6061746.20	2281090.74	6.00	0.00
												6061626.68	2281147.29	6.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00003	x	0		15.00	a	6061438.14	2281549.41	15.00	0.00
									6061514.53	2281513.82	15.00	0.00
									6061531.02	2281488.64	15.00	0.00
									6061386.06	2281174.41	15.00	0.00
									6061300.12	2281211.73	15.00	0.00
									6061274.95	2281241.25	15.00	0.00
									6061413.84	2281534.65	15.00	0.00
BUILDING			BUILDING00004	x	0		15.00	a	6061485.74	2281178.64	15.00	0.00
									6061492.25	2281192.09	15.00	0.00
									6061540.43	2281169.09	15.00	0.00
									6061534.57	2281155.42	15.00	0.00
									6061524.15	2281160.62	15.00	0.00
									6061510.26	2281127.42	15.00	0.00
									6061470.11	2281144.78	15.00	0.00
									6061476.62	2281159.32	15.00	0.00
									6061470.11	2281168.22	15.00	0.00
									6061473.80	2281177.12	15.00	0.00
BUILDING			BUILDING00005	x	0		15.00	a	6061562.78	2281176.03	15.00	0.00
									6061581.44	2281168.00	15.00	0.00
									6061572.98	2281150.43	15.00	0.00
									6061554.53	2281159.11	15.00	0.00
BUILDING			BUILDING00006	x	0		15.00	a	6061659.06	2281054.03	15.00	0.00
									6061705.94	2281033.20	15.00	0.00
									6061689.01	2280981.99	15.00	0.00
									6061637.79	2281006.29	15.00	0.00
BUILDING			BUILDING00007	x	0		15.00	a	6061631.28	2281151.26	15.00	0.00
									6061656.46	2281182.94	15.00	0.00
									6061685.10	2281162.98	15.00	0.00
									6061723.73	2281138.24	15.00	0.00
									6061746.73	2281121.31	15.00	0.00
									6061736.75	2281101.78	15.00	0.00
BUILDING			BUILDING00008	x	0		15.00	a	6061926.42	2281136.07	15.00	0.00
									6061970.69	2281106.99	15.00	0.00
									6061938.14	2281029.73	15.00	0.00
									6061898.64	2281045.35	15.00	0.00
									6061891.27	2281065.75	15.00	0.00
BUILDING			BUILDING00009	x	0		15.00	a	6061890.34	2280973.01	15.00	0.00
									6061941.61	2280953.92	15.00	0.00
									6061873.04	2280824.58	15.00	0.00
									6061983.28	2280765.55	15.00	0.00
									6061974.60	2280731.70	15.00	0.00
									6061806.82	2280816.37	15.00	0.00
BUILDING			BUILDING00010	x	0		15.00	a	6061698.56	2280683.95	15.00	0.00
									6061761.93	2280657.04	15.00	0.00
									6061731.54	2280596.28	15.00	0.00
									6061649.95	2280631.87	15.00	0.00
BUILDING			BUILDING00011	x	0		15.00	a	6061595.26	2280607.57	15.00	0.00
									6061705.50	2280558.95	15.00	0.00
									6061683.80	2280512.08	15.00	0.00
									6061574.43	2280563.29	15.00	0.00
BUILDING			BUILDING00012	x	0		15.00	a	6061472.86	2280749.93	15.00	0.00
									6061556.20	2280712.60	15.00	0.00
									6061544.04	2280683.09	15.00	0.00
									6061462.45	2280720.41	15.00	0.00
BUILDING			BUILDING00013	x	0		15.00	a	6061337.45	2280786.38	15.00	0.00
									6061361.75	2280844.54	15.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6061418.18	2280816.77	15.00	0.00
									6061390.40	2280762.95	15.00	0.00
BUILDING			BUILDING00014	x	0		15.00	a	6061254.11	2281209.13	15.00	0.00
									6061335.71	2281168.33	15.00	0.00
									6061284.50	2281052.88	15.00	0.00
									6061202.90	2281096.28	15.00	0.00
BUILDING			BUILDING00015	x	0		15.00	a	6061303.16	2280785.08	15.00	0.00
									6061336.23	2280773.36	15.00	0.00
									6061318.78	2280734.30	15.00	0.00
									6061294.04	2280743.94	15.00	0.00
									6061298.21	2280753.57	15.00	0.00
									6061290.66	2280759.30	15.00	0.00

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MEMORANDUM

URBAN | CROSSROADS



DATE: January 20, 2023
TO: Tracy Zinn, T&B Planning, inc.
FROM: Charlene So, Urban Crossroads, Inc.
JOB NO: 14783-06 TG Memo

BREA GASLIGHT SQUARE TRIP GENERATION ASSESSMENT

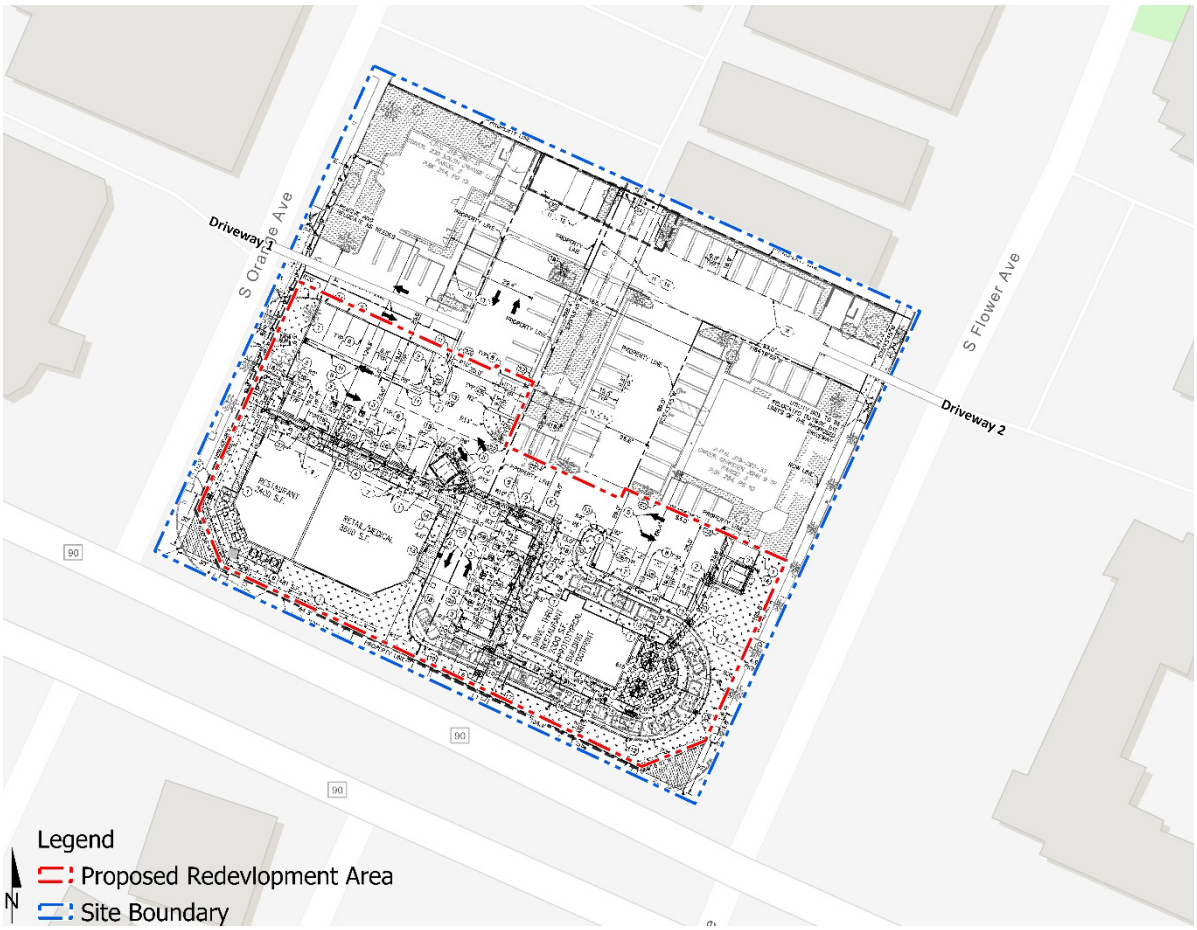
Urban Crossroads, Inc. is pleased to provide the following Trip Generation Assessment for the Brea Gaslight Square development (**Project**), which is located between Orange Avenue and Flower Avenue and north of Imperial Highway (SR-90) at 255 Imperial Highway in the City of Brea. The following letter summarizes the proposed Project trip generation.

PROPOSED PROJECT

The Project involves the redevelopment of approximately 0.95-acre of a 1.88-acre Project site. The site is currently occupied with six commercial/office buildings. The southern 0.95-acre portion of the Project site is proposed to be redeveloped with two proposed commercial buildings. As part of the Project, four of the existing commercial/office buildings would be demolished, including two 2,799 square foot (SF) office buildings, a 3,166 SF office building, and a two-story office/commercial building that contains 10,109 SF of floor space. Two new commercial buildings would be constructed on-site. A 6,000 SF commercial building is proposed at the northeast corner of South Orange Avenue and Imperial Highway, which would include a 2,400 SF sit-down restaurant and 3,600 SF of retail or medical office uses. In addition, an approximate 2,000 SF drive-through restaurant is proposed at the northwest corner of South Flower Avenue and Imperial Highway. Future tenants of the new, proposed buildings are unknown at this time.

The existing site currently has access to Orange Avenue and Flower Avenue (both access points allow for full turning movements, with no access restrictions). Both access points will be maintained in their current location although it is anticipated the Project will reconstruct both driveways to meet the current City of Brea commercial driveway standards.

EXHIBIT 1: PRELIMINARY SITE PLAN



TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

EXISTING TRAFFIC

The Project includes the demolition of four existing buildings in order to redevelop the site with the proposed uses. These four buildings are currently occupied and generating traffic. In an effort to understand the existing traffic associated with the current uses, traffic counts were collected at the driveways on September 20 and 21, 2022 (Tuesday and Wednesday). Laurel Elementary was in session on these dates, although Wednesday is an early release day where school still starts at 8:00 AM but releases at 1:25 PM (regular release is at 2:10 PM). A summary of the count data collected is provided in Attachment A. It should be noted that the site also includes two other buildings that will remain on the site and traffic associated with these uses have not been included in the driveway data collected. The two buildings that are to remain are located on Assessor's Parcel Number (APN) 319-292-31 and APN 319-292-33.

Table 1 summarizes the average existing trip generation based on the count data collected over two consecutive days. The existing site currently generates an average of 362 two-way trips per day, with 44 trips during the AM peak hour, 41 trips during the mid-day peak hour, and 27 trips during the PM peak hour.

TABLE 1: EXISTING TRIP GENERATION

	AM Peak Hour			Mid-Day Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	In	Out	Total	Daily
Actual Vehicles:										
Existing Use										
Passenger Cars:	31	13	44	18	23	41	7	20	27	356
2-axle Trucks:	0	0	0	0	0	0	0	0	0	6
3-axle Trucks:	0	0	0	0	0	0	0	0	0	0
4+-axle Trucks:	0	0	0	0	0	0	0	0	0	0
Total Trucks:	0	0	0	0	0	0	0	0	0	6
Total Trips	**31**	**13**	**44**	**18**	**23**	**41**	**7**	**20**	**27**	**362**

PROPOSED PROJECT

In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) for the proposed land uses was utilized. For purposes of this assessment, the following ITE land use codes have been evaluated for the Project (see Table 2 for the trip generation rates):

- 3,600 square feet of Strip Retail (ITE Land Use Code 822) (more conservative than medical/dental office)
- 2,400 square foot High Turnover (Sit-Down) Restaurant use (ITE Land Use Code 932)
- 2,000 square foot Coffee/Donut Shop with Drive-Thru Window use (ITE Land Use Code 937)

TABLE 2: TRIP GENERATION RATES

	ITE		AM Peak Hour			Mid-Day Peak Hour[3]			PM Peak Hour			Weekday
Land Use[1]	Code	Units[2]	In	Out	Total	In	Out	Total	In	Out	Total	Daily
Strip Retail	822	TSF	1.42	0.94	2.36	1.88	1.88	3.76	3.30	3.29	6.59	54.45
High Turnover Sit-Down Restaurant	932	TSF	5.26	4.31	9.57	3.48	6.00	9.49	5.52	3.53	9.05	107.20
Coffee/Donut Shop with Drive-Thru	937	TSF	43.80	42.08	85.88	16.81	15.21	32.01	19.50	19.50	38.99	533.57

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = thousand square feet

[3] Mid-day (1:00-2:00 PM) trip generation rates determined based on the ITE time of day distributions for each applicable land use.

Trip generation rates during the mid-day have been determined based on the ITE's Time of Day distribution for each applicable land use category (the timeframe of 1:00-2:00 PM has been utilized). As a result, the time-of-day distribution for the mid-day timeframe is as follows (in and out splits have been calculated using the same PM peak hour split if not available):

- Strip Retail (ITE Land Use Code 822) = 6.9% of the total daily traffic (split 50/50 for in and out)
- High Turnover (Sit-Down) Restaurant use (ITE Land Use Code 932) = 6.5% of the inbound daily, and 11.2% of the outbound daily (assuming daily is split 50/50 in and out)
- Coffee/Donut Shop with Drive-Thru Window use (ITE Land Use Code 937) = 6.3% of the inbound daily, and 5.7% of the outbound daily (assuming daily is split 50/50 in and out)

As the Project is proposed to include retail and food uses, pass-by percentages have been used but limited to 25% for the sit-down restaurant and strip retail while the coffee shop is limited to 50%. Pass-by trips account for trips that are currently on the existing roadway network that would stop by uses within the proposed Project on their way to their ultimate destination. Table 3 shows the resulting Project trip generation summary, which shows the Project is anticipated to generate a total of 872 two-way trips per day with 119 AM peak hour trips, 62 mid-day peak hour trips, and 73 PM peak hour trips.

TABLE 3: PROJECT TRIP GENERATION

			AM Peak Hour			Mid-Day Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[1]	In	Out	Total	In	Out	Total	In	Out	Total	Daily
High Turnover Sit-Down Restaurant	2.400	TSF	13	10	23	8	14	22	13	8	21	258
Pass-By Reduction (25% MD/PM/Daily):			0	0	0	-2	-2	-4	-2	-2	-4	-66
Coffee/Donut Shop with Drive-Thru	2.000	TSF	88	84	172	34	30	64	39	39	78	1,068
Pass-By Reduction (50% AM/MD/PM/Daily):			-42	-42	-84	-15	-15	-30	-20	-20	-40	-534
Strip Retail	3.600	TSF	5	3	8	7	7	14	12	12	24	196
Pass-By Reduction (25% MD/PM/Daily):			0	0	0	-2	-2	-4	-3	-3	-6	-50
Project Buildout Total:			**64**	**55**	**119**	**30**	**32**	**62**	**39**	**34**	**73**	**872**

[1] TSF = thousand square feet

NET TRIP GENERATION

Table 4 compares the trip generation of the proposed Project to the existing use. The resulting net change in trips are also identified on Table 4 and has been calculated by subtracting the existing trip generation from the proposed Project. As shown, the Project is anticipated to generate a net increase of 510 daily trips, 75 AM peak hour trips, 21 mid-day peak hour trips, and 46 PM peak hour trips above the trips generated by existing uses.

TABLE 4: TRIP GENERATION COMPARISON

	AM Peak Hour			Mid-Day Peak Hour			PM Peak Hour			
Project	In	Out	Total	In	Out	Total	In	Out	Total	Daily
Existing Uses	31	13	44	18	23	41	7	20	27	362
Proposed Project	64	55	119	30	32	62	39	34	73	872
Variance (Proposed - Existing)	**33**	**42**	**75**	**12**	**9**	**21**	**32**	**14**	**46**	**510**

If you have any questions or comments, I can be reached at cso@urbanxroads.com.

ATTACHMENT A: DRIVEWAY COUNTS

City:	Brea
Location:	TOTAL
Date:	Tuesday, September 20, 2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	1	0	0	0	1
3:45	0	0	0	0	0
4:00	1	0	0	0	1
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	0	0	0	0	0
6:30	1	0	0	0	1
6:45	1	0	0	0	1
7:00	1	0	0	0	1
7:15	3	0	0	0	3
7:30	4	0	0	0	4
7:45	18	0	0	0	18
8:00	5	0	0	0	5
8:15	6	0	0	0	6
8:30	6	0	0	0	6
8:45	5	0	0	0	5
9:00	3	0	0	0	3
9:15	1	0	0	0	1
9:30	0	1	0	0	1
9:45	1	0	0	0	1
10:00	2	0	0	0	2
10:15	4	1	0	0	5
10:30	0	0	0	0	0
10:45	1	0	0	0	1
11:00	6	0	0	0	6
11:15	3	0	0	0	3
11:30	1	0	0	0	1
11:45	0	0	0	0	0

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	1	0	0	0	1
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	1	0	0	1
5:15	4	0	0	0	4
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	1	0	0	0	1
6:15	0	0	0	0	0
6:30	1	0	0	0	1
6:45	0	0	0	0	0
7:00	0	0	0	0	0
7:15	0	0	0	0	0
7:30	5	0	0	0	5
7:45	7	0	0	0	7
8:00	3	0	0	0	3
8:15	1	0	0	0	1
8:30	1	0	0	0	1
8:45	1	0	0	0	1
9:00	3	0	0	0	3
9:15	2	0	0	0	2
9:30	2	0	0	0	2
9:45	1	1	0	0	2
10:00	1	0	0	0	1
10:15	1	0	0	0	1
10:30	4	1	0	0	5
10:45	1	0	0	0	1
11:00	5	0	0	0	5
11:15	3	0	0	0	3
11:30	4	0	0	0	4
11:45	2	0	0	0	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Brea
Location:	TOTAL
Date:	Tuesday, September 20, 2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	2	0	0	0	2
12:15	0	0	0	0	0
12:30	2	0	0	0	2
12:45	5	0	0	0	5
13:00	5	0	0	0	5
13:15	2	0	0	0	2
13:30	2	0	0	0	2
13:45	4	0	0	0	4
14:00	5	0	0	0	5
14:15	5	0	0	0	5
14:30	4	0	0	0	4
14:45	8	0	0	0	8
15:00	10	0	0	0	10
15:15	9	0	0	0	9
15:30	3	0	0	0	3
15:45	4	0	0	0	4
16:00	0	0	0	0	0
16:15	1	0	0	0	1
16:30	5	0	0	0	5
16:45	1	0	0	0	1
17:00	1	0	0	0	1
17:15	0	0	0	0	0
17:30	3	0	0	0	3
17:45	1	0	0	0	1
18:00	2	0	0	0	2
18:15	0	0	0	0	0
18:30	4	0	0	0	4
18:45	0	0	0	0	0
19:00	3	0	0	0	3
19:15	0	0	0	0	0
19:30	4	0	0	0	4
19:45	1	0	0	0	1
20:00	2	0	0	0	2
20:15	0	0	0	0	0
20:30	1	0	0	0	1
20:45	0	0	0	0	0
21:00	1	0	0	0	1
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	1	0	0	0	1
23:15	1	0	0	0	1
23:30	0	0	0	0	0
23:45	0	0	0	0	0
TOTAL	**176**	**2**	**0**	**0**	**178**

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	7	0	0	0	7
12:15	3	0	0	0	3
12:30	1	0	0	0	1
12:45	3	0	0	0	3
13:00	1	0	0	0	1
13:15	0	0	0	0	0
13:30	2	0	0	0	2
13:45	3	0	0	0	3
14:00	9	0	0	0	9
14:15	6	0	0	0	6
14:30	7	0	0	0	7
14:45	3	0	0	0	3
15:00	9	0	0	0	9
15:15	12	0	0	0	12
15:30	4	0	0	0	4
15:45	1	0	0	0	1
16:00	2	0	0	0	2
16:15	2	0	0	0	2
16:30	4	0	0	0	4
16:45	3	0	0	0	3
17:00	4	0	0	0	4
17:15	7	0	0	0	7
17:30	5	0	0	0	5
17:45	3	0	0	0	3
18:00	1	0	0	0	1
18:15	1	0	0	0	1
18:30	4	0	0	0	4
18:45	0	0	0	0	0
19:00	1	0	0	0	1
19:15	0	0	0	0	0
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	1	0	0	0	1
20:15	0	0	0	0	0
20:30	1	0	0	0	1
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	4	0	0	0	4
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	2	0	0	0	2
22:15	0	0	0	0	0
22:30	1	0	0	0	1
22:45	0	0	0	0	0
23:00	1	0	0	0	1
23:15	1	0	0	0	1
23:30	0	0	0	0	0
23:45	0	0	0	0	0
	173	**3**	**0**	**0**	**176**

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Brea
Location:	TOTAL
Date:	Wednesday, September 21, 2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	1	0	0	0	1
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	1	0	0	0	1
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	0	0	0	0	0
6:30	2	0	0	0	2
6:45	0	0	0	0	0
7:00	2	0	0	0	2
7:15	6	0	0	0	6
7:30	10	0	0	0	10
7:45	9	0	0	0	9
8:00	7	0	0	0	7
8:15	3	0	0	0	3
8:30	4	0	0	0	4
8:45	6	0	0	0	6
9:00	0	0	0	0	0
9:15	2	0	0	0	2
9:30	2	1	0	0	3
9:45	1	0	0	0	1
10:00	1	0	0	0	1
10:15	3	0	0	0	3
10:30	3	0	0	0	3
10:45	4	0	0	0	4
11:00	5	1	0	0	6
11:15	5	0	0	0	5
11:30	2	0	0	0	2
11:45	2	0	0	0	2

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	1	0	0	0	1
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	1	0	0	0	1
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	1	0	0	0	1
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	1	0	0	1
5:30	1	0	0	0	1
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	2	0	0	0	2
6:30	2	0	0	0	2
6:45	0	0	0	0	0
7:00	0	0	0	0	0
7:15	0	0	0	0	0
7:30	2	0	0	0	2
7:45	2	0	0	0	2
8:00	2	0	0	0	2
8:15	3	0	0	0	3
8:30	2	0	0	0	2
8:45	2	0	0	0	2
9:00	2	0	0	0	2
9:15	0	0	0	0	0
9:30	3	1	0	0	4
9:45	0	0	0	0	0
10:00	3	1	0	0	4
10:15	0	0	0	0	0
10:30	3	0	0	0	3
10:45	1	0	0	0	1
11:00	3	1	0	0	4
11:15	5	0	0	0	5
11:30	3	0	0	0	3
11:45	3	0	0	0	3

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Brea
Location:	TOTAL
Date:	Wednesday, September 21, 2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	4	0	0	0	4
12:15	1	0	0	0	1
12:30	4	0	0	0	4
12:45	9	0	0	0	9
13:00	6	0	0	0	6
13:15	6	0	0	0	6
13:30	4	0	0	0	4
13:45	7	0	0	0	7
14:00	4	0	0	0	4
14:15	2	0	0	0	2
14:30	1	0	0	0	1
14:45	5	0	0	0	5
15:00	4	0	0	0	4
15:15	4	0	0	0	4
15:30	2	0	0	0	2
15:45	2	0	0	0	2
16:00	2	0	0	0	2
16:15	3	0	0	0	3
16:30	0	0	0	0	0
16:45	2	0	0	0	2
17:00	2	0	0	0	2
17:15	2	0	0	0	2
17:30	3	0	0	0	3
17:45	0	0	0	0	0
18:00	0	0	0	0	0
18:15	1	0	0	0	1
18:30	0	0	0	0	0
18:45	1	0	0	0	1
19:00	4	0	0	0	4
19:15	2	0	0	0	2
19:30	3	0	0	0	3
19:45	1	0	0	0	1
20:00	1	0	0	0	1
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	1	0	0	0	1
21:45	0	0	0	0	0
22:00	1	0	0	0	1
22:15	1	0	0	0	1
22:30	1	0	0	0	1
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	2	0	0	0	2
23:45	4	0	0	0	4
TOTAL	**183**	**2**	**0**	**0**	**185**

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	6	0	0	0	6
12:15	3	0	0	0	3
12:30	4	0	0	0	4
12:45	2	0	0	0	2
13:00	3	0	0	0	3
13:15	13	0	0	0	13
13:30	14	0	0	0	14
13:45	10	0	0	0	10
14:00	6	0	0	0	6
14:15	5	0	0	0	5
14:30	5	0	0	0	5
14:45	2	0	0	0	2
15:00	2	0	0	0	2
15:15	2	0	0	0	2
15:30	4	0	0	0	4
15:45	4	0	0	0	4
16:00	5	0	0	0	5
16:15	9	0	0	0	9
16:30	6	0	0	0	6
16:45	2	0	0	0	2
17:00	0	0	0	0	0
17:15	0	0	0	0	0
17:30	1	0	0	0	1
17:45	4	0	0	0	4
18:00	0	0	0	0	0
18:15	1	0	0	0	1
18:30	1	0	0	0	1
18:45	1	0	0	0	1
19:00	1	0	0	0	1
19:15	3	0	0	0	3
19:30	0	0	0	0	0
19:45	2	0	0	0	2
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	1	0	0	0	1
21:00	0	0	0	0	0
21:15	1	0	0	0	1
21:30	0	0	0	0	0
21:45	1	0	0	0	1
22:00	1	0	0	0	1
22:15	1	0	0	0	1
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	2	0	0	0	2
23:45	4	0	0	0	4
	179	**4**	**0**	**0**	**183**

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

TRANSPORATION IMPACT ANALYSIS WORKSHEET
CITY OF BREA PUBLIC WORKS DEPARTMENT

<table>
<tr><td>PROJECT NAME</td><td>Brea Gaslight Square Modifications</td></tr>
<tr><td>PROJECT LOCATION</td><td>255 Imperial Highway</td></tr>
<tr><td>PARCEL NUMBER(S)</td><td>319-292-35 / 319-292-36 / 319-292-33 / 319-292-31</td></tr>
<tr><td>PROPOSED LAND USES</td><td>2,000 sq.ft. Drive Through Restaurant
2,400 sq.ft. Fast Casual Restaurant
3,600 sq.ft. Retail/Medical Office</td></tr>
<tr><td>EXISTING LAND USES TO BE REMOVED</td><td>18,286 sq.ft. of Office Space in Multiple Buildings</td></tr>
<tr><td rowspan="3">VMT SCREENING

☐Project is exempt from CEQA; therefore, a VMT Analysis is not required.

☒Project passes Primary and Secondary Screening; therefore, a VMT Analysis is not required.

☐Project fails screening; therefore, a VMT Analysis is required.</td><td><u>Primary Screening</u>
The Proposed Project:
☐Located in a Transit Priority Area
☐Located in a Low VMT-generating area
☒Project type is presumed to have a less than significant impact
☒Project generates less than 250 Daily Trips – See VMT Analysis

If any of the above boxes are checked, the project passes Primary Screening and then is further assessed through Secondary Screening.</td></tr>
<tr><td><u>Secondary Screening – Transit Priority Area</u>
The Proposed Project:
☐Has a Floor Area Ratio (FAR) of less than 0.75
☐Is overparked in relation to City Code.
☐Is inconsistent with the applicable Sustainable Communities Strategy
☐Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

If any of the above boxes are checked, the project fails Secondary Screening.</td></tr>
<tr><td><u>Secondary Screening – Low VMT-generating Area</u>
The Proposed Project:
☐Is inconsistent with the existing land use in the vicinity.

☐Has a unique attribute that would otherwise be misrepresented utilizing the data from the travel demand model.

If any of the above boxes are checked, the project fails Secondary Screening.</td></tr>
</table>

TRANSPORATION IMPACT ANALYSIS WORKSHEET
CITY OF BREA PUBLIC WORKS DEPARTMENT

VMT ANALYSIS ☒Preliminary project analysis reveals no probable VMT impact, therefore, no further study is required. ☐Project may have a VMT impact and thus a VMT Analysis is required.	Existing Improvements: Estimated Daily Trip Credit: 549 Estimated VMT Credit: 3,569 The Proposed Project: Estimated Daily Trips: 343 Net Daily Trips: - 206 Estimated VMT: 2,229 Net Daily VMT: -1,340 Average Trip Length: 6.5 Service Population 24 VMT per Service Population: 93 Target VMT per Service Population Threshold: 29.1 Percentage above/below VMT Target: +320.59% City Traffic Engineer's Finding: *The proposed project demolishes four existing small office buildings and constructs two new smaller buildings containing restaurants, retail, and medical office. The OCTAM model estimates of daily trips, VMT, and service population for the proposed project, as outlined above, are below those levels normally anticipated for a project of this type. However, the proposed project is, by definition, screened out from further analysis since it is deemed to be a project comprised of local serving businesses of less than 50,000 sq.ft. Therefore, it has been determined, by definition, that the proposed project will have no probable VMT impact.*
LOS SCREENING ☐Project is not expected to have an effect on transportation; therefore, a LOS Analysis is not required. ☒Project fails screening and may have a potential effect on transportation; therefore, a LOS Analysis is required.	The Proposed Project: Peak Hour Trip Generation: AM: 97 PM: 120 Peak Hour Trip Credit: AM: 31 PM: 39 Proposed Project Net Peak Trip Generation: AM: +66 PM: +81 ☒AM or PM peak hour trip generation is anticipated to exceed 50 net new vehicle trips. ☒The combination of land use and location necessitates further study. *If any of the above boxes are checked, the project fails LOS Screening.*
Approved by:	 David Roseman City Traffic Engineer July 26, 2022

NOCC+

North Orange County Collaborative VMT Traffic Study Screening Tool

Project Information

Project Name	Opening Year
255 Imperial Highway - Proposed Project	2023

Parcel Number (OCTAM TAZ#59)

319-292-35, 319-292-36, 319-292-33, 319-292-31

Screening Criteria for Brea

Is the project location in a Transit Priority Area?	No
Is the project location in a low VMT generating zone?	No
Is the Project one of these land use types? (show land use types)	Yes
Does the project generate fewer than 250 daily trips? (enter project land use in the section below)	No

The Project can be considered for screening from additional analysis.
Please refer to the 'secondary screening checks' table in the User Guide.

Project Land Use Information

		Unit
Residential : Single Family Homes	0	Dwelling Units
Residential : MultiFamily Homes	0	Dwelling Units
Office	0.000	1,000 Sqaure Feet
Retail	8.000	1,000 Sqaure Feet
Industrial	0.000	1,000 Sqaure Feet
Private School	0	Students
University	0	Students
Entertainment	0.000	1,000 Sqaure Feet
Hotel	0	Rooms

Project Trips and VMT Information

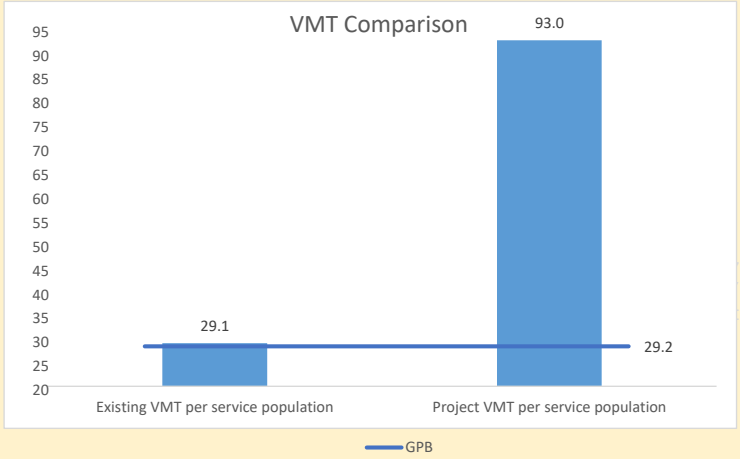
VMT Methodology: Origin Destination (OD)

Daily Trips: 343 Average Trip Length: 6.5 Service Population: 24

VMT per service population 93.0

Project VMT Thresholds Comparison

- [ ] OPR Guidance (15% Below Existing)
- [ ] GHG Reduction Targets (14.3% Below Existing)
- [ ] Below Existing
- [x] Better than General Plan Buildout



FEHR PEERS

NOCC+

North Orange County Collaborative VMT Traffic Study Screening Tool

Project Information

Project Name	Opening Year
255 Imperial Highway - Exisiting Use Credit	2023

Parcel Number (OCTAM TAZ#59)

319-292-35, 319-292-36, 319-292-33, 319-292-31

Screening Criteria for Brea

Is the project location in a Transit Priority Area?	No
Is the project location in a low VMT generating zone?	No
Is the Project one of these land use types? (show land use types)	No
Does the project generate fewer than 250 daily trips? (enter project land use in the section below)	No

The Project does not meet screening criteria. Please Continue

Project Land Use Information

		Unit
Residential : Single Family Homes	0	Dwelling Units
Residential : MultiFamily Homes	0	Dwelling Units
Office	18.286	1,000 Sqaure Feet
Retail	0.000	1,000 Sqaure Feet
Industrial	0.000	1,000 Sqaure Feet
Private School	0	Students
University	0	Students
Entertainment	0.000	1,000 Sqaure Feet
Hotel	0	Rooms

Project Trips and VMT Information

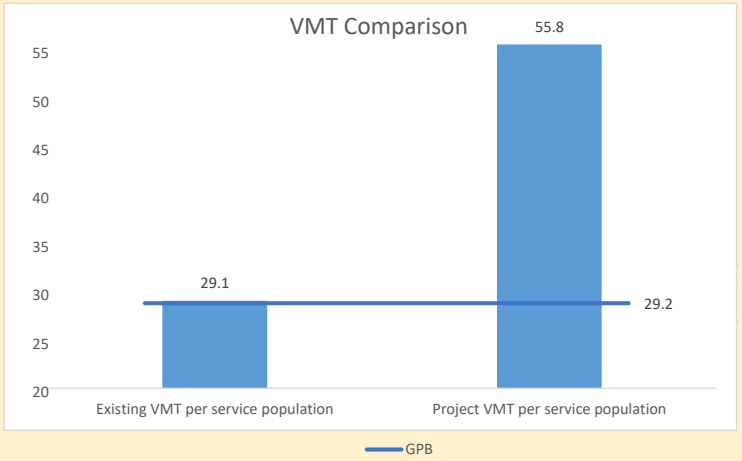
VMT Methodology: Origin Destination (OD)

Daily Trips: 549 Average Trip Length: 6.5 Service Population: 64

VMT per service population 55.8

Project VMT Thresholds Comparison

- [ ] OPR Guidance (15% Below Existing)
- [ ] GHG Reduction Targets (14.3% Below Existing)
- [ ] Below Existing
- [x] Better than General Plan Buildout



FEHR PEERS

January 23, 2023

Mr. David Roseman
City of Brea
1 Civic Center Circle
Brea, CA 92821

BREA GASLIGHT SQUARE SAFETY EVALUATION

Mr. David Roseman,

The firm of Urban Crossroads, Inc. is pleased to submit the following Safety Evaluation for the Brea Gaslight Square development (**Project**), which is located between Orange Avenue and Flower Avenue and north of Imperial Highway at 255 Imperial Highway in the City of Brea. The purpose of this work effort is to provide a safety evaluation for the proposed Project.

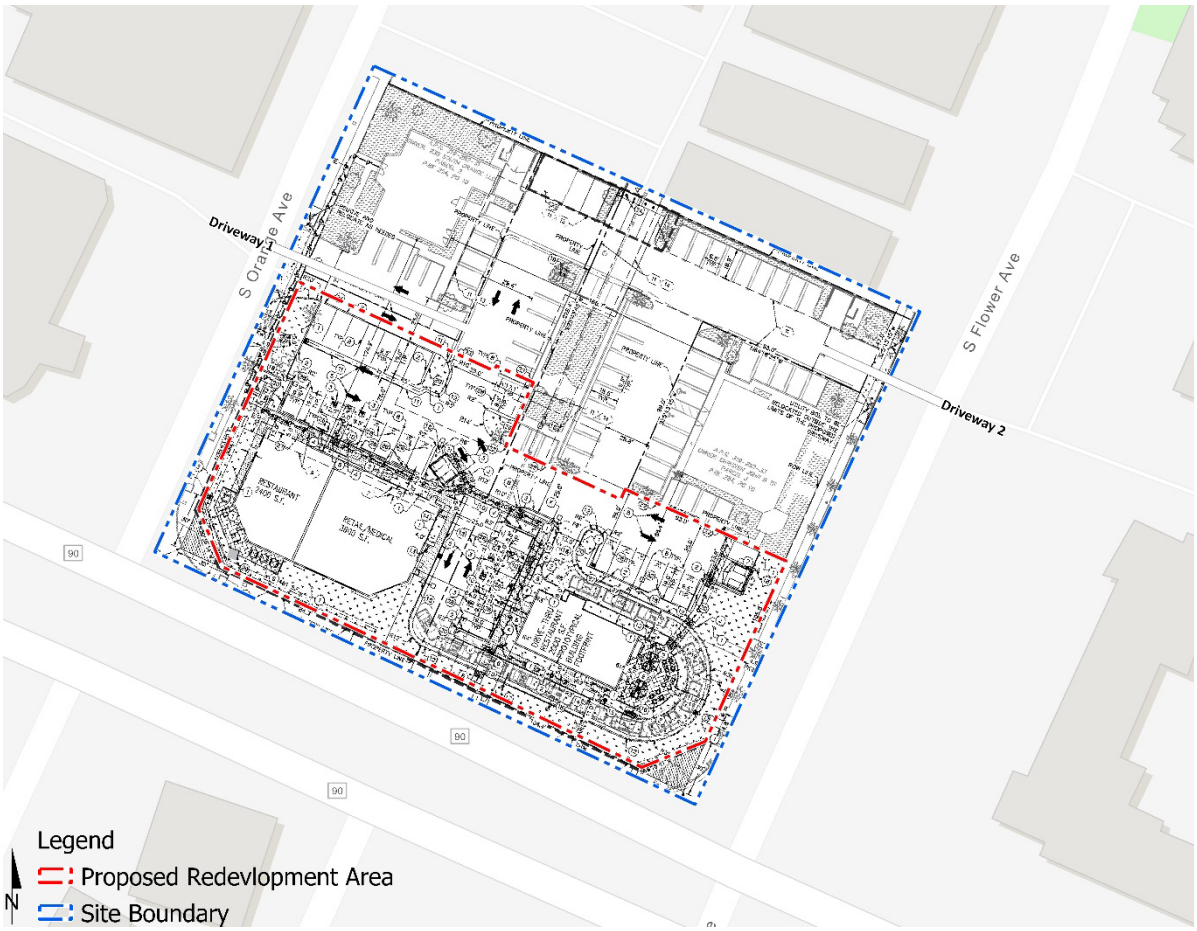
PROPOSED PROJECT

The redevelopment of the site requires demolition of the following 4 existing buildings:

- Two 2,799 square foot office uses fronting Orange Avenue
- One 3,166 square foot office use adjacent to Imperial Highway
- One two-story 10,109 square foot office building at the northwest corner of Flower Avenue and Imperial Highway

The Project consists of the development of a new 6,000 square foot building located on the northeast corner of Orange Avenue and Imperial Highway that includes a 2,400 square foot restaurant and 3,600 square foot retail/medial office use. A 2,000 square foot coffee shop with drive-through window is proposed on the northwest corner of Flower Avenue and Imperial Highway (see Exhibit 1). The proposed Project is anticipated to have an opening year of 2024. The existing site currently has access to Orange Avenue and Flower Avenue (both access points allow for full turning movements, with no access restrictions). Both access points will be maintained although it is anticipated the Project will reconstruct the driveways to meet the current City of Brea commercial driveway standards.

EXHIBIT 1: PRELIMINARY SITE PLAN



SAFETY EVALUATION METHODOLOGY

The safety evaluation completed for this project included the following elements:

- Review of available collision data
- Review of potential increase presence of pedestrians and bicyclist
- Review of any proposed changes to the walking and bicycling environment and experience.
- New pedestrian and bicyclist connection desires
- Multimodal conflict points, especially at intersections and project access locations.
- Change in traffic mix such as an increase in bicyclists or pedestrians where features such as shoulders or sidewalks may not exist or are inconsistent with facility design (sidewalks, bike and multi-user paths, multimodal roadways, etc.)
- Increased traffic volumes
- Site access management (i.e., driveway sight distance, driveway or intersection spacing, project access queuing, multimodal conflict points, incomplete pedestrian, and bicycle connections)

COLLISION DATA

The collision data analysis is based on the collision data received from California Highway Patrols' (CHP) Statewide Integrated Traffic Records System (SWITRS). The collision data includes 6 years of collision data gathered by CHP staff and members of its Allied Agencies throughout California (including the City of Brea). However, due to the COVID-19 shutdown starting in March 2020, the 6-year data is effectively a 5-year period due to the lower sample size. This safety evaluation includes all of the 2020 crashes in order to provide a conservative estimate. The SWITRS data is provided in Attachment A. Table 1 provides a summary of the types of collisions by intersection. It should be noted that there may be unreported collisions that were not collected into SWITRS. However, the reported collisions provide reasonable data to evaluate safety performance at these locations.

TABLE 1: COLLISION SUMMARY (JANUARY 2017 TO JANUARY 2023)

Head-On	Sideswipe	Rear-End	Broadside	Hit-Object	Overturn	Auto-Ped	Other	Not Stated
Brea Bl. & Birch St. (Total: 14 Collisions)								
1 (7.1%)	1 (7.1%)	4 (28.7%)	7 (50.0%)	1 (7.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Brea Bl. & Imperial Hwy. (SR-90) (Total: 33 Collisions)								
1 (3.0%)	9 (27.3%)	8 (24.3%)	6 (18.2%)	7 (21.2%)	0 (0.0%)	1 (3.0%)	1 (3.0%)	0 (0.0%)
Orange Av. & Birch St. (Total: 2 Collisions)								
0 (0.0%)	1 (50.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Orange Av. & Imperial Hwy. (SR-90) (Total: 2 Collisions)								
0 (0.0%)	0 (0.0%)	1 (50.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Flower Av. & Birch St. (Total: 6 Collisions)								
3 (50.0%)	1 (16.7%)	0 (0.0%)	2 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Flower Av. & Imperial Hwy. (SR-90) (Total: 11 Collisions)								
1 (9.1%)	1 (9.1%)	7 (63.6%)	2 (18.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

The CHP SWITRS collision data includes the following collision types:

- Head-On
- Sideswipe

- Rear-End
- Broadside
- Hit Object
- Overturned
- Vehicle/Pedestrian
- Other
- Not Stated

The Caltrans 2020 Crash Data on California State Highways report (2020 Crash Report) provides data on crash reports collected by law enforcement agencies. Calculation rates by intersection are computed for various types of facilities and settings, and then are averaged statewide. The intersection crash rate is calculated by the following formula:

Crashes / Million Vehicle (MV) Entering the Intersection

For the purposes of this analysis, average daily traffic (ADT) will be utilized to determine the crashes / MV. Existing weekday ADT volumes are provided in Attachment B. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 13.09 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.64 percent. As such, the above equation utilizing a factor of 13.09 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.64 percent (i.e., 1/0.0764 = 13.09) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. A summary of the crash rate comparison, by intersection, is shown in Table 2.

TABLE 2: CRASH RATE COMPARISON

Intersection	Intersection Control and Setting[1]	Average Rate[2]	Crash Rate
Brea Bl. & Birch St.	Suburban, TS, 4-leg	0.55	0.21
Brea Bl. & Imperial Hwy. (SR-90)	Suburban, TS, 4-leg	0.55	0.22
Orange Av. & Birch St.	Suburban, CSS, 4-leg	0.36	0.06
Orange Av. & Imperial Hwy. (SR-90)	Suburban, CSS, 3-leg	0.22	0.03
Flower Av. & Birch St.	Suburban, TS, 4-leg	0.55	0.11
Flower Av. & Imperial Hwy. (SR-90)	Suburban, CSS, 4-leg	0.36	0.12

[1] CSS = Cross-street Stop; TS = Traffic Signal

[2] Source: Intersection crash rates from the Caltrans 2020 Crash Data on California State Highways report

Brea Bl. & Birch St. had a total of 14 reported collisions in a 5-year period. The common collisions include rear-end and broadside collisions. Rear-end collisions are commonly caused by speeding, failure to maintain acceptable stopping distance, or impaired/distracted driving. Broadside collisions are commonly caused by failure to yield, failure to stop, or impaired/distracted driving. ADT volumes and turning movement counts were not readily available for this intersection. As such, data from OCTA's 2022 Traffic Flow Map were utilized for this calculation (see Attachment B). The 5-year average rate for this intersection is calculated as followed:

(14 collisions / 5 years) / (365 days/year x (72,000 ADT / 2) / 1,000,000 MV) **= 0.21 total crashes per MV**

The intersection of Brea Bl. & Birch St. has a lower crash rate than the state average for similar facilities.

Brea Bl. & Imperial Hwy. (SR-90) had a total of 33 reported collisions in a 5-year period. The common collisions include sideswipe, rear-end, broadside, and hit-object collisions. Sideswipe collisions are commonly caused by drivers failing to properly merge into adjacent lanes. Rear-end collisions are commonly caused by speeding, failure to maintain acceptable stopping distance, or impaired/distracted driving. Broadside collisions are commonly caused by failure to yield, failure to stop, or impaired/distracted driving. The 5-year average rate for this intersection is calculated as followed:

(33 collisions / 5 years) / (365 days/year x (164,200 ADT / 2) / 1,000,000 MV) **= 0.22 total crashes per MV**

The intersection of Brea Bl. & Imperial Hwy. (SR-90) has a lower crash rate than the state average for similar facilities.

Orange Av. & Birch St. had a total of 2 reported collisions in a 5-year period. The common collisions include sideswipe and broadside collisions. The 5-year average rate for this intersection is calculated as followed:

(2 collisions / 5 years) / (365 days/year x (56,500 ADT / 2) / 1,000,000 MV) **= 0.06 total crashes per MV**

The intersection of Orange Av. & Birch St. has a lower crash rate than the state average for similar facilities.

Orange Av. & Imperial Hwy. (SR-90) had a total of 2 reported collisions in a 5-year period. The common collisions include rear-end and broadside collisions. The 5-year average rate for this intersection is calculated as followed:

(2 collisions / 5 years) / (365 days/year x (101,400 ADT / 2) / 1,000,000 MV) **= 0.03 total crashes per MV**

The intersection of Orange Av. & Imperial Hwy. (SR-90) has a lower crash rate than the state average for similar facilities.

Flower Av. & Birch St. had a total of 6 reported collisions in a 5-year period. The common collisions include head-on and broadside collisions. These collisions are commonly caused by

failure to yield, failure to stop, or impaired/distracted driving. The 5-year average rate for this intersection is calculated as followed:

(6 collisions / 5 years) / (365 days/year x (59,400 ADT / 2) / 1,000,000 MV) **= 0.11 total crashes per MV**

The intersection of Flower Av. & Birch St. has a lower crash rate than the state average for similar facilities.

Flower Av. & Imperial Hwy. (SR-90) had a total of 11 reported collisions in a 5-year period. The common collisions include rear-end collisions. These collisions are commonly caused by speeding, failure to maintain acceptable stopping distance, or impaired/distracted driving. The 5-year average rate for this intersection is calculated as followed:

(11 collisions / 5 years) / (365 days/year x (102,350 ADT / 2) / 1,000,000 MV) **= 0.12 total crashes per MV**

The intersection of Flower Av. & Imperial Hwy. (SR-90) has a lower crash rate than the state average for similar facilities.

The existing crash rates for the study area intersections are lower than the statewide average crash rates as determined by the 2020 Crash Report. It should be noted that a large majority of the reported collisions occurred outside the typical AM and PM peak hours. It is not anticipated that the addition of the proposed Project will result in a significant change in collisions due to the number of trips generated or vehicle type. The peak generating hours of the proposed Project differ than the peak generating hours of the adjacent elementary school. As such, the proposed Project is not anticipated to impact school operations.

BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the City of Brea has several existing and planned bicycle routes. The only existing bike lanes in the study area are along Brea Boulevard, north of Birch Street. Brea Boulevard is currently striped with Class II (on-street, striped) bike lanes. Based on the City's Active Transportation Plan (ATP), Birch Street and Brea Boulevard, south of Birch Street, are proposed to have bikeway improvements. The ATP indicates that a road diet along Birch Street, if considered, could accommodate a cycle track/shared use path which could be provided to serve as a buffer between cars and pedestrians. For Brea Boulevard, buffered bike lanes or a cycle track can be considered south of Birch Street with the loss of on-street parking.

Pedestrian facilities and good connectivity currently exist along the Project frontage. There are existing two-way pedestrian ramps and crosswalks along Orange Avenue, Flower Avenue, Birch Street, and Imperial Highway. Pedestrians will utilize the existing crosswalks along Imperial Highway and Birch Street to cross Orange Avenue and Flower Avenue. There are no existing or proposed mid-block crosswalks at Orange Avenue or Flower Avenue. The Project driveways shall comply with ADA standards and City of Brea standards prior to occupancy. Existing count data indicates that there is light pedestrian and bicyclist activity in the study area with exception of the Laurel Elementary School admission/dismissal times. During school admission and dismissal

times, school crossing guards facilitate pedestrian movements at the intersections of Flower Avenue & Birch Street and Flower Avenue & Imperial Highway. It is not anticipated that the addition of the proposed Project will significantly increase pedestrian and bicyclist activity.

Based on existing pedestrian activity and existing pedestrian facilities, it is anticipated that pedestrians destined to or from the proposed Project will use existing sidewalks and crosswalks. It is not recommended that any midblock crosswalks or other traffic controls be installed since the existing facilities are sufficient. Per California Vehicle Code 21200, cyclists are considered vehicles and have the same responsibilities as motor vehicle drivers. It is not anticipated that the proposed Project will increase bike hazards since the roadways are designed to state and City standards. Despite observing the occasional midblock crossing during field visits to the site, most pedestrians use the existing sidewalks and crosswalks in a safe and prudent manner and thus it is anticipated that patrons of the new development will do so as well.

ON-SITE VEHICLE CIRCULATION

Attachment C identifies the on-site circulation for the site based on the plans prepared by Kimley-Horn and Associates, Inc. The exhibits identify various vehicle paths (front-loading garbage trucks, fire trucks, WB-40 trucks, etc.) for all applicable internal drive aisles, which allow for two-way traffic. Access to and from the site will be accommodated via modified driveways on Orange Avenue and Flower Avenue. As shown in Attachment C, the vehicle turning templates show acceptable turning movements for the various vehicles and trucks anticipated to access the site.

SITE ACCESS

The roadway classifications and planned (ultimate) roadway cross-sections of the site adjacent roadways within the study area, as identified on City of Brea General Plan Circulation Element, are described subsequently. Below is a summary of the site adjacent roadways and their General Plan classifications:

- Smart Street (arterial classification with enhanced traffic-carrying capacity): Imperial Highway (SR-90)
- Local Roadway (typically 2 undivided roadways): Orange Avenue and Flower Avenue

The General Plan identifies the primary function of a Local Roadway as a direct access to abutting properties. As such, access to the Project site is more favorable on a Local Roadway rather than the Smart Street classification of Imperial Highway (SR-90). The Smart Street/Arterial classifications are intended to move large volumes of traffic. As shown on Exhibit 1, the driveway access to Orange Avenue and Flower Avenue are consistent with the City of Brea General Plan Circulation Element and provides the most prudent and safest access to the Project site.

ALTERNATIVE 1: EXISTING ROADWAY NETWORK (FLOWER AVENUE FULL ACCESS)

The existing site currently has access to Orange Avenue and Flower Avenue (both access points allow for full turning movements, with no access restrictions). Both access points will be

maintained although it is anticipated the Project will reconstruct the driveways to meet the current City of Brea commercial driveway standards. The Project will maintain stop controls for egress traffic at all driveways on Orange Avenue and Flower Avenue. Access at Orange Avenue and Flower Avenue are proposed to remain the same at Imperial Highway (SR-90).

The Project frontage roadways of Orange Avenue, Imperial Highway (SR-90), and Flower Avenue are currently constructed to their ultimate General Plan roadway classification. As such, frontage improvements will be limited to sidewalk modifications to accommodate site access and landscaping improvements as required by City standards. In addition, the Project will make any improvements to driveways on Orange Avenue and Flower Avenue to meet City standards.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the City of Brea General Plan Circulation Element.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

It is recommended that the engineers for the proposed Project coordinate with City staff to meet City of Brea driveway and sight distance standards for Alternative 1.

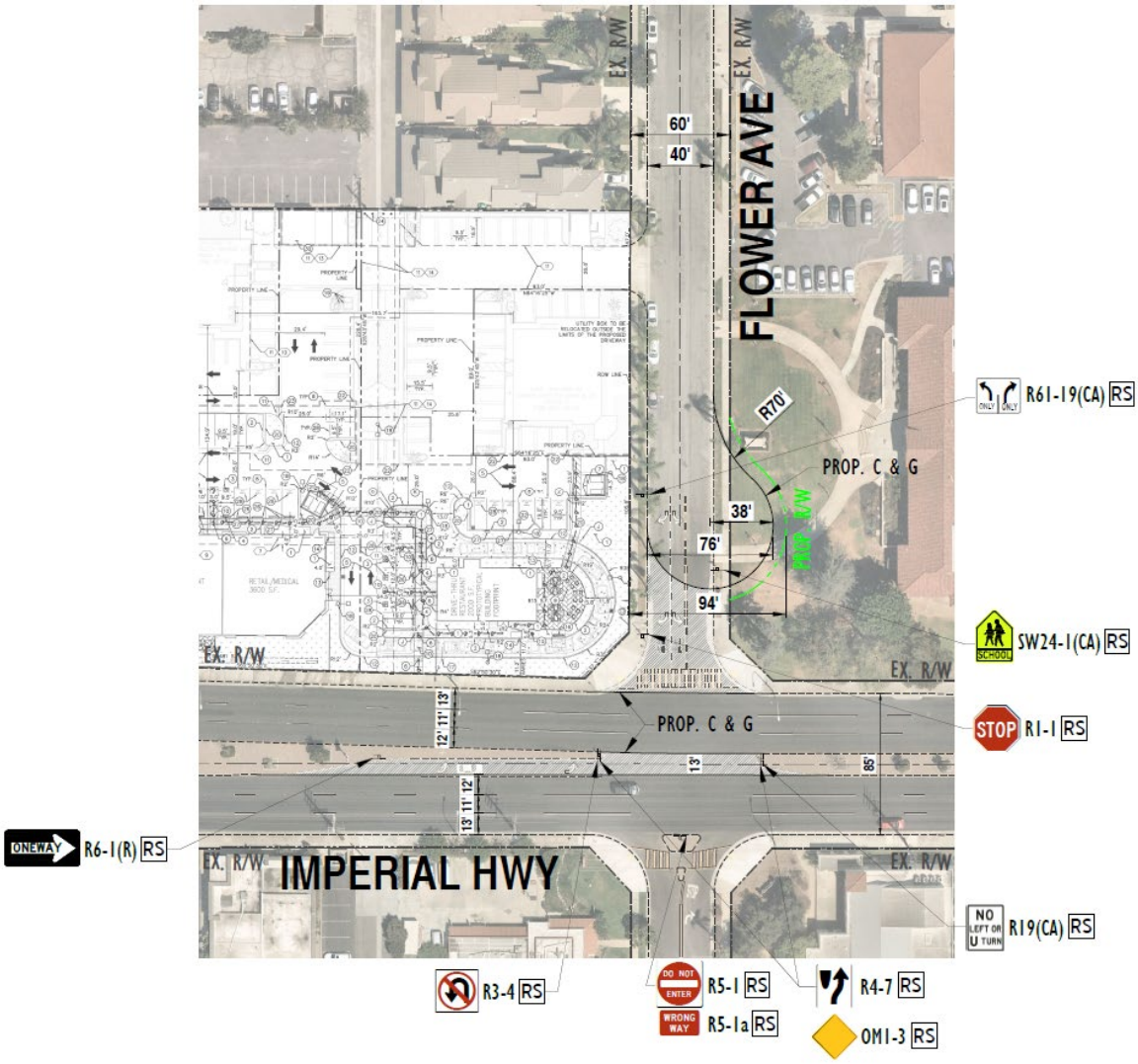
ALTERNATIVE 2: FLOWER AVENUE (NORTH) FULL CLOSURE AT IMPERIAL HIGHWAY (SR-90)

This Safety Evaluation includes an alternative that evaluates the closure of Flower Avenue (North) at Imperial Highway (SR-90). As shown on Exhibit 2, the northern access to Flower Avenue from Imperial Highway (SR-90) will be closed and the terminus of Flower Avenue will become a cul-de-sac. Per the City of Brea Municipal Code Section 18.92.120 Cul-de-sac Streets and Alleys, cul-de-sacs shall conform to the following standards:

A. Cul-de-sacs shall not be more than five hundred (500) feet in length when serving land zoned for industrial or commercial use or six hundred (600) feet in length when serving land zoned for residential use.

B. A cul-de-sac street shall have a turnaround at its terminus with a minimum forty-four (44) foot radius for the right-of-way and a minimum thirty-eight (38) foot radius for the paved area. Alleys should have a minimum twenty-five (25) foot corner radius and a minimum width of twenty (20) feet.

EXHIBIT 2: ALTERNATIVE 2 – FLOWER AVENUE (NORTH) FULL CLOSURE AT IMPERIAL HIGHWAY (SR-90)



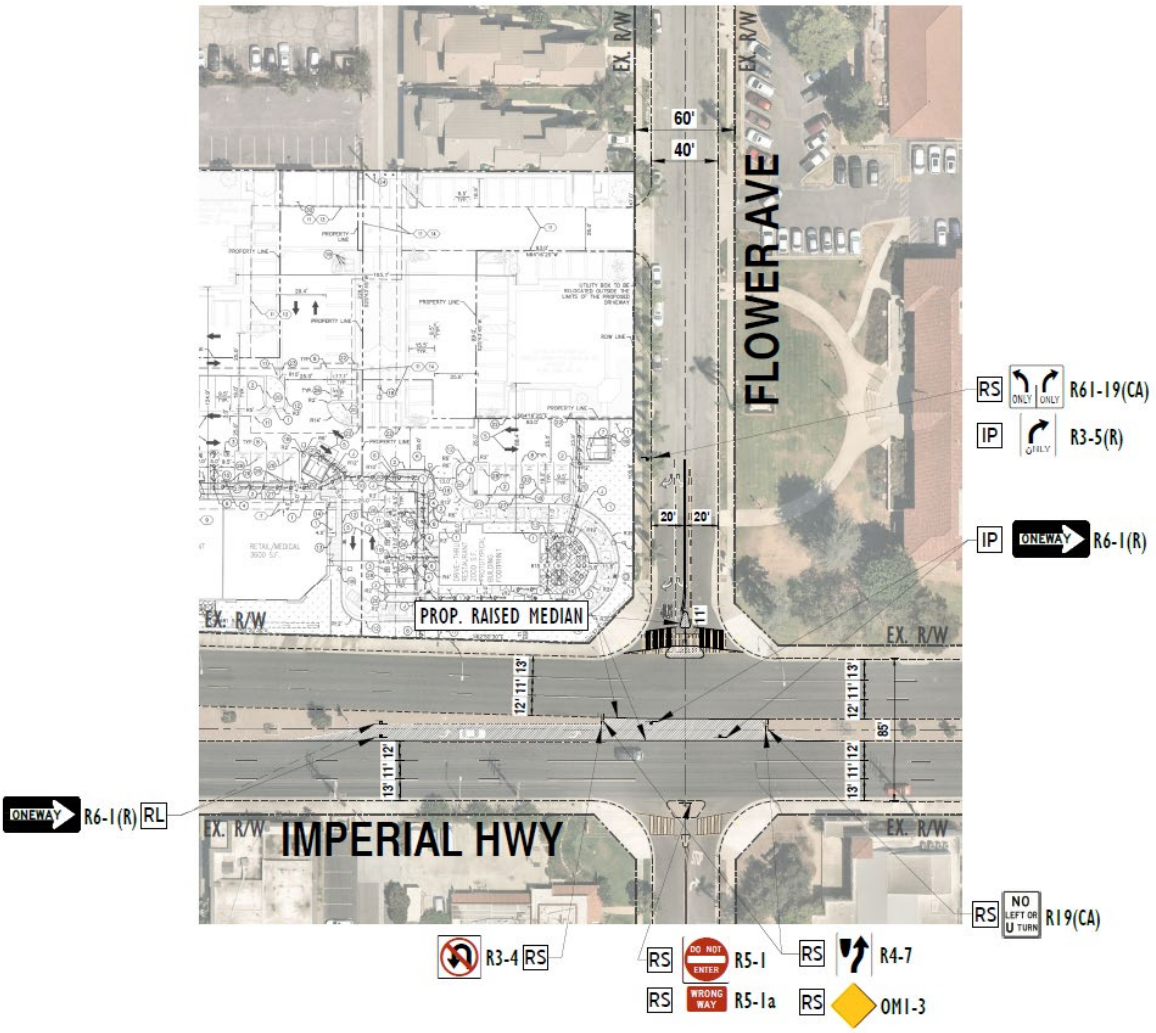
The City of Brea does not currently include specifications for an offset cul-de-sac in the Municipal Code so the offset cul-de-sac specifications from the County of Orange Standard Plan 1113 were utilized for this concept plan. As shown in Exhibit 2, additional right-of-way is required to implement a cul-de-sac at the terminus of Flower Avenue should this alternative be selected. The City of Brea will be required to obtain right-of-way from Laurel Elementary School in order to implement the offset cul-de-sac. The pedestrian pathway to the existing Laurel Elementary School building will also need to be redesigned to ensure applicable ADA standards are met. The median and eastbound left turn lane on Imperial Highway will also be required to be closed as part of this alternative. Vehicles that typically access Flower Avenue from Imperial Highway will be rerouted to other nearby roadways. Brea Boulevard, Orange Avenue, and other nearby local streets to the east will experience an increase in traffic due to the rerouted trips. Cut through traffic will likely increase along Orange Avenue and the Project site. The elimination or turning movements may remove potential collisions. However, the rerouted vehicles could result in additional collisions on Orange Avenue, Birch Street, or the Flower Avenue access on Birch Street.

Additional engineering studies should be completed to determine the viability of this alternative should the City of Brea select this alternative. Reconfiguration of the existing pedestrian facilities along Imperial Highway will be required to ensure applicable ADA standards are met. It is recommended that the engineers for the proposed Project coordinate with City staff to meet applicable CA MUTCD, City of Brea, and ADA standards.

ALTERNATIVE 3: FLOWER AVENUE & IMPERIAL HIGHWAY (SR-90) RIGHT-IN/RIGHT-OUT ONLY ACCESS

This Safety Evaluation also includes an alternative that evaluates the movement restriction of Flower Avenue at Imperial Highway (SR-90). As shown on Exhibit 3, the access to Flower Avenue from Imperial Highway (SR-90) is limited to right-in/right-out only access. The median, eastbound left turn lane on Imperial Highway, and southbound left turn lane on Flower Avenue will also be required to be closed as part of this alternative. Vehicles that typically access Flower Avenue from Imperial Highway will be rerouted to other nearby roadways. Brea Boulevard, Orange Avenue, and other nearby local streets to the east will experience an increase in traffic due to the rerouted trips. Cut through traffic will likely increase along Orange Avenue and the Project site. The elimination or turning movements may remove potential collisions. However, the rerouted vehicles could result in additional collisions on Orange Avenue, Birch Street, or the Flower Avenue access on Birch Street. Additional engineering studies should be completed to determine the viability of this alternative should the City of Brea select this alternative. Reconfiguration of the existing pedestrian facilities along Imperial Highway will be required to ensure applicable ADA standards are met. It is recommended that the engineers for the proposed Project coordinate with City staff to meet applicable CA MUTCD, City of Brea, and ADA standards.

EXHIBIT 3: ALTERNATIVE 3 – FLOWER AVENUE & IMPERIAL HIGHWAY (SR-90) RIGHT-IN/RIGHT-OUT ONLY ACCESS



RECOMMENDATIONS

A review of available collision data indicates that the study area intersections have lower crash rates than the statewide average of intersections with similar configuration and settings. The addition of Project traffic is not anticipated to increase the crash rates by a significant margin.

Pedestrian facilities and good connectivity currently exist along the Project frontage. Based on existing pedestrian activity and existing pedestrian facilities, it is anticipated that pedestrians destined to or from the proposed Project will use existing sidewalks and crosswalks. It is not recommended that any midblock crosswalks or other traffic controls be installed since the existing facilities are sufficient. The addition of the Project is not anticipated to impact existing pedestrian and bicyclist activities of the surrounding uses.

The existing site currently has access to Orange Avenue and Flower Avenue (both access points allow for full turning movements, with no access restrictions). Both access points will be maintained although it is anticipated the Project will reconstruct the driveways to meet the current City of Brea commercial driveway standards. The Project will maintain stop controls for egress traffic at all driveways on Orange Avenue and Flower Avenue.

The Project frontage roadways of Orange Avenue, Imperial Highway (SR-90), and Flower Avenue are currently constructed to their ultimate General Plan roadway classification. As such, frontage improvements will be limited to sidewalk modifications to accommodate site access and landscaping improvements as required by City standards. In addition, the Project will make any improvements to driveways on Orange Avenue and Flower Avenue to meet City standards. Sight distance evaluation and an update to applicable parking signage is recommended.

This Safety Evaluation evaluated three (3) access alternatives for Flower Avenue at Imperial Highway (SR-90). Alternative 1 assumed the access at Flower Avenue & Imperial Highway (SR-90) is to remain the same as existing conditions. Alternative 2 assumes the closure of Flower Avenue (North) & Imperial Highway (SR-90). The terminus of Flower Avenue from Birch Street will be converted into a cul-de-sac. Alternative 3 assumes to access at Flower Avenue (North) & Imperial Highway (SR-90) will be restricted to right-in-right-out only access. These three alternatives will result in different traffic patterns. It is recommended to conduct additional analysis should Alternative 2 or 3 is chosen.

CONCLUSION

The addition of Project-related traffic is not anticipated to cause additional or new safety deficiencies. The existing configuration of the various pedestrian, cyclist, and street facilities provides sufficient connectivity and satisfies CA MUTCD and City of Brea standards. It is recommended that the proposed Project coordinate with City staff to meet applicable CA MUTCD, City of Brea, and ADA standards. On-site traffic signing and striping, and sight distance evaluation should be implemented in conjunction with detailed construction plans for the Project site.

If you have any questions or comments, we can be reached at jalire@urbanxroads.com or at rvu@urbanxroads.com.

Respectfully submitted,

URBAN CROSSROADS, INC.



Jose Alire, P.E.
Senior Traffic Engineer



Robert Vu, P.E.
Transportation Engineer

ATTACHMENT A

SWITRS DATA

CASE_ID	ACCIDENT_YEAR	PROC_DATE	COLLISION_DATE	COLLISION_TIME	PRIMARY_RD	SECONDARY_RD	DISTANCE	DIRECTION	INTERSECTION	WEATHER_1	WEATHER_2	TOW_AWAY	COLLISION_SEVERITY	NUMBER_KILLED	NUMBER_INJURED	PARTY_COUNT	TYPE_OF_COLLISION	COUNT_SEVERE_INJ	COUNT_VISIBLE_INJ	COUNT_COMPLAINT_PAIN	COUNT_PED_KILLED	COUNT_PED_INJURED	COUNT_BICYCLIST_KILLED	COUNT_BICYCLIST_INJURED	COUNT_MC_KILLED	COUNT_MC_INJURED
8143280	2021	20210323	20210225	1050	BREA BL	BIRCH ST	0	Y	A	-	Y		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8358505	2017	20170512	20170415	2307	BREA BL	BIRCH ST	0	Y	A	-	Y		3	0	3	2	D	0	1	2	0	0	0	0	0	0
8389402	2017	20170705	20170609	1716	BREA BL	BIRCH ST	116	S	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8404280	2017	20170713	20170622	1936	BREA BL	BIRCH ST	47	S	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8412764	2017	20170905	20170810	1338	BREA BL	BIRCH ST	0	Y	A	-	N		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8432207	2017	20170828	20170804	944	BREA BL	BIRCH ST	0	Y	A	-	N		0	0	0	2	B	0	0	0	0	0	0	0	0	0
8883904	2019	20191022	20190613	1122	BREA BL	BIRCH ST	0	Y	B	-	Y		4	0	1	2	D	0	0	1	0	0	0	0	0	0
9117739	2020	20200914	20200619	1320	BREA BL	BIRCH ST	0	Y	A	-	Y		3	0	1	2	D	0	1	0	0	0	0	0	0	0
9154904	2020	20201113	20200901	702	BREA BL	BIRCH ST	0	Y	A	-	Y		0	0	0	2	A	0	0	0	0	0	0	0	0	0
81888081	2022	20221012	20220820	13	BIRCH ST	BREA BL	0	Y	-	-	Y		0	0	0	1	E	0	0	0	0	0	0	0	0	0
8412760	2017	20170905	20170811	1251	BIRCH ST	BREA BL	15	E	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8609183	2018	20180530	20180416	1508	BIRCH ST	BREA BL	0	Y	A	-	N		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8742473	2018	20181127	20181104	925	BIRCH ST	BREA BL	0	Y	A	-	Y		4	0	1	2	D	0	0	1	0	0	0	0	0	0
8953597	2019	20191017	20190907	2013	BIRCH ST	BREA BL	50	E	N	A	-		4	0	1	2	C	0	0	1	0	0	0	0	0	0
8167656	2019	20200128	20190829	857	BREA BL	IMPERIAL HWY	98	N	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8315631	2017	20170629	20170125	1830	BREA BL	IMPERIAL HWY	150	N	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8342692	2017	20170627	20170317	1303	BREA BL	IMPERIAL HWY	0	Y	A	-	N		0	0	0	2	B	0	0	0	0	0	0	0	0	0
8352475	2017	20180324	20170421	2046	BREA BL	IMPERIAL HWY	0	Y	A	-	N		4	0	1	2	G	0	0	1	0	0	0	0	0	0
8448704	2017	20180614	20170823	2355	BREA BL	IMPERIAL HWY	0	Y	A	-	Y		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8492223	2017	20180628	20171027	1714	BREA BL	IMPERIAL HWY	0	Y	A	-	N		0	0	0	2	B	0	0	0	0	0	0	0	0	0
8554026	2018	20180809	20180201	1934	BREA BL	IMPERIAL HWY	200	N	N	A	-	Y	4	0	1	2	C	0	0	1	0	0	0	0	0	0
8666927	2018	20180816	20180630	2220	BREA BL	IMPERIAL HWY	0	Y	A	-	Y		3	0	2	2	D	0	2	0	0	0	0	0	0	0
8676444	2018	20181018	20180727	1600	BREA BL	IMPERIAL HWY	391	N	N	A	-	N	4	0	1	2	D	0	0	1	0	0	0	1	0	0
8953124	2019	20191017	20190906	1219	BREA BL	IMPERIAL HWY	0	Y	A	-	N		0	0	0	2	C	0	0	0	0	0	0	0	0	0
81445789	2021	20210408	20210319	1354	BREA BL	IMPERIAL HY	165	N	N	A	-	Y	3	0	2	1	E	0	1	1	0	0	0	0	0	0
81462928	2021	20210430	20210411	438	BREA BL	IMPERIAL HY	96	N	N	A	-	Y	0	0	0	1	E	0	0	0	0	0	0	0	0	0
81670349	2021	20220104	20211210	2201	BREA BL	IMPERIAL HY	12	N	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
81688030	2021	20220128	20211231	28	BREA BL	IMPERIAL HY	136	N	N	A	-	Y	0	0	0	1	E	0	0	0	0	0	0	0	0	0
81831937	2022	20220803	20220718	2316	BREA BL	IMPERIAL HY	0	Y	A	-	N		0	0	0	2	A	0	0	0	0	0	0	0	0	0
8373798	2017	20180423	20170517	2211	IMPERIAL HWY	BREA BL	20	E	N	A	-	N	0	0	0	1	E	0	0	0	0	0	0	0	0	0
8489590	2017	20180626	20171026	1701	IMPERIAL HWY	BREA BL	0	Y	A	-	N		4	0	1	2	D	0	0	1	0	0	0	0	0	0
8613580	2018	20180823	20180410	1501	IMPERIAL HWY	BREA BL	0	Y	A	-	N		0	0	0	2	B	0	0	0	0	0	0	0	0	0
8733168	2018	20190110	20181016	1633	IMPERIAL HWY	BREA BL	0	Y	A	-	Y		4	0	1	2	B	0	0	1	0	0	0	0	0	0
8733176	2018	20190110	20181025	1611	IMPERIAL HWY	BREA BL	0	Y	A	-	N		3	0	1	2	B	0	1	0	0	0	0	1	0	0
8764056	2018	20190128	20181210	1301	IMPERIAL HWY	BREA BL	57	E	N	A	-	N	0	0	0	2	B	0	0	0	0	0	0	0	0	0
8773698	2018	20190128	20181214	1727	IMPERIAL HWY	BREA BL	0	Y	A	-	Y		0	0	0	2	B	0	0	0	0	0	0	0	0	0
8794722	2019	20190429	20190119	322	IMPERIAL HWY	BREA BL	0	Y	A	-	Y		0	0	0	1	E	0	0	0	0	0	0	0	0	0
8890899	2019	20191211	20190623	909	IMPERIAL HWY	BREA BL	0	Y	A	-	Y		0	0	0	2	B	0	0	0	0	0	0	0	0	0
8896358	2019	20191211	20190701	1250	IMPERIAL HWY	BREA BL	0	Y	A	-	N		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8927317	2019	20200210	20190731	1107	IMPERIAL HWY	BREA BL	0	Y	A	-			3	0	1	2	H	0	1	0	0	0	0	1	0	0
9044562	2020	20201120	20200118	108	IMPERIAL HWY	BREA BL	15	E	N	A	-	Y	0	0	0	1	E	0	0	0	0	0	0	0	0	0
81511699	2021	20210702	20210616	1657	IMPERIAL HY	BREA BL	190	E	N	A	-	Y	4	0	2	3	C	0	0	2	0	0	0	0	0	0
81517606	2021	20210712	20210626	2304	IMPERIAL HY	BREA BL	32	E	N	A	-	Y	4	0	1	2	C	0	0	1	0	0	0	0	0	0
81670262	2021	20220104	20211101	1701	IMPERIAL HY	BREA BL	50	E	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
81756362	2022	20220426	20220326	147	IMPERIAL HY	BREA BL	24	E	N	A	-	Y	0	0	0	1	E	0	0	0	0	0	0	0	0	0
81872991	2022	20220926	20220819	1428	IMPERIAL HY	BREA BL	20	E	N	A	-	N	0	0	0	2	B	0	0	0	0	0	0	0	0	0
81890967	2022	20221017	20220926	2239	IMPERIAL HY	BREA BL	0	Y	A	-	Y		4	0	2	2	D	0	0	2	0	0	0	0	0	0
8667744	2018	20180816	20180629	841	BIRCH	ORANGE	0	Y	A	-	Y		0	0	0	2	D	0	0	0	0	0	0	0	0	0
81597245	2021	20211015	20210922	2500	ORANGE AV	BIRCH ST	200	S	N	A	-	N	0	0	0	2	B	0	0	0	0	0	0	0	0	0
81838690	2022	20220812	20220727	1524	IMPERIAL HY	ORANGE AV	0	Y	A	-	Y		0	0	0	2	C	0	0	0	0	0	0	0	0	0
8772805	2018	20190204	20181222	1314	ORANGE AV	IMPERIAL HWY	72	N	N	A	-	Y	4	0	1	2	D	0	0	1	0	0	0	0	0	0
8288106	2017	20170131	20170113	1555	BIRCH ST	FLOWER AV	115	W	N	B	-	N	0	0	0	2	B	0	0	0	0	0	0	0	0	0
8891121	2019	20190710	20190608	2138	BIRCH ST	FLOWER AV	0	Y	A	-	N		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8979706	2019	20191219	20191021	1343	BIRCH ST	FLOWER AV	0	Y	A	-	Y		0	0	0	3	A	0	0	0	0	0	0	0	0	0
9033028	2020	20200319	20200113	1743	BIRCH ST	FLOWER AV	0	Y	A	-	Y		0	0	0	2	A	0	0	0	0	0	0	0	0	0
81803513	2022	20220627	20220526	1759	FLOWER AV	BIRCH ST	0	Y	A	-	Y		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8387484	2017	20180403	20170628	1638	IMPERIAL HWY	FLOWER AV	25	W	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8451252	2017	20180606	20170919	1606	IMPERIAL HWY	FLOWER AV	0	Y	A	-	N		0	0	0	2	D	0	0	0	0	0	0	0	0	0
8493256	2017	20180709	20171102	1815	IMPERIAL HWY	FLOWER AV	0	Y	A	-	Y		4	0	2	2	D	0	0	2	0	0	0	0	0	0
8503916	2017	20180710	20171204	1407	IMPERIAL HWY	FLOWER AV	17	W	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8787253	2019	20190308	20190105	1909	IMPERIAL HWY	FLOWER AV	0	Y	C	-	N		0	0	0	2	C	0	0	0	0	0	0	0	0	0
8920046	2019	20200918	20190718	1202	IMPERIAL HWY	FLOWER AV	60	W	N	A	-		0	0	0	2	B	0	0	0	0	0	0	0	0	0
9035034	2020	20201016	20200202	2326	IMPERIAL HWY	FLOWER AV	10	W	N	A	-	Y	4	0	1	2	C	0	0	1	0	0	0	0	0	0
9070969	2020	20201016	20200212	749	IMPERIAL HWY	FLOWER AV	246	W	N	A	-	N	0	0	0	5	C	0	0	0	0	0	0	0	0	0
9198318	2020	20210119	20201123	1755	IMPERIAL HWY	FLOWER AV	15	W	N	A	-	Y	4	0	2	2	C	0	0	2	0	0	0	0	0	0
81886013	2022	20221010	20220924	1853	FLOWER AV	IMPERIAL HY	22	N	N	A	-	N	0	0	0	2	C	0	0	0	0	0	0	0	0	0
8287837	2017	20170126	20170115	245	FLOWER AV	IMPERIAL HWY	300	N	N	A	-	Y	0	0	0	3	A	0	0	0	0	0	0	0	0	0

ATTACHMENT B

EXISTING COUNT DATA

Volume Development (Rounded ADTs)

With Flower Connection at Imperial Highway

Brea Bl. & Birch St.

	Northbound	Southbound	Eastbound	Westbound	Total
2022 ADT:	27,000	27,000		18,000	72,000

Brea Bl. & Imperial Hwy. (SR-90)

	Northbound	Southbound	Eastbound	Westbound	Total
2022 ADT:	34,400	25,600	55,250	48,950	164,200

Orange Av. & Birch St.

	Northbound	Southbound	Eastbound	Westbound	Total
2022 ADT:	1,500	650	27,000	27,350	56,500

Orange Av. & Imperial Hwy. (SR-90)

	Northbound	Southbound	Eastbound	Westbound	Total
2022 ADT:	600	1,000	49,000	50,800	101,400

Flower Av. & Birch St.

	Northbound	Southbound	Eastbound	Westbound	Total
2022 ADT:	2,300	1,100	27,250	28,750	59,400

Flower Av. & Imperial Hwy. (SR-90)

	Northbound	Southbound	Eastbound	Westbound	Total
2022 ADT:	150	2,250	50,800	49,150	102,350

2022 Traffic Flow Map

ORANGE COUNTY

California

OCTA

THOUSANDS OF VEHICLES PER DAY

ARTERIAL HIGHWAYS

- Less than 10
- 10 to 20
- 20 to 30
- 30 to 40
- 40 to 50
- More than 50

FREEWAYS

- 100
- 150
- 200
- 250
- 300

VOLUME SCALE: 1" = 300,000 VEHICLES/DAY

COUNT DATES

The roman numeral superscript represents the number of years prior to 2022 that the count was taken. Asterisk (*) indicates counts 10 years or older.

- 2022 count
- 2021 count
- 2020 count
- 2019 count
- 2018 count
- 2017 count
- 2016 count
- 2015 count
- 2014 count
- 2013 count

This map has been compiled by the Orange County Transportation Authority from input provided by local jurisdictions for arterials and Caltrans for freeways.
Caltrans freeway volumes have been adjusted to reflect a 5-day (weekday) volume count. Freeway volumes include HOV and Toll Lane counts. Questions regarding the volumes should be submitted to the responsible jurisdiction for arterials and Caltrans for freeways.
Note: Freeway volumes are from 2020.

Map Published September 2022

0 1 2 4
Miles

Source: Caltrans, County of Orange and Orange County cities

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Brea
Flower Avenue
N/ Imperial Highway
24 Hour Directional Classification Count

BRE002
Site Code: 051-221110

Northbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/22	0	14	0	0	0	0	0	0	0	0	0	0	0	14
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
05:00	0	17	1	0	2	0	0	0	0	0	0	0	0	20
06:00	0	29	6	0	0	0	0	0	0	0	0	0	0	35
07:00	0	**162**	**12**	0	0	0	**2**	0	0	0	0	0	0	**176**
08:00	0	67	4	0	0	0	0	0	0	0	0	0	0	71
09:00	0	30	7	0	**4**	0	0	0	0	0	0	0	0	41
10:00	0	54	8	0	1	0	0	0	0	0	0	0	0	63
11:00	0	41	10	**1**	0	0	1	**1**	0	0	0	0	0	54
12 PM	0	40	6	0	0	**1**	0	0	0	0	0	0	0	47
13:00	0	70	8	**1**	1	0	0	0	0	0	0	0	0	80
14:00	0	**86**	**11**	0	0	0	0	0	0	0	0	0	0	**97**
15:00	**1**	54	7	0	0	0	0	0	0	0	0	0	0	62
16:00	0	63	8	0	**2**	0	0	0	0	0	0	0	0	73
17:00	0	61	5	0	0	0	0	0	0	0	0	0	0	66
18:00	0	78	3	0	0	0	0	0	0	0	0	0	0	81
19:00	0	59	5	0	0	0	0	0	0	0	0	0	0	64
20:00	0	37	2	0	0	0	0	0	0	0	0	0	0	39
21:00	0	36	1	0	0	0	0	0	0	0	0	0	0	37
22:00	0	28	0	0	0	0	0	0	0	0	0	0	0	28
23:00	0	14	0	0	0	0	0	0	0	0	0	0	0	14
Total	1	1054	104	2	10	1	3	1	0	0	0	0	0	1176
Percent	0.1%	89.6%	8.8%	0.2%	0.9%	0.1%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	11:00	09:00		07:00	11:00						07:00
Vol.		162	12	1	4		2	1						176
PM Peak	15:00	14:00	14:00	13:00	16:00	12:00								14:00
Vol.	1	86	11	1	2	1								97
Grand Total	1	1054	104	2	10	1	3	1	0	0	0	0	0	1176
Percent	0.1%	89.6%	8.8%	0.2%	0.9%	0.1%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	

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City of Brea
Flower Avenue
N/ Imperial Highway
24 Hour Directional Classification Count

BRE002
Site Code: 051-221110

Southbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/22	0	9	0	0	0	0	0	0	0	0	0	0	0	9
01:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
04:00	0	6	2	0	2	0	0	0	0	0	0	0	0	10
05:00	0	11	3	0	0	0	0	0	0	0	0	0	0	14
06:00	0	34	4	0	0	0	0	0	0	0	0	0	0	38
07:00	0	67	**11**	0	0	**1**	0	0	0	0	0	0	0	79
08:00	0	**73**	6	0	1	0	0	0	**1**	0	0	0	0	**81**
09:00	0	49	9	0	**6**	0	0	0	0	0	0	0	0	64
10:00	0	51	8	0	1	0	0	**1**	0	0	0	0	0	61
11:00	0	52	10	**1**	1	0	0	0	0	0	0	0	0	64
12 PM	0	49	7	0	0	0	0	0	0	0	0	0	0	56
13:00	0	51	4	0	**3**	0	0	0	0	0	0	0	0	58
14:00	0	64	**9**	0	0	0	0	0	0	0	0	0	0	73
15:00	**1**	63	4	0	1	0	0	0	0	0	0	0	0	69
16:00	0	**78**	8	0	3	0	0	0	0	0	0	0	0	**89**
17:00	0	58	3	0	0	0	0	0	0	0	0	0	0	61
18:00	0	65	3	0	0	0	0	0	0	0	0	0	0	68
19:00	0	45	2	**1**	0	0	0	0	0	0	0	0	0	48
20:00	0	42	4	0	0	0	0	0	0	0	0	0	0	46
21:00	0	42	2	0	0	0	0	0	0	0	0	0	0	44
22:00	0	29	3	0	0	0	0	0	0	0	0	0	0	32
23:00	0	12	0	0	0	0	0	0	0	0	0	0	0	12
Total	1	958	104	2	18	1	0	1	1	0	0	0	0	1086
Percent	0.1%	88.2%	9.6%	0.2%	1.7%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak		08:00	07:00	11:00	09:00	07:00		10:00	08:00					08:00
Vol.		73	11	1	6	1		1	1					81
PM Peak	15:00	16:00	14:00	19:00	13:00									16:00
Vol.	1	78	9	1	3									89
Grand Total	1	958	104	2	18	1	0	1	1	0	0	0	0	1086
Percent	0.1%	88.2%	9.6%	0.2%	1.7%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	

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City of Brea
Flower Avenue
N/ Imperial Highway
24 Hour Directional Classification Count
Northbound, Southbound

BRE002
Site Code: 051-221110

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/22	0	23	0	0	0	0	0	0	0	0	0	0	0	23
01:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
04:00	0	14	2	0	2	0	0	0	0	0	0	0	0	18
05:00	0	28	4	0	2	0	0	0	0	0	0	0	0	34
06:00	0	63	10	0	0	0	0	0	0	0	0	0	0	73
07:00	0	**229**	**23**	0	0	**1**	**2**	0	0	0	0	0	0	**255**
08:00	0	140	10	0	1	0	0	0	**1**	0	0	0	0	152
09:00	0	79	16	0	**10**	0	0	0	0	0	0	0	0	105
10:00	0	105	16	0	2	0	0	**1**	0	0	0	0	0	124
11:00	0	93	20	**2**	1	0	1	1	0	0	0	0	0	118
12 PM	0	89	13	0	0	**1**	0	0	0	0	0	0	0	103
13:00	0	121	12	**1**	4	0	0	0	0	0	0	0	0	138
14:00	0	**150**	**20**	0	0	0	0	0	0	0	0	0	0	**170**
15:00	**2**	117	11	0	1	0	0	0	0	0	0	0	0	131
16:00	0	141	16	0	**5**	0	0	0	0	0	0	0	0	162
17:00	0	119	8	0	0	0	0	0	0	0	0	0	0	127
18:00	0	143	6	0	0	0	0	0	0	0	0	0	0	149
19:00	0	104	7	1	0	0	0	0	0	0	0	0	0	112
20:00	0	79	6	0	0	0	0	0	0	0	0	0	0	85
21:00	0	78	3	0	0	0	0	0	0	0	0	0	0	81
22:00	0	57	3	0	0	0	0	0	0	0	0	0	0	60
23:00	0	26	0	0	0	0	0	0	0	0	0	0	0	26
Total	2	2012	208	4	28	2	3	2	1	0	0	0	0	2262
Percent	0.1%	88.9%	9.2%	0.2%	1.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	11:00	09:00	07:00	07:00	10:00	08:00					07:00
Vol.		229	23	2	10	1	2	1	1					255
PM Peak	15:00	14:00	14:00	13:00	16:00	12:00								14:00
Vol.	2	150	20	1	5	1								170
Grand Total	2	2012	208	4	28	2	3	2	1	0	0	0	0	2262
Percent	0.1%	88.9%	9.2%	0.2%	1.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	

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City of Brea
Imperial Highway
W/ Flower Avenue
24 Hour Directional Classification Count

BRE001
Site Code: 051-221110

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/22	0	201	3	1	5	0	0	1	14	0	0	0	0	225
01:00	2	126	2	0	0	0	0	1	6	0	0	0	0	137
02:00	0	70	6	0	2	0	0	0	20	0	0	**2**	0	100
03:00	0	114	2	0	5	1	0	1	26	0	0	0	0	149
04:00	0	254	19	0	31	0	0	0	32	0	0	0	0	336
05:00	1	422	88	0	57	2	1	0	34	0	0	1	0	606
06:00	2	764	229	2	38	7	3	5	**37**	0	0	0	0	1087
07:00	**3**	1281	198	**3**	36	5	9	2	30	0	0	0	0	1567
08:00	1	**1360**	**251**	3	45	7	6	2	26	0	0	0	0	**1701**
09:00	0	1148	224	2	**95**	6	12	6	28	**1**	**1**	0	**1**	1524
10:00	0	1215	248	2	54	**9**	**15**	**7**	23	1	1	0	0	1575
11:00	3	1234	212	3	37	3	7	4	25	0	0	1	0	1529
12 PM	**6**	1286	224	4	**45**	**6**	**11**	**9**	**33**	0	1	0	**1**	1626
13:00	2	1339	215	4	45	1	6	4	19	0	0	0	0	1635
14:00	0	1371	**244**	2	26	4	3	7	18	0	**2**	0	0	1677
15:00	3	1375	228	**6**	25	4	1	1	16	0	1	0	0	1660
16:00	6	1426	209	3	10	6	0	1	17	0	0	0	0	**1678**
17:00	1	**1514**	84	3	13	0	0	0	20	0	0	0	0	1635
18:00	3	1273	44	1	10	0	1	0	4	0	1	0	0	1337
19:00	0	956	34	1	5	1	0	0	10	0	0	0	0	1007
20:00	0	838	24	0	6	0	0	0	9	0	1	0	0	878
21:00	1	666	34	1	4	0	0	1	6	0	2	0	0	715
22:00	1	548	9	1	2	0	0	0	21	0	0	0	0	582
23:00	0	292	6	1	3	0	0	0	5	0	0	0	0	307
Total	35	21073	2837	43	599	62	75	52	479	2	10	4	2	25273
Percent	0.1%	83.4%	11.2%	0.2%	2.4%	0.2%	0.3%	0.2%	1.9%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	08:00	07:00	09:00	10:00	10:00	10:00	06:00	09:00	09:00	02:00	09:00	08:00
Vol.	3	1360	251	3	95	9	15	7	37	1	1	2	1	1701
PM Peak	12:00	17:00	14:00	15:00	12:00	12:00	12:00	12:00	12:00		14:00		12:00	16:00
Vol.	6	1514	244	6	45	6	11	9	33		2		1	1678
Grand Total	35	21073	2837	43	599	62	75	52	479	2	10	4	2	25273
Percent	0.1%	83.4%	11.2%	0.2%	2.4%	0.2%	0.3%	0.2%	1.9%	0.0%	0.0%	0.0%	0.0%	

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BRE001
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Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/22	0	187	8	0	4	5	0	0	7	0	0	0	0	211
01:00	1	96	5	0	5	2	0	0	7	0	0	0	0	116
02:00	0	75	2	0	7	5	2	0	29	**3**	0	0	0	123
03:00	0	170	6	1	5	1	4	0	21	1	0	0	0	209
04:00	2	250	19	**4**	6	2	0	0	36	0	0	0	0	319
05:00	0	405	54	2	12	**7**	4	2	**47**	2	0	0	0	535
06:00	4	643	167	4	28	5	4	8	28	0	0	0	0	891
07:00	4	1139	**218**	4	28	3	2	5	41	0	0	0	**1**	1445
08:00	1	**1223**	213	0	34	6	2	**11**	30	0	**1**	0	0	**1521**
09:00	2	1051	217	2	58	5	**15**	5	31	1	0	0	0	1387
10:00	0	951	195	2	48	3	3	9	30	0	0	**2**	0	1243
11:00	**5**	1127	205	1	**61**	4	10	7	22	0	0	0	1	1443
12 PM	2	1279	196	1	**62**	**7**	**11**	11	22	**1**	**2**	0	0	1594
13:00	4	1266	212	1	53	7	6	6	22	1	1	**1**	0	1580
14:00	**7**	1460	**254**	1	55	4	9	**12**	22	0	0	0	**1**	1825
15:00	2	1349	230	**4**	35	2	2	10	**31**	0	0	0	0	1665
16:00	5	1503	221	2	22	0	0	9	16	0	1	0	0	1779
17:00	1	**1602**	223	1	19	0	0	5	8	0	0	0	0	**1859**
18:00	4	1511	154	2	22	0	1	5	9	0	0	0	0	1708
19:00	5	1246	125	2	16	0	0	2	19	0	1	0	0	1416
20:00	1	914	87	0	7	4	0	2	8	0	0	0	0	1023
21:00	1	728	44	0	3	1	0	4	10	0	2	1	0	794
22:00	0	465	40	1	5	0	0	2	10	0	0	0	0	523
23:00	0	264	25	1	5	0	0	0	19	0	0	1	0	315
Total	51	20904	3120	36	600	73	75	115	525	9	8	5	3	25524
Percent	0.2%	81.9%	12.2%	0.1%	2.4%	0.3%	0.3%	0.5%	2.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	08:00	07:00	04:00	11:00	05:00	09:00	08:00	05:00	02:00	08:00	10:00	07:00	08:00
Vol.	5	1223	218	4	61	7	15	11	47	3	1	2	1	1521
PM Peak	14:00	17:00	14:00	15:00	12:00	12:00	12:00	14:00	15:00	12:00	12:00	13:00	14:00	17:00
Vol.	7	1602	254	4	62	7	11	12	31	1	2	1	1	1859
Grand Total	51	20904	3120	36	600	73	75	115	525	9	8	5	3	25524
Percent	0.2%	81.9%	12.2%	0.1%	2.4%	0.3%	0.3%	0.5%	2.1%	0.0%	0.0%	0.0%	0.0%	

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12/08/22	0	388	11	1	9	5	0	1	21	0	0	0	0	436
01:00	3	222	7	0	5	2	0	1	13	0	0	0	0	253
02:00	0	145	8	0	9	5	2	0	49	**3**	0	**2**	0	223
03:00	0	284	8	1	10	2	4	1	47	1	0	0	0	358
04:00	2	504	38	4	37	2	0	0	68	0	0	0	0	655
05:00	1	827	142	2	69	9	5	2	**81**	2	0	1	0	1141
06:00	6	1407	396	6	66	12	7	13	65	0	0	0	0	1978
07:00	7	2420	416	**7**	64	8	11	7	71	0	0	0	**1**	3012
08:00	2	**2583**	**464**	3	79	**13**	8	13	56	0	**1**	0	0	**3222**
09:00	2	2199	441	4	**153**	11	**27**	11	59	2	1	0	1	2911
10:00	0	2166	443	4	102	12	18	**16**	53	1	1	2	0	2818
11:00	**8**	2361	417	4	98	7	17	11	47	0	0	1	1	2972
12 PM	8	2565	420	5	**107**	**13**	**22**	**20**	**55**	**1**	3	0	**1**	3220
13:00	6	2605	427	5	98	8	12	10	41	1	1	**1**	0	3215
14:00	7	2831	**498**	3	81	8	12	19	40	0	2	0	1	**3502**
15:00	5	2724	458	**10**	60	6	3	11	47	0	1	0	0	3325
16:00	**11**	2929	430	5	32	6	0	10	33	0	1	0	0	3457
17:00	2	**3116**	307	4	32	0	0	5	28	0	0	0	0	3494
18:00	7	2784	198	3	32	0	2	5	13	0	1	0	0	3045
19:00	5	2202	159	3	21	1	0	2	29	0	1	0	0	2423
20:00	1	1752	111	0	13	4	0	2	17	0	1	0	0	1901
21:00	2	1394	78	1	7	1	0	5	16	0	**4**	1	0	1509
22:00	1	1013	49	2	7	0	0	2	31	0	0	0	0	1105
23:00	0	556	31	2	8	0	0	0	24	0	0	1	0	622
Total	86	41977	5957	79	1199	135	150	167	1004	11	18	9	5	50797
Percent	0.2%	82.6%	11.7%	0.2%	2.4%	0.3%	0.3%	0.3%	2.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	08:00	08:00	07:00	09:00	08:00	09:00	10:00	05:00	02:00	08:00	02:00	07:00	08:00
Vol.	8	2583	464	7	153	13	27	16	81	3	1	2	1	3222
PM Peak	16:00	17:00	14:00	15:00	12:00	12:00	12:00	12:00	12:00	12:00	21:00	13:00	12:00	14:00
Vol.	11	3116	498	10	107	13	22	20	55	1	4	1	1	3502
Grand Total	86	41977	5957	79	1199	135	150	167	1004	11	18	9	5	50797
Percent	0.2%	82.6%	11.7%	0.2%	2.4%	0.3%	0.3%	0.3%	2.0%	0.0%	0.0%	0.0%	0.0%	

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

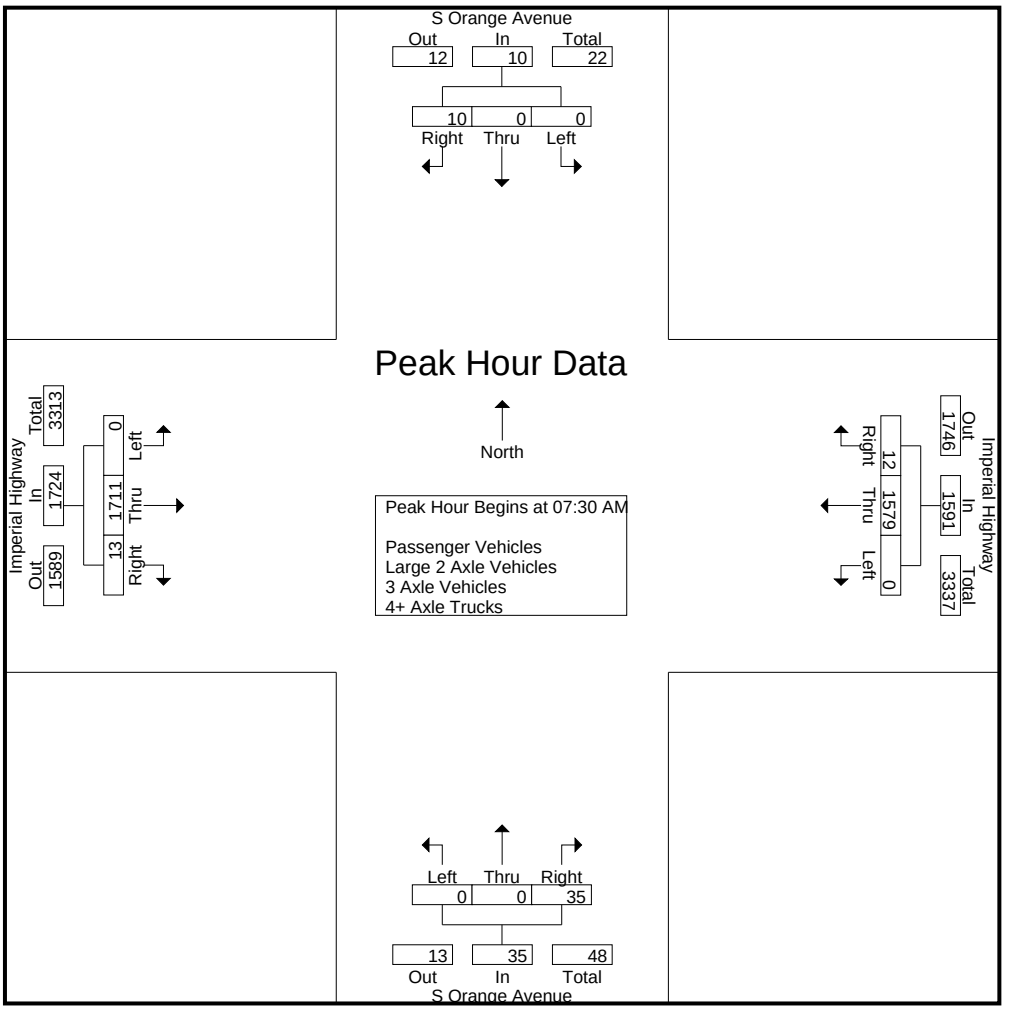
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	292	1	293	0	0	6	6	0	347	1	348	647
07:15 AM	0	0	5	5	0	332	1	333	0	0	8	8	0	430	0	430	776
07:30 AM	0	0	3	3	0	365	3	368	0	0	6	6	0	435	3	438	815
07:45 AM	0	0	5	5	0	446	3	449	0	0	12	12	0	399	5	404	870
Total	0	0	13	13	0	1435	8	1443	0	0	32	32	0	1611	9	1620	3108
08:00 AM	0	0	1	1	0	420	4	424	0	0	11	11	0	429	4	433	869
08:15 AM	0	0	1	1	0	348	2	350	0	0	6	6	0	448	1	449	806
08:30 AM	0	0	1	1	0	375	2	377	0	0	5	5	0	354	1	355	738
08:45 AM	0	0	4	4	0	332	3	335	0	0	4	4	0	403	0	403	746
Total	0	0	7	7	0	1475	11	1486	0	0	26	26	0	1634	6	1640	3159
Grand Total	0	0	20	20	0	2910	19	2929	0	0	58	58	0	3245	15	3260	6267
Apprch %	0	0	100		0	99.4	0.6		0	0	100		0	99.5	0.5		
Total %	0	0	0.3	0.3	0	46.4	0.3	46.7	0	0	0.9	0.9	0	51.8	0.2	52	
Passenger Vehicles	0	0	20	20	0	2750	17	2767	0	0	57	57	0	3077	14	3091	5935
% Passenger Vehicles	0	0	100	100	0	94.5	89.5	94.5	0	0	98.3	98.3	0	94.8	93.3	94.8	94.7
Large 2 Axle Vehicles	0	0	0	0	0	70	1	71	0	0	1	1	0	84	1	85	157
% Large 2 Axle Vehicles	0	0	0	0	0	2.4	5.3	2.4	0	0	1.7	1.7	0	2.6	6.7	2.6	2.5
3 Axle Vehicles	0	0	0	0	0	14	1	15	0	0	0	0	0	32	0	32	47
% 3 Axle Vehicles	0	0	0	0	0	0.5	5.3	0.5	0	0	0	0	0	1	0	1	0.7
4+ Axle Trucks	0	0	0	0	0	76	0	76	0	0	0	0	0	52	0	52	128
% 4+ Axle Trucks	0	0	0	0	0	2.6	0	2.6	0	0	0	0	0	1.6	0	1.6	2

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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	0	0	3	3	0	365	3	368	0	0	6	6	0	435	3	438	815
07:45 AM	0	0	**5**	**5**	0	**446**	3	**449**	0	0	**12**	**12**	0	399	**5**	404	**870**
08:00 AM	0	0	1	1	0	420	**4**	424	0	0	11	11	0	429	4	433	869
08:15 AM	0	0	1	1	0	348	2	350	0	0	6	6	0	**448**	1	**449**	806
Total Volume	0	0	10	10	0	1579	12	1591	0	0	35	35	0	1711	13	1724	3360
% App. Total	0	0	100		0	99.2	0.8		0	0	100		0	99.2	0.8		
PHF	.000	.000	.500	.500	.000	.885	.750	.886	.000	.000	.729	.729	.000	.955	.650	.960	.966

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:45 AM				07:15 AM				07:30 AM			
+0 mins.	0	0	**5**	**5**	0	**446**	3	**449**	0	0	8	8	0	435	3	438
+15 mins.	0	0	3	3	0	420	**4**	424	0	0	6	6	0	399	**5**	404
+30 mins.	0	0	5	5	0	348	2	350	0	0	**12**	**12**	0	429	4	433
+45 mins.	0	0	1	1	0	375	2	377	0	0	11	11	0	**448**	1	**449**
Total Volume	0	0	14	14	0	1589	11	1600	0	0	37	37	0	1711	13	1724
% App. Total	0	0	100		0	99.3	0.7		0	0	100		0	99.2	0.8	
PHF	.000	.000	.700	.700	.000	.891	.688	.891	.000	.000	.771	.771	.000	.955	.650	.960

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles

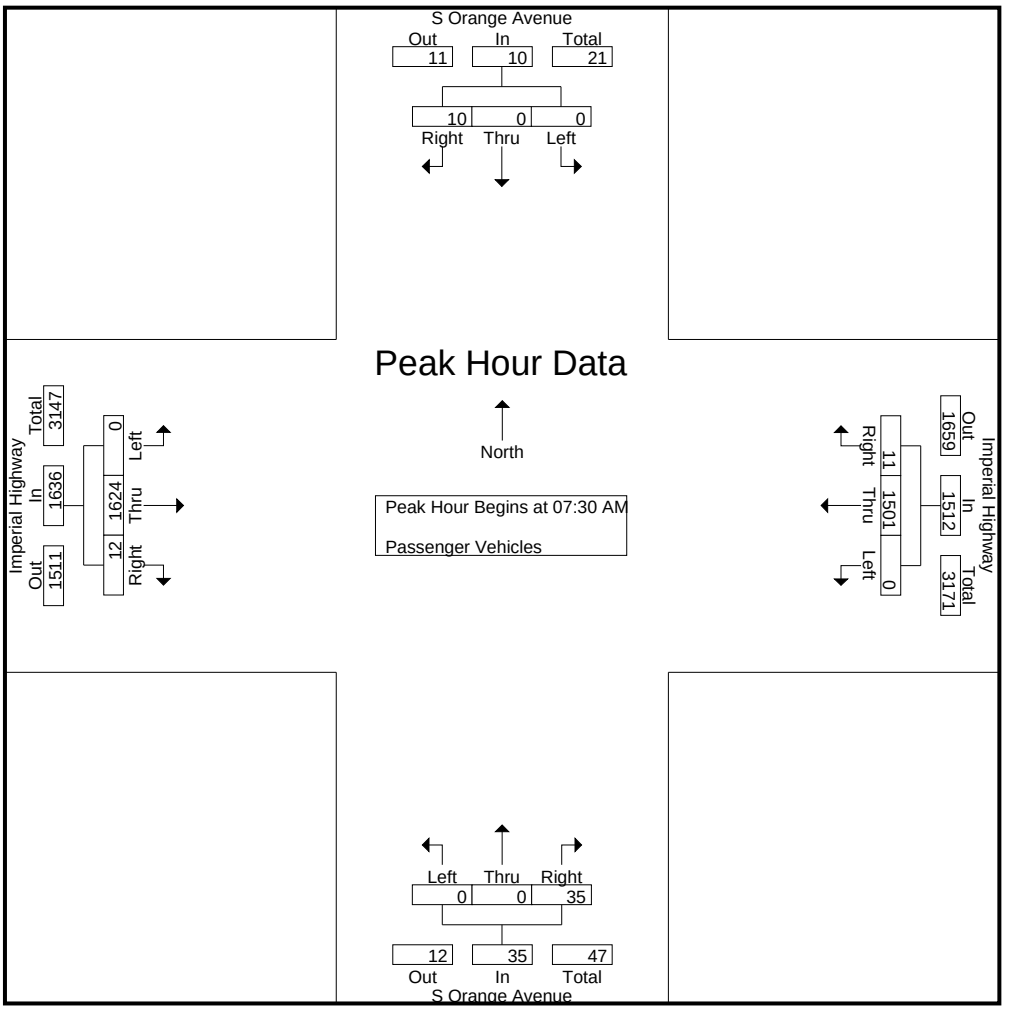
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	272	1	273	0	0	6	6	0	332	1	333	612
07:15 AM	0	0	5	5	0	308	1	309	0	0	8	8	0	408	0	408	730
07:30 AM	0	0	3	3	0	345	3	348	0	0	6	6	0	409	2	411	768
07:45 AM	0	0	5	5	0	428	2	430	0	0	12	12	0	376	5	381	828
Total	0	0	13	13	0	1353	7	1360	0	0	32	32	0	1525	8	1533	2938
08:00 AM	0	0	1	1	0	402	4	406	0	0	11	11	0	406	4	410	828
08:15 AM	0	0	1	1	0	326	2	328	0	0	6	6	0	433	1	434	769
08:30 AM	0	0	1	1	0	361	1	362	0	0	4	4	0	332	1	333	700
08:45 AM	0	0	4	4	0	308	3	311	0	0	4	4	0	381	0	381	700
Total	0	0	7	7	0	1397	10	1407	0	0	25	25	0	1552	6	1558	2997
Grand Total	0	0	20	20	0	2750	17	2767	0	0	57	57	0	3077	14	3091	5935
Apprch %	0	0	100		0	99.4	0.6		0	0	100		0	99.5	0.5		
Total %	0	0	0.3	0.3	0	46.3	0.3	46.6	0	0	1	1	0	51.8	0.2	52.1	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	3	3	0	345	3	348	0	0	6	6	0	409	2	411	768
07:45 AM	0	0	**5**	**5**	0	**428**	2	**430**	0	0	**12**	**12**	0	376	**5**	381	**828**
08:00 AM	0	0	1	1	0	402	**4**	406	0	0	11	11	0	406	4	410	828
08:15 AM	0	0	1	1	0	326	2	328	0	0	6	6	0	**433**	1	**434**	769
Total Volume	0	0	10	10	0	1501	11	1512	0	0	35	35	0	1624	12	1636	3193
% App. Total	0	0	100		0	99.3	0.7		0	0	100		0	99.3	0.7		
PHF	.000	.000	.500	.500	.000	.877	.688	.879	.000	.000	.729	.729	.000	.938	.600	.942	.964

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	3	3	0	345	3	348	0	0	6	6	0	409	2	411
+15 mins.	0	0	**5**	**5**	0	**428**	2	**430**	0	0	**12**	**12**	0	376	**5**	381
+30 mins.	0	0	1	1	0	402	**4**	406	0	0	11	11	0	406	4	410
+45 mins.	0	0	1	1	0	326	2	328	0	0	6	6	0	**433**	1	**434**
Total Volume	0	0	10	10	0	1501	11	1512	0	0	35	35	0	1624	12	1636
% App. Total	0	0	100		0	99.3	0.7		0	0	100		0	99.3	0.7	
PHF	.000	.000	.500	.500	.000	.877	.688	.879	.000	.000	.729	.729	.000	.938	.600	.942

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

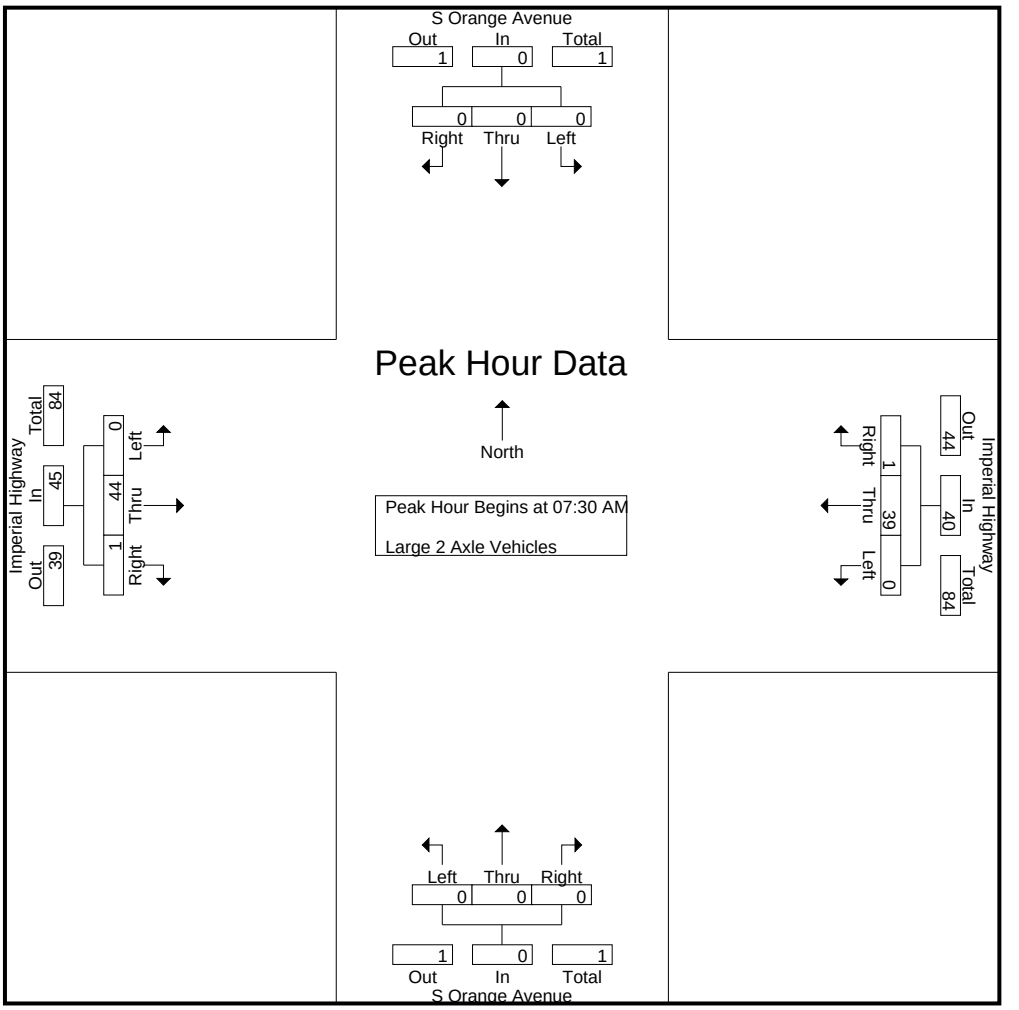
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	7	0	7	14
07:15 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	9	0	9	16
07:30 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	14	1	15	25
07:45 AM	0	0	0	0	0	10	1	11	0	0	0	0	0	12	0	12	23
Total	0	0	0	0	0	34	1	35	0	0	0	0	0	42	1	43	78
08:00 AM	0	0	0	0	0	9	0	9	0	0	0	0	0	11	0	11	20
08:15 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	7	0	7	17
08:30 AM	0	0	0	0	0	4	0	4	0	0	1	1	0	11	0	11	16
08:45 AM	0	0	0	0	0	13	0	13	0	0	0	0	0	13	0	13	26
Total	0	0	0	0	0	36	0	36	0	0	1	1	0	42	0	42	79
Grand Total	0	0	0	0	0	70	1	71	0	0	1	1	0	84	1	85	157
Apprch %	0	0	0		0	98.6	1.4		0	0	100		0	98.8	1.2		
Total %	0	0	0	0	0	44.6	0.6	45.2	0	0	0.6	0.6	0	53.5	0.6	54.1	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	**10**	0	10	0	0	0	0	0	**14**	**1**	**15**	**25**
07:45 AM	0	0	0	0	0	10	**1**	**11**	0	0	0	0	0	12	0	12	23
08:00 AM	0	0	0	0	0	9	0	9	0	0	0	0	0	11	0	11	20
08:15 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	7	0	7	17
Total Volume	0	0	0	0	0	39	1	40	0	0	0	0	0	44	1	45	85
% App. Total	0	0	0		0	97.5	2.5		0	0	0		0	97.8	2.2		
PHF	.000	.000	.000	.000	.000	.975	.250	.909	.000	.000	.000	.000	.000	.786	.250	.750	.850

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	**10**	0	10	0	0	0	0	0	**14**	**1**	**15**
+15 mins.	0	0	0	0	0	10	**1**	**11**	0	0	0	0	0	12	0	12
+30 mins.	0	0	0	0	0	9	0	9	0	0	0	0	0	11	0	11
+45 mins.	0	0	0	0	0	10	0	10	0	0	0	0	0	7	0	7
Total Volume	0	0	0	0	0	39	1	40	0	0	0	0	0	44	1	45
% App. Total	0	0	0		0	97.5	2.5		0	0	0		0	97.8	2.2	
PHF	.000	.000	.000	.000	.000	.975	.250	.909	.000	.000	.000	.000	.000	.786	.250	.750

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

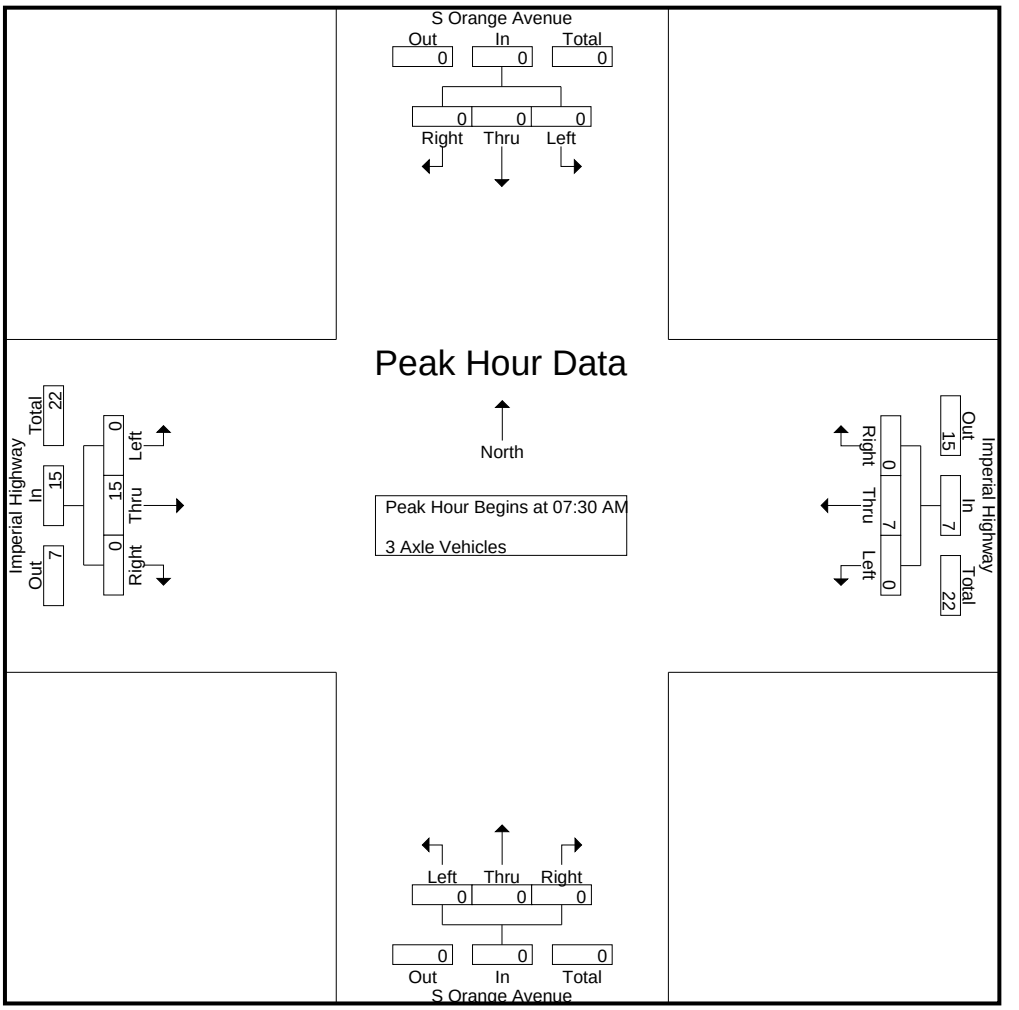
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	4	0	4	6
07:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	6	0	6	8
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
07:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
Total	0	0	0	0	0	7	0	7	0	0	0	0	0	18	0	18	25
08:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
08:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	7
08:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	4	0	4	5
08:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	6
Total	0	0	0	0	0	7	1	8	0	0	0	0	0	14	0	14	22
Grand Total	0	0	0	0	0	14	1	15	0	0	0	0	0	32	0	32	47
Apprch %	0	0	0		0	93.3	6.7		0	0	0		0	100	0		
Total %	0	0	0	0	0	29.8	2.1	31.9	0	0	0	0	0	68.1	0	68.1	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	**5**	0	**5**	6
07:45 AM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	3	0	3	5
08:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
08:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	**7**
Total Volume	0	0	0	0	0	7	0	7	0	0	0	0	0	15	0	15	22
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.875	.000	.875	.000	.000	.000	.000	.000	.750	.000	.750	.786

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City of Brea
N/S: Orange Avenue
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Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**5**	0	**5**
+15 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	3	0	3
+30 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5
Total Volume	0	0	0	0	0	7	0	7	0	0	0	0	0	15	0	15
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.875	.000	.875	.000	.000	.000	.000	.000	.750	.000	.750

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

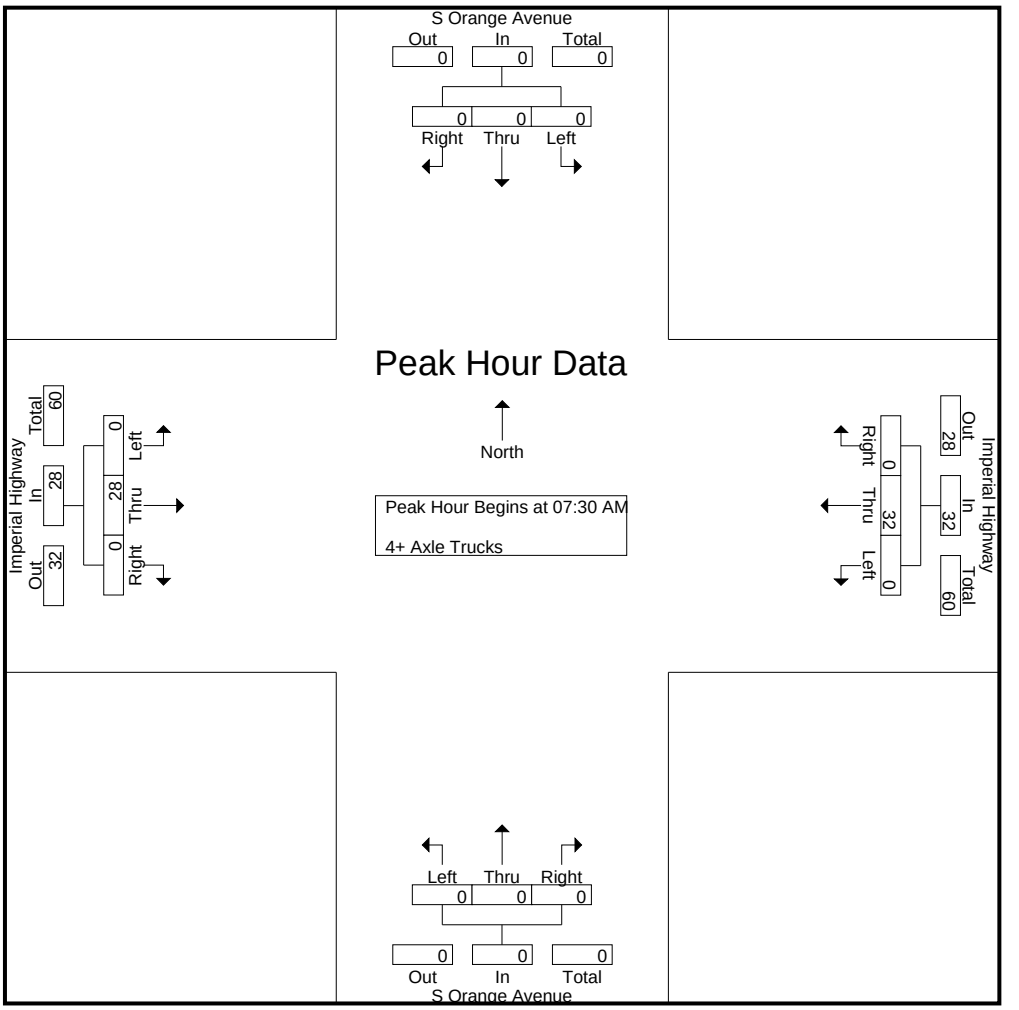
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	11	0	11	0	0	0	0	0	4	0	4	15
07:15 AM	0	0	0	0	0	15	0	15	0	0	0	0	0	7	0	7	22
07:30 AM	0	0	0	0	0	9	0	9	0	0	0	0	0	7	0	7	16
07:45 AM	0	0	0	0	0	6	0	6	0	0	0	0	0	8	0	8	14
Total	0	0	0	0	0	41	0	41	0	0	0	0	0	26	0	26	67
08:00 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	10	0	10	17
08:15 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	3	0	3	13
08:30 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	7	0	7	17
08:45 AM	0	0	0	0	0	8	0	8	0	0	0	0	0	6	0	6	14
Total	0	0	0	0	0	35	0	35	0	0	0	0	0	26	0	26	61
Grand Total	0	0	0	0	0	76	0	76	0	0	0	0	0	52	0	52	128
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	59.4	0	59.4	0	0	0	0	0	40.6	0	40.6	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	9	0	9	0	0	0	0	0	7	0	7	16
07:45 AM	0	0	0	0	0	6	0	6	0	0	0	0	0	8	0	8	14
08:00 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	**10**	0	**10**	**17**
08:15 AM	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	3	0	3	13
Total Volume	0	0	0	0	0	32	0	32	0	0	0	0	0	28	0	28	60
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.800	.000	.800	.000	.000	.000	.000	.000	.700	.000	.700	.882

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City of Brea
N/S: Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp AM
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	9	0	9	0	0	0	0	0	7	0	7
+15 mins.	0	0	0	0	0	6	0	6	0	0	0	0	0	8	0	8
+30 mins.	0	0	0	0	0	7	0	7	0	0	0	0	0	**10**	0	**10**
+45 mins.	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	32	0	32	0	0	0	0	0	28	0	28
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.800	.000	.800	.000	.000	.000	.000	.000	.700	.000	.700

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

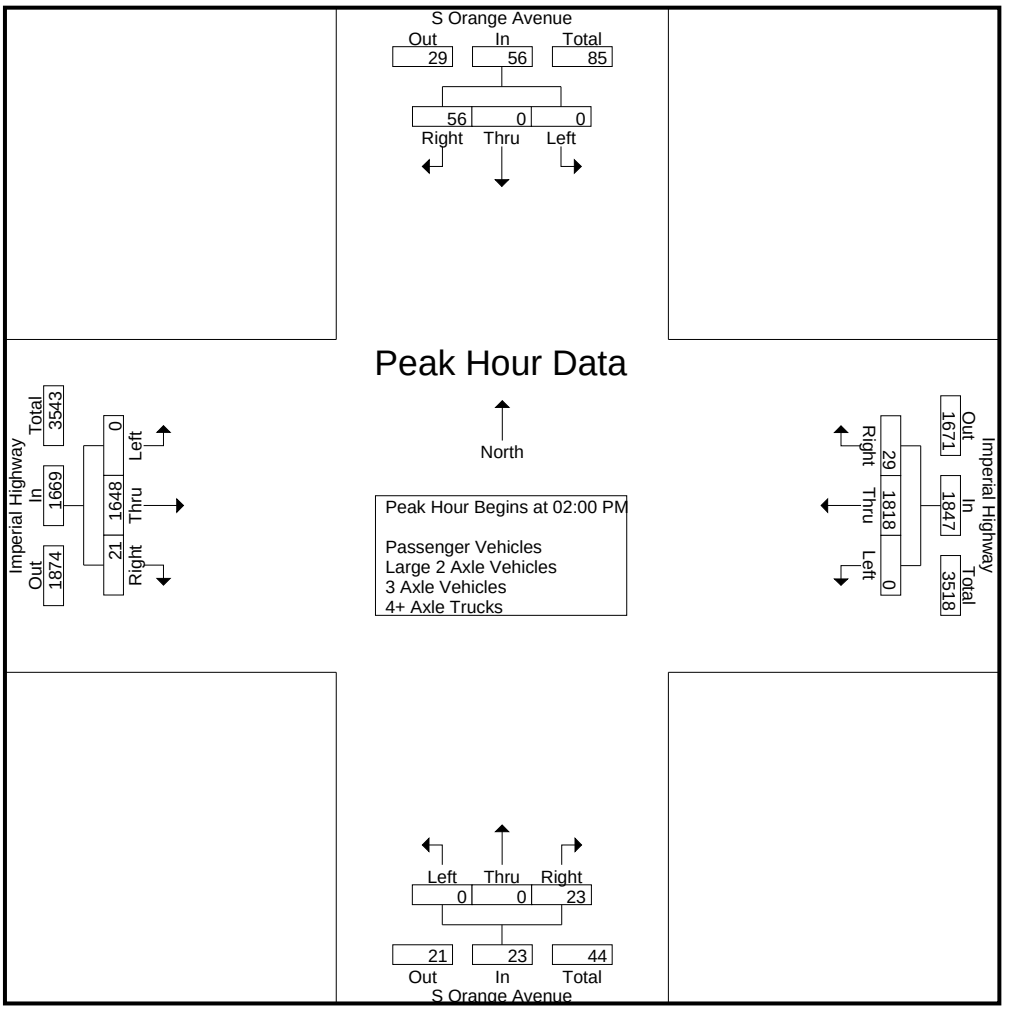
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	10	10	0	398	3	401	0	0	13	13	0	361	2	363	787
01:15 PM	0	0	10	10	0	378	6	384	0	0	0	0	0	406	1	407	801
01:30 PM	0	0	13	13	0	400	3	403	0	0	6	6	0	439	3	442	864
01:45 PM	0	0	7	7	0	377	7	384	0	0	4	4	0	396	4	400	795
Total	0	0	40	40	0	1553	19	1572	0	0	23	23	0	1602	10	1612	3247
02:00 PM	0	0	15	15	0	393	11	404	0	0	6	6	0	380	3	383	808
02:15 PM	0	0	21	21	0	472	8	480	0	0	2	2	0	394	8	402	905
02:30 PM	0	0	14	14	0	530	7	537	0	0	7	7	0	479	4	483	1041
02:45 PM	0	0	6	6	0	423	3	426	0	0	8	8	0	395	6	401	841
Total	0	0	56	56	0	1818	29	1847	0	0	23	23	0	1648	21	1669	3595
Grand Total	0	0	96	96	0	3371	48	3419	0	0	46	46	0	3250	31	3281	6842
Apprch %	0	0	100		0	98.6	1.4		0	0	100		0	99.1	0.9		
Total %	0	0	1.4	1.4	0	49.3	0.7	50	0	0	0.7	0.7	0	47.5	0.5	48	
Passenger Vehicles	0	0	96	96	0	3181	48	3229	0	0	45	45	0	3116	30	3146	6516
% Passenger Vehicles	0	0	100	100	0	94.4	100	94.4	0	0	97.8	97.8	0	95.9	96.8	95.9	95.2
Large 2 Axle Vehicles	0	0	0	0	0	105	0	105	0	0	1	1	0	72	1	73	179
% Large 2 Axle Vehicles	0	0	0	0	0	3.1	0	3.1	0	0	2.2	2.2	0	2.2	3.2	2.2	2.6
3 Axle Vehicles	0	0	0	0	0	30	0	30	0	0	0	0	0	16	0	16	46
% 3 Axle Vehicles	0	0	0	0	0	0.9	0	0.9	0	0	0	0	0	0.5	0	0.5	0.7
4+ Axle Trucks	0	0	0	0	0	55	0	55	0	0	0	0	0	46	0	46	101
% 4+ Axle Trucks	0	0	0	0	0	1.6	0	1.6	0	0	0	0	0	1.4	0	1.4	1.5

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	15	15	0	393	**11**	404	0	0	6	6	0	380	3	383	808
02:15 PM	0	0	**21**	**21**	0	472	8	480	0	0	2	2	0	394	**8**	402	905
02:30 PM	0	0	14	14	0	**530**	7	**537**	0	0	7	7	0	**479**	4	**483**	**1041**
02:45 PM	0	0	6	6	0	423	3	426	0	0	**8**	**8**	0	395	6	401	841
Total Volume	0	0	56	56	0	1818	29	1847	0	0	23	23	0	1648	21	1669	3595
% App. Total	0	0	100		0	98.4	1.6		0	0	100		0	98.7	1.3		
PHF	.000	.000	.667	.667	.000	.858	.659	.860	.000	.000	.719	.719	.000	.860	.656	.864	.863

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:45 PM				02:00 PM				01:00 PM				02:00 PM			
+0 mins.	0	0	7	7	0	393	**11**	404	0	0	**13**	**13**	0	380	3	383
+15 mins.	0	0	15	15	0	472	8	480	0	0	0	0	0	394	**8**	402
+30 mins.	0	0	**21**	**21**	0	**530**	7	**537**	0	0	6	6	0	**479**	4	**483**
+45 mins.	0	0	14	14	0	423	3	426	0	0	4	4	0	395	6	401
Total Volume	0	0	57	57	0	1818	29	1847	0	0	23	23	0	1648	21	1669
% App. Total	0	0	100		0	98.4	1.6		0	0	100		0	98.7	1.3	
PHF	.000	.000	.679	.679	.000	.858	.659	.860	.000	.000	.442	.442	.000	.860	.656	.864

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles

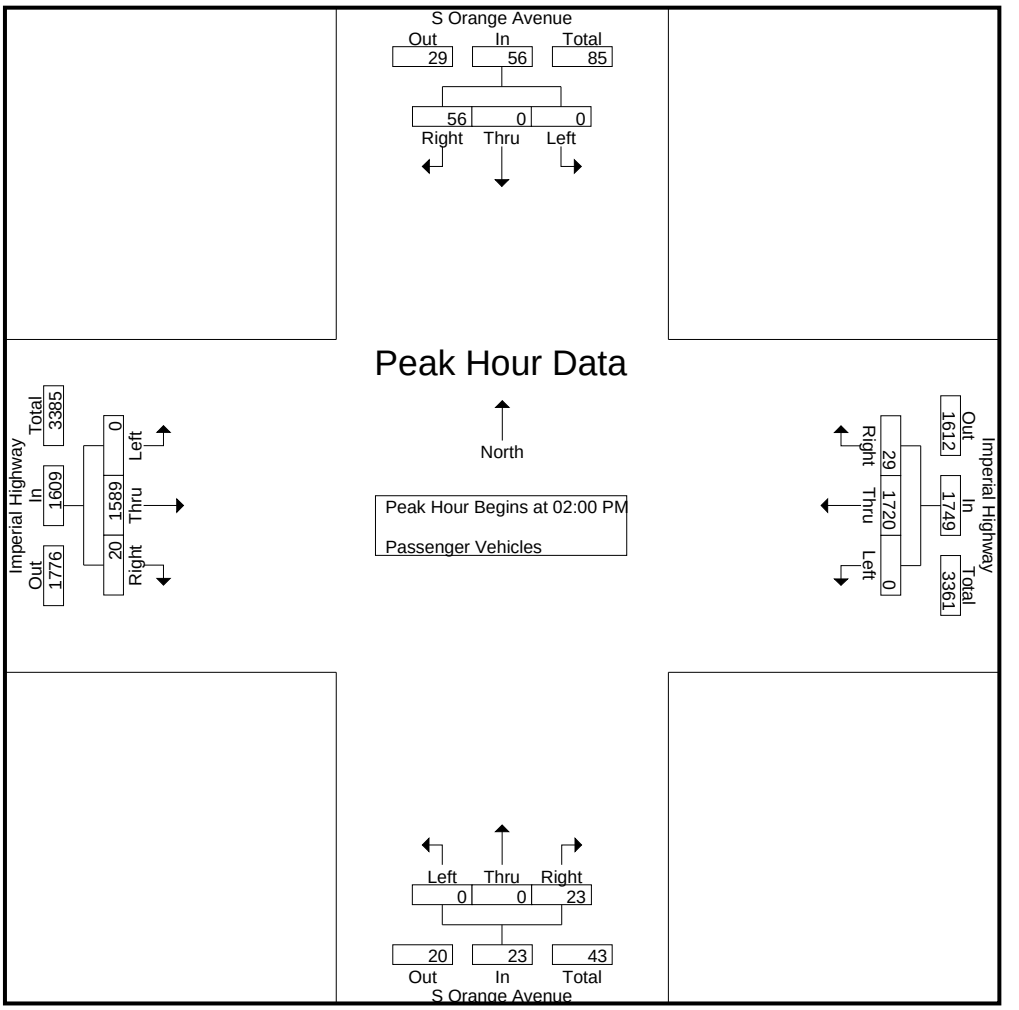
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	10	10	0	374	3	377	0	0	13	13	0	340	2	342	742
01:15 PM	0	0	10	10	0	353	6	359	0	0	0	0	0	392	1	393	762
01:30 PM	0	0	13	13	0	376	3	379	0	0	5	5	0	414	3	417	814
01:45 PM	0	0	7	7	0	358	7	365	0	0	4	4	0	381	4	385	761
Total	0	0	40	40	0	1461	19	1480	0	0	22	22	0	1527	10	1537	3079
02:00 PM	0	0	15	15	0	366	11	377	0	0	6	6	0	365	3	368	766
02:15 PM	0	0	21	21	0	451	8	459	0	0	2	2	0	380	7	387	869
02:30 PM	0	0	14	14	0	504	7	511	0	0	7	7	0	457	4	461	993
02:45 PM	0	0	6	6	0	399	3	402	0	0	8	8	0	387	6	393	809
Total	0	0	56	56	0	1720	29	1749	0	0	23	23	0	1589	20	1609	3437
Grand Total	0	0	96	96	0	3181	48	3229	0	0	45	45	0	3116	30	3146	6516
Apprch %	0	0	100		0	98.5	1.5		0	0	100		0	99	1		
Total %	0	0	1.5	1.5	0	48.8	0.7	49.6	0	0	0.7	0.7	0	47.8	0.5	48.3	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	15	15	0	366	**11**	377	0	0	6	6	0	365	3	368	766
02:15 PM	0	0	**21**	**21**	0	451	8	459	0	0	2	2	0	380	**7**	387	869
02:30 PM	0	0	14	14	0	**504**	7	**511**	0	0	7	7	0	**457**	4	**461**	**993**
02:45 PM	0	0	6	6	0	399	3	402	0	0	**8**	**8**	0	387	6	393	809
Total Volume	0	0	56	56	0	1720	29	1749	0	0	23	23	0	1589	20	1609	3437
% App. Total	0	0	100		0	98.3	1.7		0	0	100		0	98.8	1.2		
PHF	.000	.000	.667	.667	.000	.853	.659	.856	.000	.000	.719	.719	.000	.869	.714	.873	.865

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City of Brea
N/S: S Orange Avenue
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Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	15	15	0	366	**11**	377	0	0	6	6	0	365	3	368
+15 mins.	0	0	**21**	**21**	0	451	8	459	0	0	2	2	0	380	**7**	387
+30 mins.	0	0	14	14	0	**504**	7	**511**	0	0	7	7	0	**457**	4	**461**
+45 mins.	0	0	6	6	0	399	3	402	0	0	**8**	**8**	0	387	6	393
Total Volume	0	0	56	56	0	1720	29	1749	0	0	23	23	0	1589	20	1609
% App. Total	0	0	100		0	98.3	1.7		0	0	100		0	98.8	1.2	
PHF	.000	.000	.667	.667	.000	.853	.659	.856	.000	.000	.719	.719	.000	.869	.714	.873

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

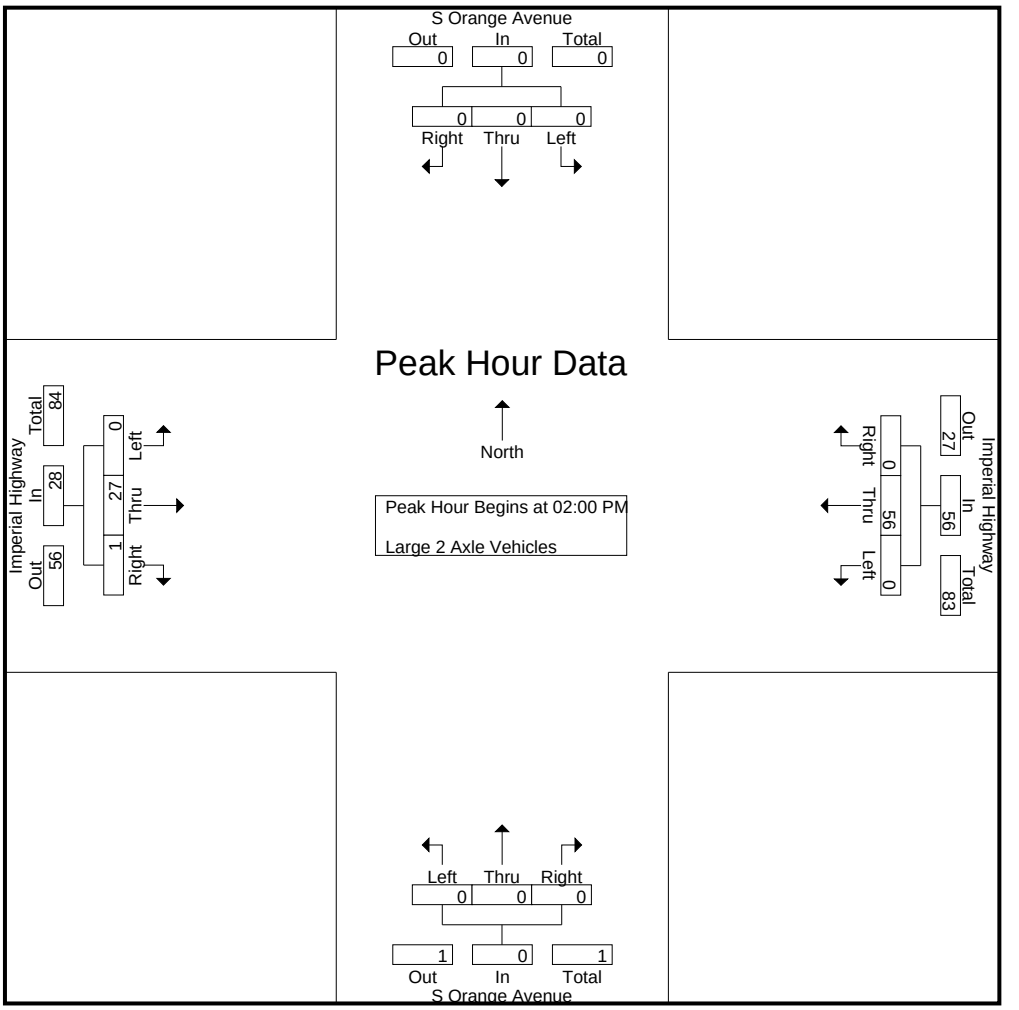
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	12	0	12	0	0	0	0	0	13	0	13	25
01:15 PM	0	0	0	0	0	14	0	14	0	0	0	0	0	8	0	8	22
01:30 PM	0	0	0	0	0	14	0	14	0	0	1	1	0	12	0	12	27
01:45 PM	0	0	0	0	0	9	0	9	0	0	0	0	0	12	0	12	21
Total	0	0	0	0	0	49	0	49	0	0	1	1	0	45	0	45	95
02:00 PM	0	0	0	0	0	15	0	15	0	0	0	0	0	7	0	7	22
02:15 PM	0	0	0	0	0	11	0	11	0	0	0	0	0	6	1	7	18
02:30 PM	0	0	0	0	0	17	0	17	0	0	0	0	0	10	0	10	27
02:45 PM	0	0	0	0	0	13	0	13	0	0	0	0	0	4	0	4	17
Total	0	0	0	0	0	56	0	56	0	0	0	0	0	27	1	28	84
Grand Total	0	0	0	0	0	105	0	105	0	0	1	1	0	72	1	73	179
Apprch %	0	0	0		0	100	0		0	0	100		0	98.6	1.4		
Total %	0	0	0	0	0	58.7	0	58.7	0	0	0.6	0.6	0	40.2	0.6	40.8	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	15	0	15	0	0	0	0	0	7	0	7	22
02:15 PM	0	0	0	0	0	11	0	11	0	0	0	0	0	6	**1**	7	18
02:30 PM	0	0	0	0	0	**17**	0	**17**	0	0	0	0	0	**10**	0	**10**	**27**
02:45 PM	0	0	0	0	0	13	0	13	0	0	0	0	0	4	0	4	17
Total Volume	0	0	0	0	0	56	0	56	0	0	0	0	0	27	1	28	84
% App. Total	0	0	0		0	100	0		0	0	0		0	96.4	3.6		
PHF	.000	.000	.000	.000	.000	.824	.000	.824	.000	.000	.000	.000	.000	.675	.250	.700	.778

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	15	0	15	0	0	0	0	0	7	0	7
+15 mins.	0	0	0	0	0	11	0	11	0	0	0	0	0	6	**1**	7
+30 mins.	0	0	0	0	0	**17**	0	**17**	0	0	0	0	0	**10**	0	**10**
+45 mins.	0	0	0	0	0	13	0	13	0	0	0	0	0	4	0	4
Total Volume	0	0	0	0	0	56	0	56	0	0	0	0	0	27	1	28
% App. Total	0	0	0		0	100	0		0	0	0		0	96.4	3.6	
PHF	.000	.000	.000	.000	.000	.824	.000	.824	.000	.000	.000	.000	.000	.675	.250	.700

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022

Groups Printed- 3 Axle Vehicles

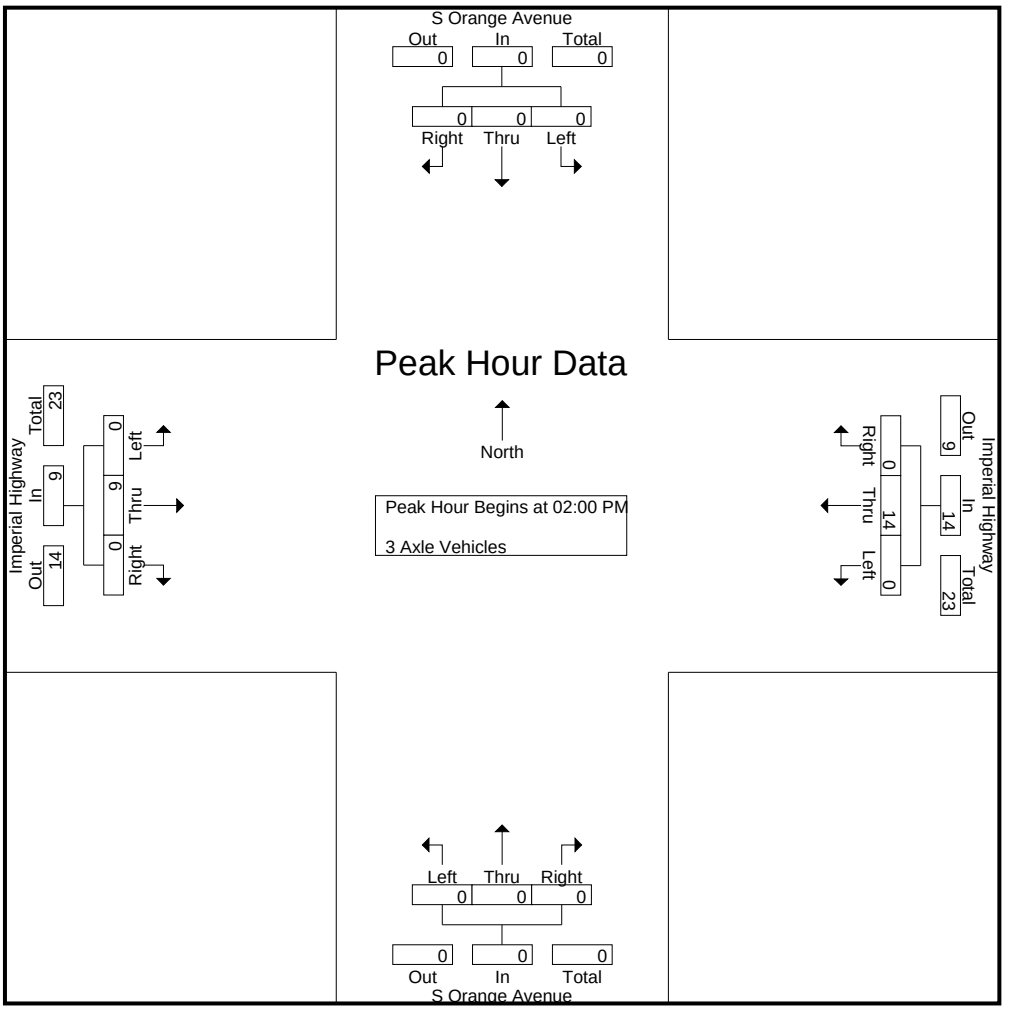
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	1	0	1	7
01:15 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	1	0	1	6
01:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	4	0	4	6
01:45 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1	4
Total	0	0	0	0	0	16	0	16	0	0	0	0	0	7	0	7	23
02:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
02:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
02:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3	7
02:45 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	1	0	1	7
Total	0	0	0	0	0	14	0	14	0	0	0	0	0	9	0	9	23
Grand Total	0	0	0	0	0	30	0	30	0	0	0	0	0	16	0	16	46
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	65.2	0	65.2	0	0	0	0	0	34.8	0	34.8	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
02:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	**3**	0	**3**	5
02:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3	**7**
02:45 PM	0	0	0	0	0	**6**	0	**6**	0	0	0	0	0	1	0	1	7
Total Volume	0	0	0	0	0	14	0	14	0	0	0	0	0	9	0	9	23
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.583	.000	.583	.000	.000	.000	.000	.000	.750	.000	.750	.821

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	**3**	0	**3**
+30 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3
+45 mins.	0	0	0	0	0	**6**	0	**6**	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	14	0	14	0	0	0	0	0	9	0	9
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.583	.000	.583	.000	.000	.000	.000	.000	.750	.000	.750

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

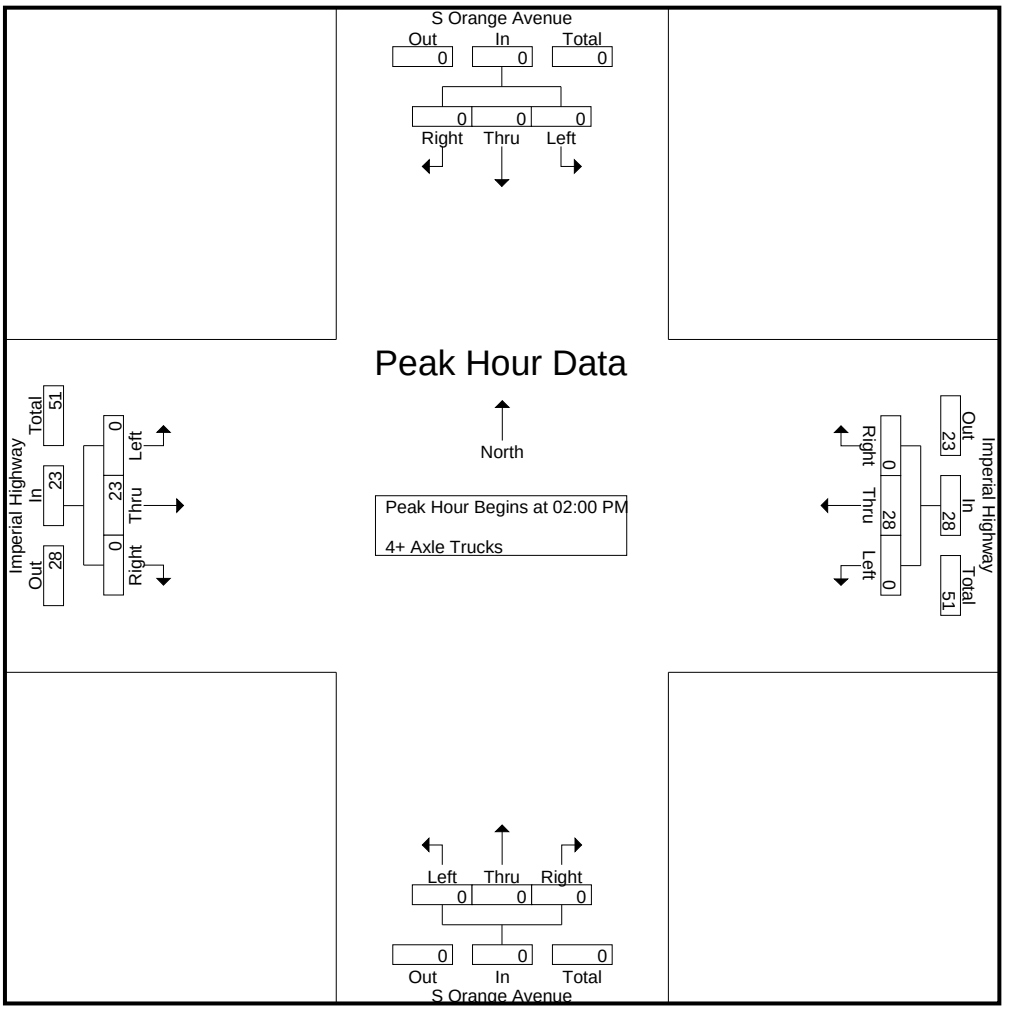
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	7	0	7	13
01:15 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	5	0	5	11
01:30 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	9	0	9	17
01:45 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	2	0	2	9
Total	0	0	0	0	0	27	0	27	0	0	0	0	0	23	0	23	50
02:00 PM	0	0	0	0	0	10	0	10	0	0	0	0	0	6	0	6	16
02:15 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	5	0	5	13
02:30 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	9	0	9	14
02:45 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
Total	0	0	0	0	0	28	0	28	0	0	0	0	0	23	0	23	51
Grand Total	0	0	0	0	0	55	0	55	0	0	0	0	0	46	0	46	101
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	54.5	0	54.5	0	0	0	0	0	45.5	0	45.5	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	6	0	6	**16**
02:15 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	5	0	5	13
02:30 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	**9**	0	**9**	14
02:45 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
Total Volume	0	0	0	0	0	28	0	28	0	0	0	0	0	23	0	23	51
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.700	.000	.700	.000	.000	.000	.000	.000	.639	.000	.639	.797

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp MD
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	6	0	6
+15 mins.	0	0	0	0	0	8	0	8	0	0	0	0	0	5	0	5
+30 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	**9**	0	**9**
+45 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	28	0	28	0	0	0	0	0	23	0	23
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.700	.000	.700	.000	.000	.000	.000	.000	.639	.000	.639

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

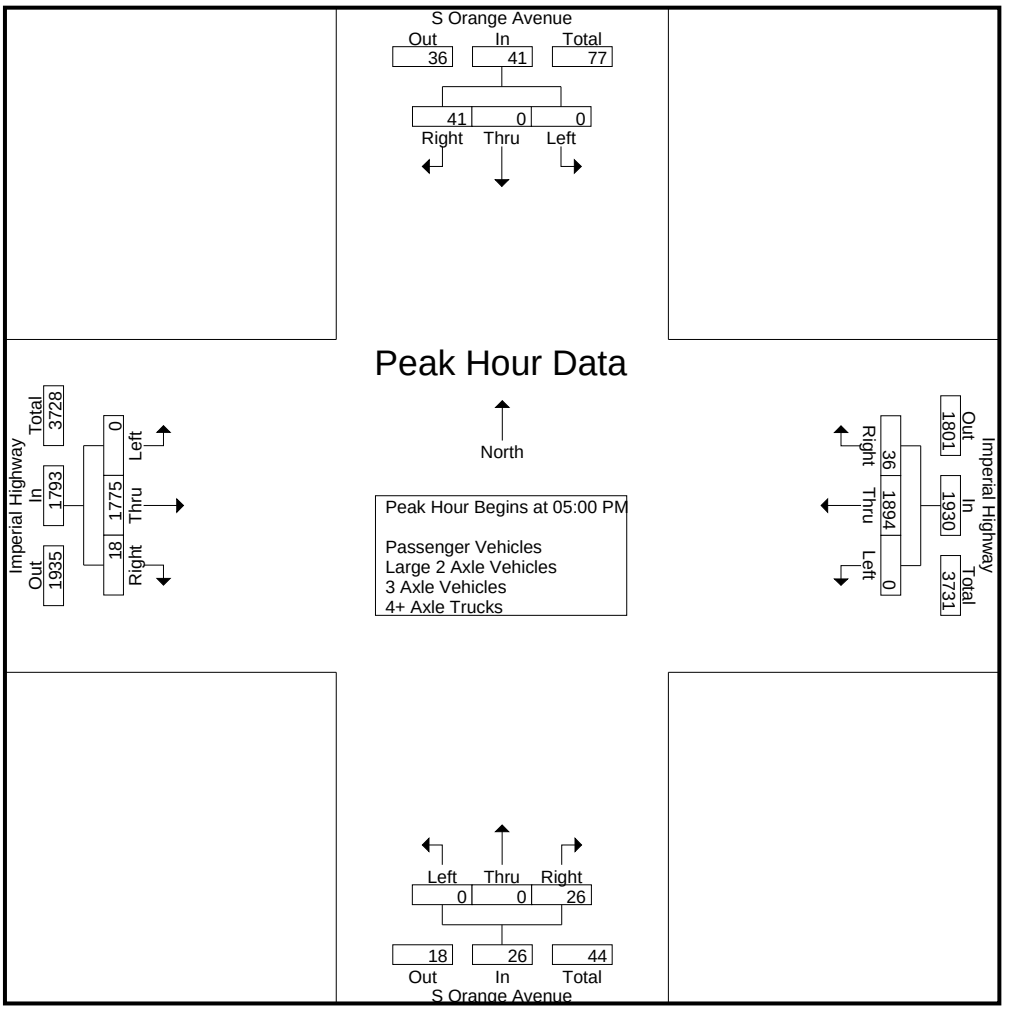
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	2	2	0	395	7	402	0	0	5	5	0	411	3	414	823
04:15 PM	0	0	8	8	0	437	5	442	0	0	9	9	0	431	5	436	895
04:30 PM	0	0	8	8	0	493	8	501	0	0	3	3	0	459	2	461	973
04:45 PM	0	0	6	6	0	464	10	474	0	0	5	5	0	469	3	472	957
Total	0	0	24	24	0	1789	30	1819	0	0	22	22	0	1770	13	1783	3648
05:00 PM	0	0	8	8	0	458	9	467	0	0	5	5	0	462	3	465	945
05:15 PM	0	0	9	9	0	436	5	441	0	0	9	9	0	422	5	427	886
05:30 PM	0	0	11	11	0	498	11	509	0	0	7	7	0	461	4	465	992
05:45 PM	0	0	13	13	0	502	11	513	0	0	5	5	0	430	6	436	967
Total	0	0	41	41	0	1894	36	1930	0	0	26	26	0	1775	18	1793	3790
Grand Total	0	0	65	65	0	3683	66	3749	0	0	48	48	0	3545	31	3576	7438
Apprch %	0	0	100		0	98.2	1.8		0	0	100		0	99.1	0.9		
Total %	0	0	0.9	0.9	0	49.5	0.9	50.4	0	0	0.6	0.6	0	47.7	0.4	48.1	
Passenger Vehicles	0	0	65	65	0	3595	66	3661	0	0	46	46	0	3476	30	3506	7278
% Passenger Vehicles	0	0	100	100	0	97.6	100	97.7	0	0	95.8	95.8	0	98.1	96.8	98	97.8
Large 2 Axle Vehicles	0	0	0	0	0	56	0	56	0	0	1	1	0	26	1	27	84
% Large 2 Axle Vehicles	0	0	0	0	0	1.5	0	1.5	0	0	2.1	2.1	0	0.7	3.2	0.8	1.1
3 Axle Vehicles	0	0	0	0	0	3	0	3	0	0	1	1	0	11	0	11	15
% 3 Axle Vehicles	0	0	0	0	0	0.1	0	0.1	0	0	2.1	2.1	0	0.3	0	0.3	0.2
4+ Axle Trucks	0	0	0	0	0	29	0	29	0	0	0	0	0	32	0	32	61
% 4+ Axle Trucks	0	0	0	0	0	0.8	0	0.8	0	0	0	0	0	0.9	0	0.9	0.8

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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	0	0	8	8	0	458	9	467	0	0	5	5	0	**462**	3	**465**	945
05:15 PM	0	0	9	9	0	436	5	441	0	0	**9**	**9**	0	422	5	427	886
05:30 PM	0	0	11	11	0	498	**11**	509	0	0	7	7	0	461	4	465	**992**
05:45 PM	0	0	**13**	**13**	0	**502**	11	**513**	0	0	5	5	0	430	**6**	436	967
Total Volume	0	0	41	41	0	1894	36	1930	0	0	26	26	0	1775	18	1793	3790
% App. Total	0	0	100		0	98.1	1.9		0	0	100		0	99	1		
PHF	.000	.000	.788	.788	.000	.943	.818	.941	.000	.000	.722	.722	.000	.960	.750	.964	.955

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
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				05:00 PM				04:45 PM				04:15 PM			
+0 mins.	0	0	8	8	0	458	9	467	0	0	5	5	0	431	**5**	436
+15 mins.	0	0	9	9	0	436	5	441	0	0	5	5	0	459	2	461
+30 mins.	0	0	11	11	0	498	**11**	509	0	0	**9**	**9**	0	**469**	3	**472**
+45 mins.	0	0	**13**	**13**	0	**502**	11	**513**	0	0	7	7	0	462	3	465
Total Volume	0	0	41	41	0	1894	36	1930	0	0	26	26	0	1821	13	1834
% App. Total	0	0	100		0	98.1	1.9		0	0	100		0	99.3	0.7	
PHF	.000	.000	.788	.788	.000	.943	.818	.941	.000	.000	.722	.722	.000	.971	.650	.971

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City of Brea
N/S: S Orange Avenue
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Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles

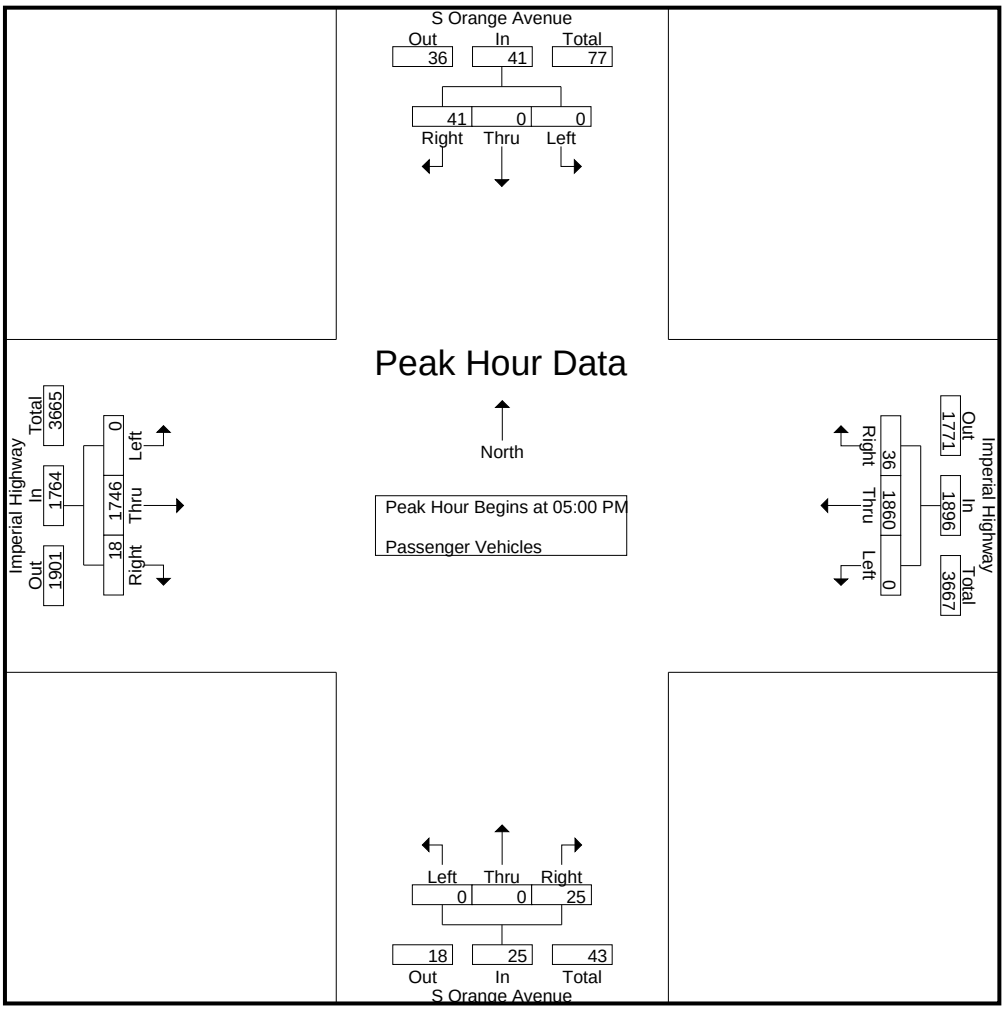
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	2	2	0	385	7	392	0	0	4	4	0	398	2	400	798
04:15 PM	0	0	8	8	0	418	5	423	0	0	9	9	0	418	5	423	863
04:30 PM	0	0	8	8	0	481	8	489	0	0	3	3	0	453	2	455	955
04:45 PM	0	0	6	6	0	451	10	461	0	0	5	5	0	461	3	464	936
Total	0	0	24	24	0	1735	30	1765	0	0	21	21	0	1730	12	1742	3552
05:00 PM	0	0	8	8	0	448	9	457	0	0	4	4	0	455	3	458	927
05:15 PM	0	0	9	9	0	425	5	430	0	0	9	9	0	415	5	420	868
05:30 PM	0	0	11	11	0	490	11	501	0	0	7	7	0	453	4	457	976
05:45 PM	0	0	13	13	0	497	11	508	0	0	5	5	0	423	6	429	955
Total	0	0	41	41	0	1860	36	1896	0	0	25	25	0	1746	18	1764	3726
Grand Total	0	0	65	65	0	3595	66	3661	0	0	46	46	0	3476	30	3506	7278
Apprch %	0	0	100		0	98.2	1.8		0	0	100		0	99.1	0.9		
Total %	0	0	0.9	0.9	0	49.4	0.9	50.3	0	0	0.6	0.6	0	47.8	0.4	48.2	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	8	8	0	448	9	457	0	0	4	4	0	**455**	3	**458**	927
05:15 PM	0	0	9	9	0	425	5	430	0	0	**9**	**9**	0	415	5	420	868
05:30 PM	0	0	11	11	0	490	**11**	501	0	0	7	7	0	453	4	457	**976**
05:45 PM	0	0	**13**	**13**	0	**497**	11	**508**	0	0	5	5	0	423	**6**	429	955
Total Volume	0	0	41	41	0	1860	36	1896	0	0	25	25	0	1746	18	1764	3726
% App. Total	0	0	100		0	98.1	1.9		0	0	100		0	99	1		
PHF	.000	.000	.788	.788	.000	.936	.818	.933	.000	.000	.694	.694	.000	.959	.750	.963	.954

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	8	8	0	448	9	457	0	0	4	4	0	**455**	3	**458**
+15 mins.	0	0	9	9	0	425	5	430	0	0	**9**	**9**	0	415	5	420
+30 mins.	0	0	11	11	0	490	**11**	501	0	0	7	7	0	453	4	457
+45 mins.	0	0	**13**	**13**	0	**497**	11	**508**	0	0	5	5	0	423	**6**	429
Total Volume	0	0	41	41	0	1860	36	1896	0	0	25	25	0	1746	18	1764
% App. Total	0	0	100		0	98.1	1.9		0	0	100		0	99	1	
PHF	.000	.000	.788	.788	.000	.936	.818	.933	.000	.000	.694	.694	.000	.959	.750	.963

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City of Brea
N/S: S Orange Avenue
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Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

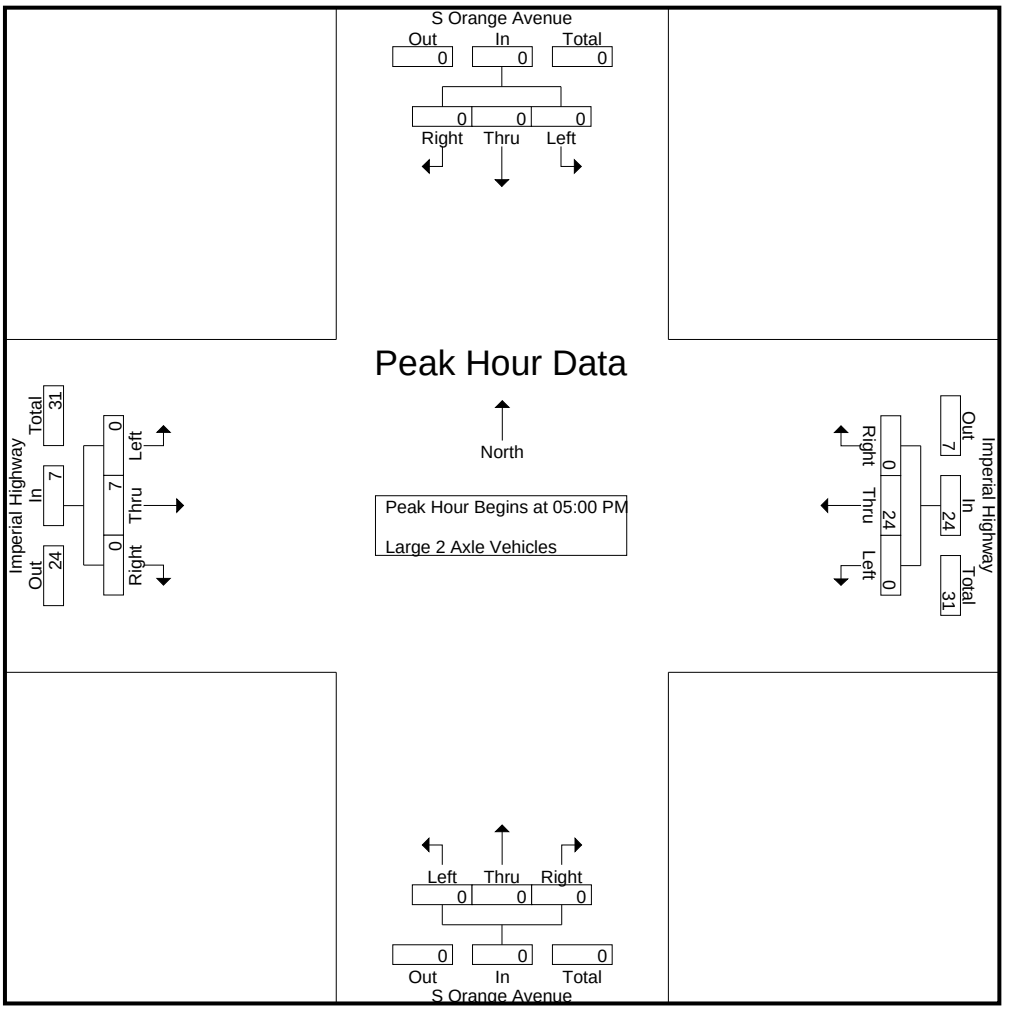
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	4	0	4	0	0	1	1	0	4	1	5	10
04:15 PM	0	0	0	0	0	12	0	12	0	0	0	0	0	7	0	7	19
04:30 PM	0	0	0	0	0	10	0	10	0	0	0	0	0	3	0	3	13
04:45 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	5	0	5	11
Total	0	0	0	0	0	32	0	32	0	0	1	1	0	19	1	20	53
05:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	5
05:15 PM	0	0	0	0	0	10	0	10	0	0	0	0	0	3	0	3	13
05:30 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
05:45 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1	5
Total	0	0	0	0	0	24	0	24	0	0	0	0	0	7	0	7	31
Grand Total	0	0	0	0	0	56	0	56	0	0	1	1	0	26	1	27	84
Apprch %	0	0	0		0	100	0		0	0	100		0	96.3	3.7		
Total %	0	0	0	0	0	66.7	0	66.7	0	0	1.2	1.2	0	31	1.2	32.1	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	5
05:15 PM	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	**3**	0	**3**	**13**
05:30 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
05:45 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1	5
Total Volume	0	0	0	0	0	24	0	24	0	0	0	0	0	7	0	7	31
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.600	.000	.600	.000	.000	.000	.000	.000	.583	.000	.583	.596

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	**3**	0	**3**
+30 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3
+45 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	24	0	24	0	0	0	0	0	7	0	7
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.600	.000	.600	.000	.000	.000	.000	.000	.583	.000	.583

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

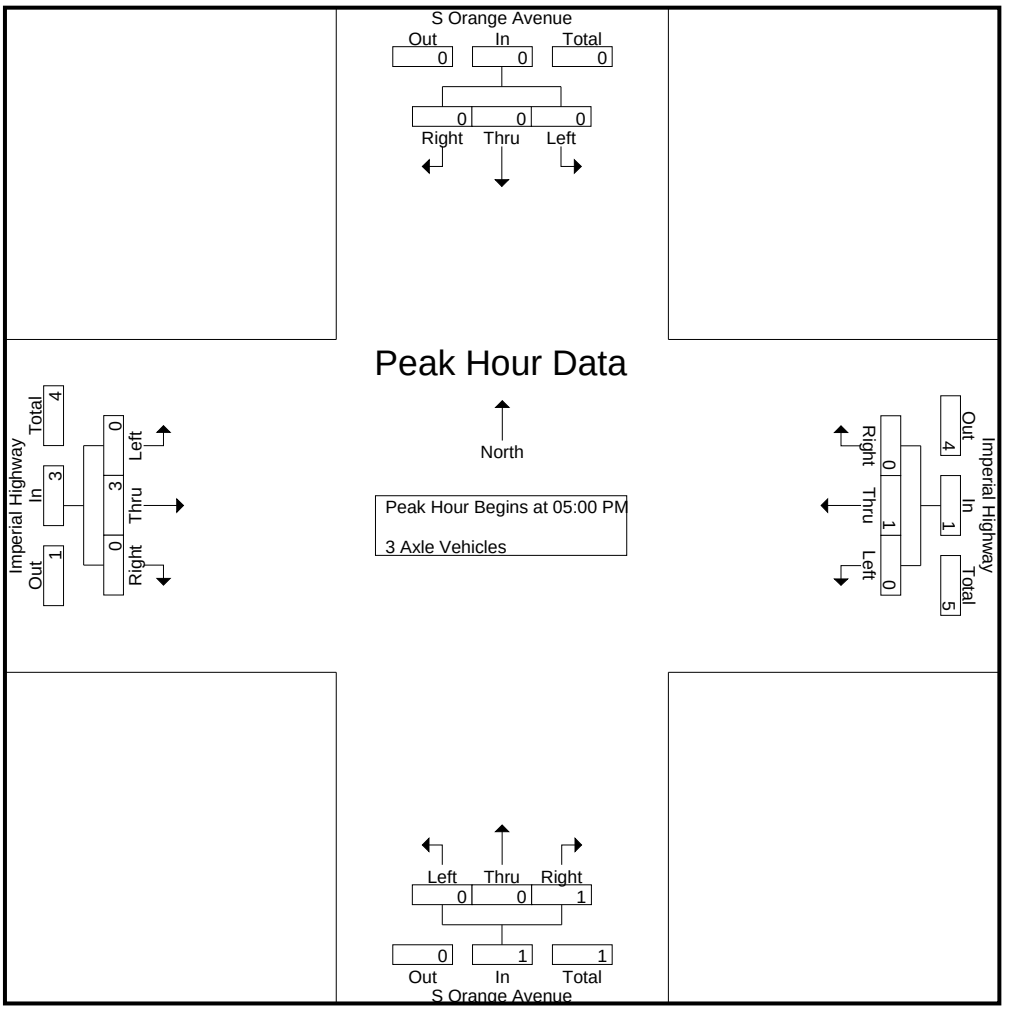
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	2	0	2	0	0	0	0	0	8	0	8	10
05:00 PM	0	0	0	0	0	1	0	1	0	0	1	1	0	2	0	2	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	1	0	1	0	0	1	1	0	3	0	3	5
Grand Total	0	0	0	0	0	3	0	3	0	0	1	1	0	11	0	11	15
Apprch %	0	0	0		0	100	0		0	0	100		0	100	0		
Total %	0	0	0	0	0	20	0	20	0	0	6.7	6.7	0	73.3	0	73.3	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	**1**	0	**1**	0	0	**1**	**1**	0	**2**	0	**2**	**4**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	1	0	1	0	0	1	1	0	3	0	3	5
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.250	.250	.000	.375	.000	.375	.313

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	**1**	**1**	0	**2**	0	**2**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	1	0	1	0	0	1	1	0	3	0	3
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.250	.250	.000	.375	.000	.375

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

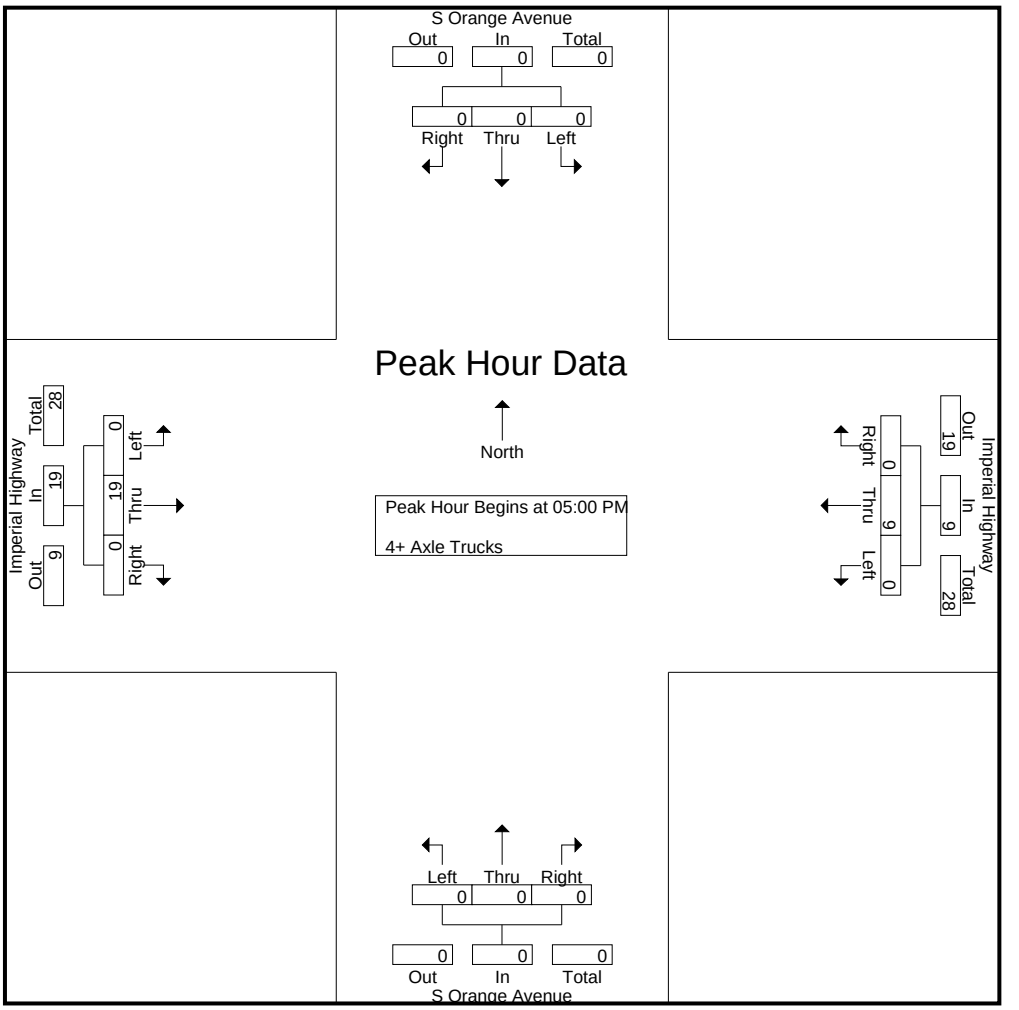
	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	4	0	4	9
04:15 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	5	0	5	11
04:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
04:45 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	2	0	2	9
Total	0	0	0	0	0	20	0	20	0	0	0	0	0	13	0	13	33
05:00 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	5	0	5	9
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
05:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	8
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
Total	0	0	0	0	0	9	0	9	0	0	0	0	0	19	0	19	28
Grand Total	0	0	0	0	0	29	0	29	0	0	0	0	0	32	0	32	61
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	47.5	0	47.5	0	0	0	0	0	52.5	0	52.5	

	S Orange Avenue Southbound				Imperial Highway Westbound				S Orange Avenue Northbound				Imperial Highway 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	**4**	0	**4**	0	0	0	0	0	**5**	0	**5**	**9**
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
05:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	8
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
Total Volume	0	0	0	0	0	9	0	9	0	0	0	0	0	19	0	19	28
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.563	.000	.563	.000	.000	.000	.000	.000	.950	.000	.950	.778

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City of Brea
N/S: S Orange Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 01_BRE_Ora_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	**4**	0	**4**	0	0	0	0	0	**5**	0	**5**
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4
+30 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5
Total Volume	0	0	0	0	0	9	0	9	0	0	0	0	0	19	0	19
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.563	.000	.563	.000	.000	.000	.000	.000	.950	.000	.950

Location: Brea
N/S: S Orange Avenue
E/W: Imperial Highway

Date: 12/8/2022
Day: Thursday

PEDESTRIANS

	North Leg S Orange Avenue	East Leg Imperial Highway	South Leg S Orange Avenue	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	2	0	2
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	1	0	1
8:15 AM	0	0	1	0	1
8:30 AM	0	0	4	0	4
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	9	0	9

	North Leg S Orange Avenue	East Leg Imperial Highway	South Leg S Orange Avenue	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg S Orange Avenue	East Leg Imperial Highway	South Leg S Orange Avenue	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1
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	2	0	2

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Location: Brea
N/S: S Orange Avenue
E/W: Imperial Highway

Date: 12/8/2022
Day: Thursday

BICYCLES

	Southbound S Orange Avenue			Westbound Imperial Highway			Northbound S Orange Avenue			Eastbound Imperial Highway			
	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	1	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	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	1	0	0	0	0	0	1

	Southbound S Orange Avenue			Westbound Imperial Highway			Northbound S Orange Avenue			Eastbound Imperial Highway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	1	0	2

	Southbound S Orange Avenue			Westbound Imperial Highway			Northbound S Orange Avenue			Eastbound Imperial Highway			
	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	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	1	2

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

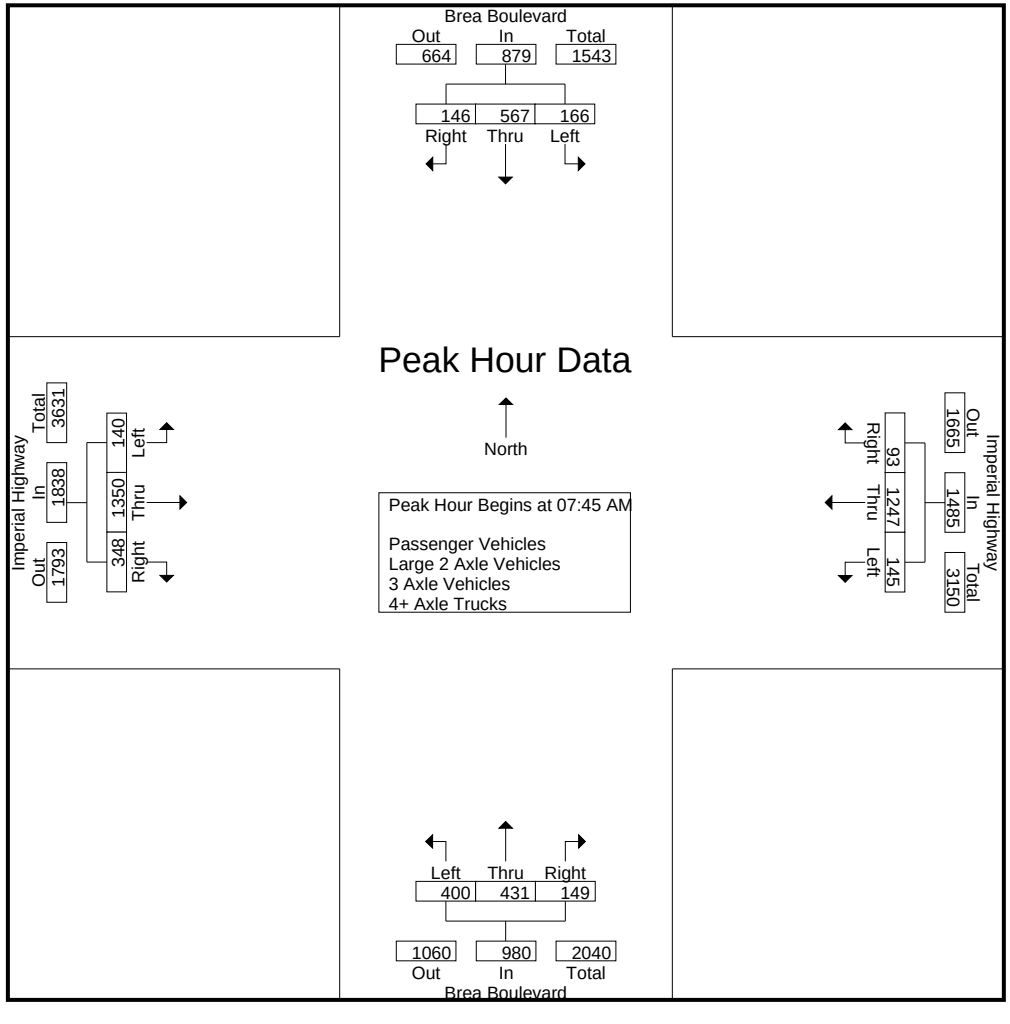
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	12	102	20	1	9	134	30	243	8	0	2	281	38	35	18	0	15	91	7	241	39	1	14	287	42	793	835
07:15 AM	18	82	23	3	16	123	28	281	13	4	1	322	52	51	19	0	9	122	13	307	44	1	10	364	44	931	975
07:30 AM	18	107	32	2	19	157	30	319	12	0	5	361	77	70	24	1	17	171	14	327	60	2	23	401	69	1090	1159
07:45 AM	37	148	43	1	16	228	32	343	25	2	13	400	122	105	23	1	10	250	41	354	96	4	30	491	77	1369	1446
Total	85	439	118	7	60	642	120	1186	58	6	21	1364	289	261	84	2	51	634	75	1229	239	8	77	1543	232	4183	4415
08:00 AM	30	154	36	7	6	220	46	314	27	3	11	387	90	102	39	2	17	231	35	287	93	1	37	415	84	1253	1337
08:15 AM	51	135	33	3	10	219	33	308	19	1	7	360	81	119	38	4	21	238	31	362	89	3	35	482	84	1299	1383
08:30 AM	48	130	34	5	14	212	34	282	22	2	9	338	107	105	49	1	22	261	33	347	70	0	22	450	75	1261	1336
08:45 AM	35	138	27	2	9	200	51	339	27	0	11	417	67	95	39	4	20	201	30	318	66	0	23	414	69	1232	1301
Total	164	557	130	17	39	851	164	1243	95	6	38	1502	345	421	165	11	80	931	129	1314	318	4	117	1761	312	5045	5357
Grand Total	249	996	248	24	99	1493	284	2429	153	12	59	2866	634	682	249	13	131	1565	204	2543	557	12	194	3304	544	9228	9772
Apprch %	16.7	66.7	16.6				9.9	84.8	5.3				40.5	43.6	15.9				6.2	77	16.9						
Total %	2.7	10.8	2.7			16.2	3.1	26.3	1.7			31.1	6.9	7.4	2.7			17	2.2	27.6	6			35.8	5.6	94.4	
Passenger Vehicles	241	982	239			1583	269	2269	144			2750	625	670	236			1668	196	2353	533			3281	0	0	9282
% Passenger Vehicles	96.8	98.6	96.4	100	98	98	94.7	93.4	94.1	100	94.9	93.6	98.6	98.2	94.8	100	94.7	97.6	96.1	92.5	95.7	100	96.4	93.5	0	0	95
Large 2 Axle Vehicles	5	14	6			27	9	61	8			80	7	12	9			33	5	99	21			131	0	0	271
% Large 2 Axle Vehicles	2	1.4	2.4	0	2	1.7	3.2	2.5	5.2	0	3.4	2.7	1.1	1.8	3.6	0	3.8	1.9	2.5	3.9	3.8	0	3.1	3.7	0	0	2.8
3 Axle Vehicles	3	0	0			3	3	19	0			22	1	0	3			5	0	19	2			22	0	0	52
% 3 Axle Vehicles	1.2	0	0	0	0	0.2	1.1	0.8	0	0	0	0.7	0.2	0	1.2	0	0.8	0.3	0	0.7	0.4	0	0.5	0.6	0	0	0.5
4+ Axle Trucks	0	0	3			3	3	80	1			85	1	0	1			3	3	72	1			76	0	0	167
% 4+ Axle Trucks	0	0	1.2	0	0	0.2	1.1	3.3	0.7	0	1.7	2.9	0.2	0	0.4	0	0.8	0.2	1.5	2.8	0.2	0	0	2.2	0	0	1.7

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM																	
07:45 AM	37	148	**43**	**228**	32	**343**	25	**400**	**122**	105	23	250	**41**	354	**96**	**491**	**1369**
08:00 AM	30	**154**	36	220	**46**	314	**27**	387	90	102	39	231	35	287	93	415	1253
08:15 AM	**51**	135	33	219	33	308	19	360	81	**119**	38	238	31	**362**	89	482	1299
08:30 AM	48	130	34	212	34	282	22	338	107	105	**49**	**261**	33	347	70	450	1261
Total Volume	166	567	146	879	145	1247	93	1485	400	431	149	980	140	1350	348	1838	5182
% App. Total	18.9	64.5	16.6		9.8	84	6.3		40.8	44	15.2		7.6	73.4	18.9		
PHF	.814	.920	.849	.964	.788	.909	.861	.928	.820	.905	.760	.939	.854	.932	.906	.936	.946

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022



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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:30 AM				07:45 AM				07:45 AM				
+0 mins.	37	148	**43**	**228**	30	319	12	361	**122**	105	23	250	**41**	354	**96**	**491**	
+15 mins.	30	**154**	36	220	32	**343**	25	**400**	90	102	39	231	35	287	93	415	
+30 mins.	**51**	135	33	219	**46**	314	**27**	387	81	**119**	38	238	31	**362**	89	482	
+45 mins.	48	130	34	212	33	308	19	360	107	105	**49**	**261**	33	347	70	450	
Total Volume	166	567	146	879	141	1284	83	1508	400	431	149	980	140	1350	348	1838	
% App. Total	18.9	64.5	16.6		9.4	85.1	5.5		40.8	44	15.2		7.6	73.4	18.9		
PHF	.814	.920	.849	.964	.766	.936	.769	.943	.820	.905	.760	.939	.854	.932	.906	.936	

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Corona, CA 92878
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

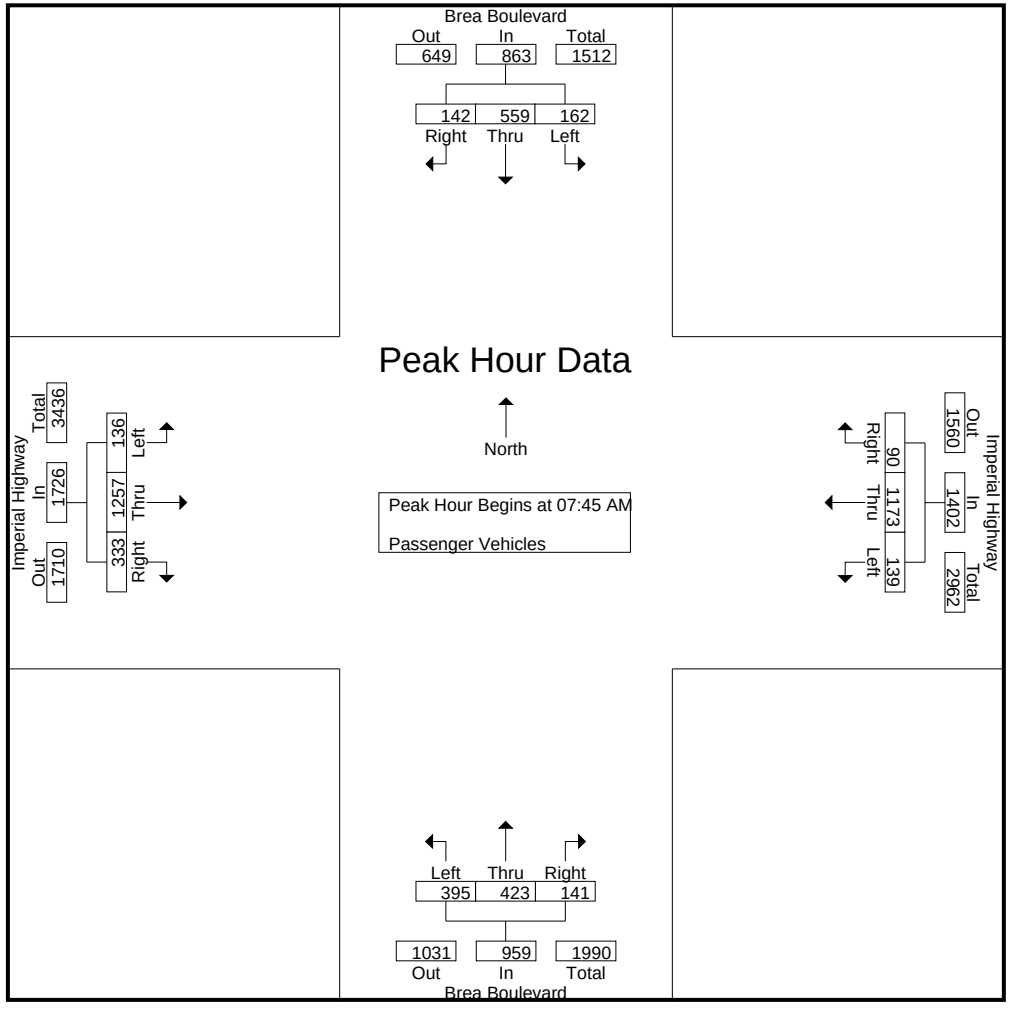
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	12	101	20	1	9	133	28	218	7	0	2	253	37	34	18	0	15	89	7	218	33	1	12	258	40	733	773
07:15 AM	15	81	20	3	15	116	23	256	12	4	1	291	51	50	17	0	8	118	12	287	43	1	9	342	41	867	908
07:30 AM	18	106	31	2	19	155	30	308	11	0	5	349	75	69	23	1	17	167	14	306	59	2	22	379	68	1050	1118
07:45 AM	37	145	42	1	15	224	30	325	25	2	13	380	120	104	22	1	9	246	41	334	93	4	30	468	75	1318	1393
Total	82	433	113	7	58	628	111	1107	55	6	21	1273	283	257	80	2	49	620	74	1145	228	8	73	1447	224	3968	4192
08:00 AM	30	152	33	7	6	215	44	290	26	3	10	360	90	99	38	2	17	227	35	267	91	1	36	393	82	1195	1277
08:15 AM	48	134	33	3	10	215	32	296	18	1	7	346	79	116	35	4	18	230	30	333	85	3	34	448	80	1239	1319
08:30 AM	47	128	34	5	14	209	33	262	21	2	9	316	106	104	46	1	21	256	30	323	64	0	21	417	73	1198	1271
08:45 AM	34	135	26	2	9	195	49	314	24	0	9	387	67	94	37	4	19	198	27	285	65	0	23	377	66	1157	1223
Total	159	549	126	17	39	834	158	1162	89	6	35	1409	342	413	156	11	75	911	122	1208	305	4	114	1635	301	4789	5090
Grand Total	241	982	239	24	97	1462	269	2269	144	12	56	2682	625	670	236	13	124	1531	196	2353	533	12	187	3082	525	8757	9282
Apprch %	16.5	67.2	16.3				10	84.6	5.4				40.8	43.8	15.4				6.4	76.3	17.3						
Total %	2.8	11.2	2.7			16.7	3.1	25.9	1.6			30.6	7.1	7.7	2.7			17.5	2.2	26.9	6.1			35.2	5.7	94.3	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	37	145	**42**	**224**	30	**325**	25	**380**	**120**	104	22	246	**41**	**334**	**93**	**468**	**1318**
08:00 AM	30	**152**	33	215	**44**	290	**26**	360	90	99	38	227	35	267	91	393	1195
08:15 AM	**48**	134	33	215	32	296	18	346	79	**116**	35	230	30	333	85	448	1239
08:30 AM	47	128	34	209	33	262	21	316	106	104	**46**	**256**	30	323	64	417	1198
Total Volume	162	559	142	863	139	1173	90	1402	395	423	141	959	136	1257	333	1726	4950
% App. Total	18.8	64.8	16.5		9.9	83.7	6.4		41.2	44.1	14.7		7.9	72.8	19.3		
PHF	.844	.919	.845	.963	.790	.902	.865	.922	.823	.912	.766	.937	.829	.941	.895	.922	.939

Counts Unlimited, Inc.
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



Counts Unlimited, Inc.
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	37	145	**42**	**224**	30	**325**	25	**380**	**120**	104	22	246	**41**	**334**	**93**	**468**	
+15 mins.	30	**152**	33	215	**44**	290	**26**	360	90	99	38	227	35	267	91	393	
+30 mins.	**48**	134	33	215	32	296	18	346	79	**116**	35	230	30	333	85	448	
+45 mins.	47	128	34	209	33	262	21	316	106	104	**46**	**256**	30	323	64	417	
Total Volume	162	559	142	863	139	1173	90	1402	395	423	141	959	136	1257	333	1726	
% App. Total	18.8	64.8	16.5		9.9	83.7	6.4		41.2	44.1	14.7		7.9	72.8	19.3		
PHF	.844	.919	.845	.963	.790	.902	.865	.922	.823	.912	.766	.937	.829	.941	.895	.922	

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

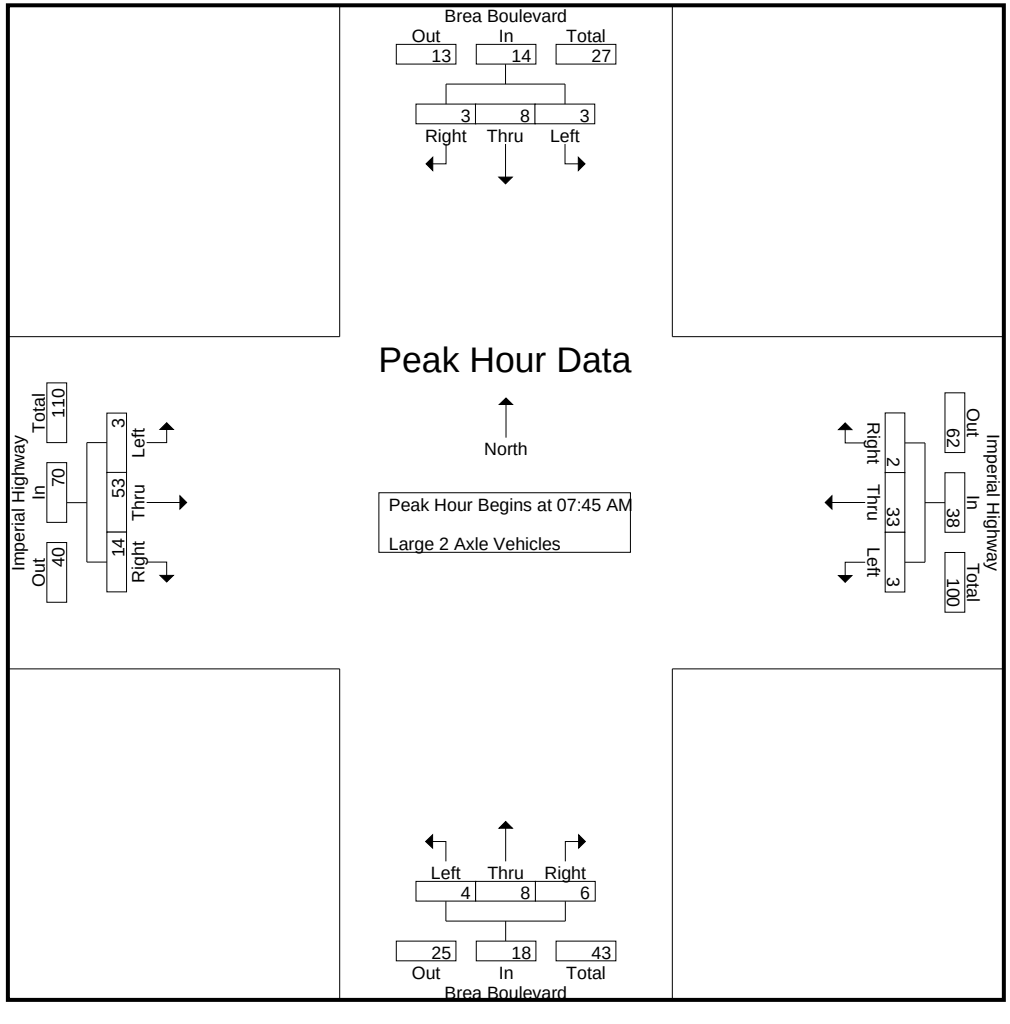
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	1	0	0	0	1	1	8	1	0	0	10	0	1	0	0	0	1	0	7	4	0	1	11	1	23	24
07:15 AM	1	1	2	0	1	4	4	7	1	0	0	12	1	1	1	0	0	3	0	9	1	0	1	10	2	29	31
07:30 AM	0	1	0	0	0	1	0	5	1	0	0	6	2	1	0	0	0	3	0	11	1	0	1	12	1	22	23
07:45 AM	0	3	1	0	1	4	2	10	0	0	0	12	2	1	1	0	1	4	0	10	3	0	0	13	2	33	35
Total	1	6	3	0	2	10	7	30	3	0	0	40	5	4	2	0	1	11	0	37	9	0	3	46	6	107	113
08:00 AM	0	2	2	0	0	4	0	9	0	0	0	9	0	3	0	0	0	3	0	9	2	0	1	11	1	27	28
08:15 AM	3	1	0	0	0	4	1	4	1	0	0	6	2	3	2	0	2	7	1	19	4	0	1	24	3	41	44
08:30 AM	0	2	0	0	0	2	0	10	1	0	0	11	0	1	3	0	1	4	2	15	5	0	1	22	2	39	41
08:45 AM	1	3	1	0	0	5	1	8	3	0	2	12	0	1	2	0	1	3	2	19	1	0	0	22	3	42	45
Total	4	8	3	0	0	15	2	31	5	0	2	38	2	8	7	0	4	17	5	62	12	0	3	79	9	149	158
Grand Total	5	14	6	0	2	25	9	61	8	0	2	78	7	12	9	0	5	28	5	99	21	0	6	125	15	256	271
Apprch %	20	56	24				11.5	78.2	10.3				25	42.9	32.1				4	79.2	16.8						
Total %	2	5.5	2.3			9.8	3.5	23.8	3.1			30.5	2.7	4.7	3.5			10.9	2	38.7	8.2			48.8	5.5	94.5	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**3**	1	**4**	**2**	**10**	0	**12**	**2**	1	1	4	0	10	3	13	33
08:00 AM	0	2	**2**	4	0	9	0	9	0	**3**	0	3	0	9	2	11	27
08:15 AM	**3**	1	0	4	1	4	**1**	6	2	3	2	**7**	1	**19**	4	**24**	**41**
08:30 AM	0	2	0	2	0	10	1	11	0	1	**3**	4	**2**	15	**5**	22	39
Total Volume	3	8	3	14	3	33	2	38	4	8	6	18	3	53	14	70	140
% App. Total	21.4	57.1	21.4		7.9	86.8	5.3		22.2	44.4	33.3		4.3	75.7	20		
PHF	.250	.667	.375	.875	.375	.825	.500	.792	.500	.667	.500	.643	.375	.697	.700	.729	.854

Counts Unlimited, Inc.
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	0	**3**	1	**4**	**2**	**10**	0	**12**	**2**	1	1	4	0	10	3	13	
+15 mins.	0	2	**2**	4	0	9	0	9	0	**3**	0	3	0	9	2	11	
+30 mins.	**3**	1	0	4	1	4	**1**	6	2	3	2	**7**	1	**19**	4	**24**	
+45 mins.	0	2	0	2	0	10	1	11	0	1	**3**	4	**2**	15	**5**	22	
Total Volume	3	8	3	14	3	33	2	38	4	8	6	18	3	53	14	70	
% App. Total	21.4	57.1	21.4		7.9	86.8	5.3		22.2	44.4	33.3		4.3	75.7	20		
PHF	.250	.667	.375	.875	.375	.825	.500	.792	.500	.667	.500	.643	.375	.697	.700	.729	

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

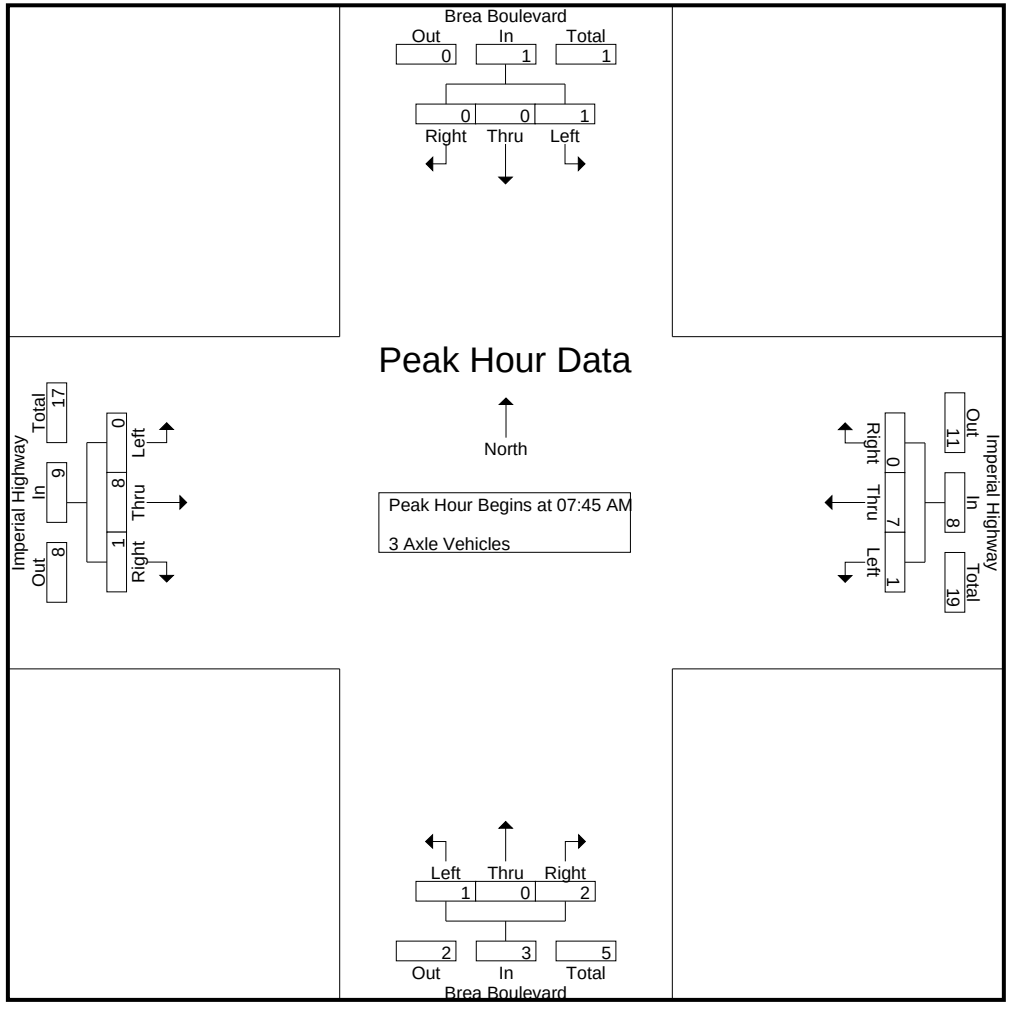
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	6	0	0	0	7	0	0	0	0	0	0	0	2	1	0	1	3	1	10	11
07:15 AM	2	0	0	0	0	2	0	3	0	0	0	3	0	0	0	0	0	0	0	2	0	0	0	2	0	7	7
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	4	0	0	0	4	0	5	5
07:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	3	0	4	4
Total	2	0	0	0	0	2	1	10	0	0	0	11	0	0	1	0	0	1	0	11	1	0	1	12	1	26	27
08:00 AM	0	0	0	0	0	0	1	2	0	0	0	3	0	0	1	0	0	1	0	1	0	0	0	1	0	5	5
08:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	1	0	2	0	0	0	2	1	4	5
08:30 AM	1	0	0	0	0	1	0	3	0	0	0	3	1	0	0	0	0	1	0	2	1	0	0	3	0	8	8
08:45 AM	0	0	0	0	0	0	1	3	0	0	0	4	0	0	0	0	0	0	0	3	0	0	0	3	0	7	7
Total	1	0	0	0	0	1	2	9	0	0	0	11	1	0	2	0	1	3	0	8	1	0	0	9	1	24	25
Grand Total	3	0	0	0	0	3	3	19	0	0	0	22	1	0	3	0	1	4	0	19	2	0	1	21	2	50	52
Apprch %	100	0	0				13.6	86.4	0				25	0	75				0	90.5	9.5						
Total %	6	0	0			6	6	38	0			44	2	0	6			8	0	38	4			42	3.8	96.2	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	**3**	0	**3**	4
08:00 AM	0	0	0	0	**1**	2	0	**3**	0	0	**1**	**1**	0	1	0	1	5
08:15 AM	0	0	0	0	0	1	0	1	0	0	1	1	0	2	0	2	4
08:30 AM	**1**	0	0	**1**	0	**3**	0	3	**1**	0	0	1	0	2	**1**	3	**8**
Total Volume	1	0	0	1	1	7	0	8	1	0	2	3	0	8	1	9	21
% App. Total	100	0	0		12.5	87.5	0		33.3	0	66.7		0	88.9	11.1		
PHF	.250	.000	.000	.250	.250	.583	.000	.667	.250	.000	.500	.750	.000	.667	.250	.750	.656

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



Counts Unlimited, Inc.
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**3**	0	**3**	
+15 mins.	0	0	0	0	**1**	2	0	**3**	0	0	**1**	**1**	0	1	0	1	
+30 mins.	0	0	0	0	0	1	0	1	0	0	1	1	0	2	0	2	
+45 mins.	**1**	0	0	**1**	0	**3**	0	3	**1**	0	0	1	0	2	**1**	3	
Total Volume	1	0	0	1	1	7	0	8	1	0	2	3	0	8	1	9	
% App. Total	100	0	0		12.5	87.5	0		33.3	0	66.7		0	88.9	11.1		
PHF	.250	.000	.000	.250	.250	.583	.000	.667	.250	.000	.500	.750	.000	.667	.250	.750	

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

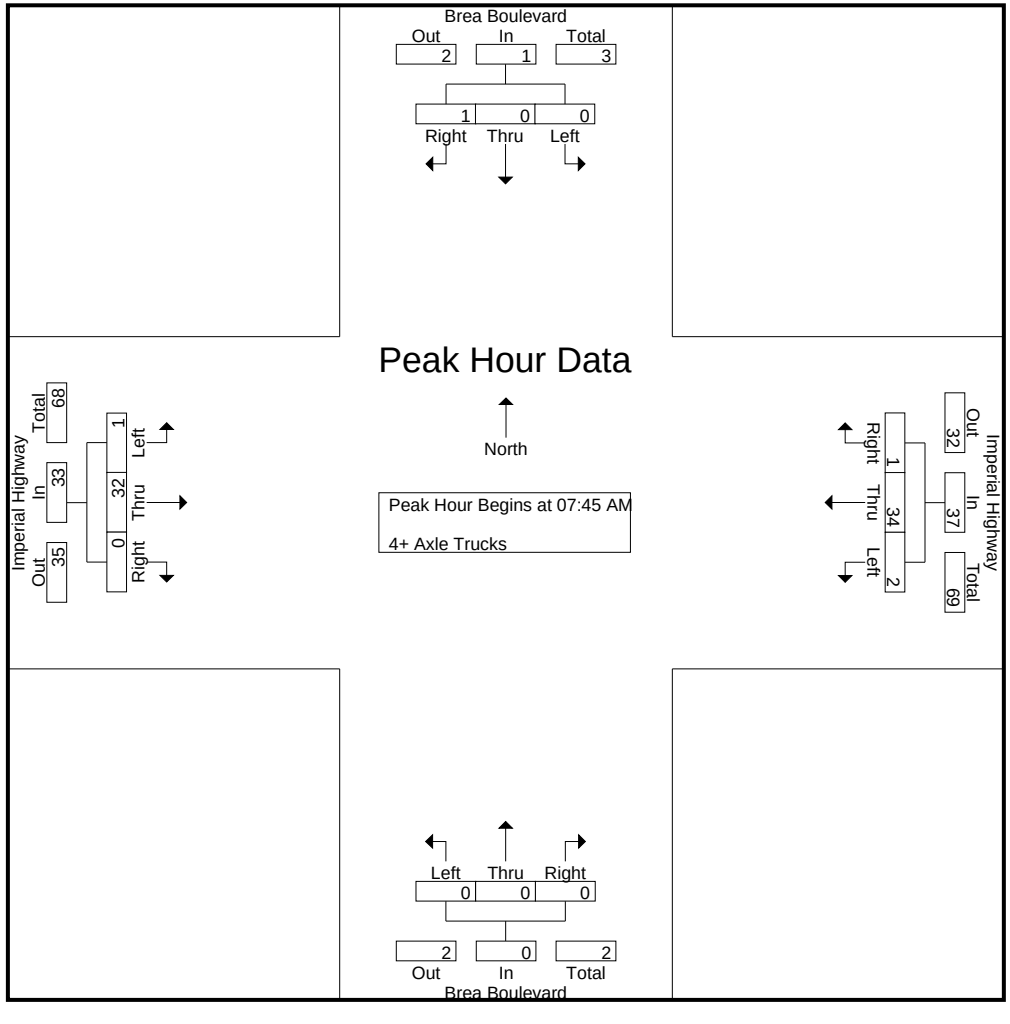
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	11	0	0	0	11	1	0	0	0	0	1	0	14	1	0	0	15	0	27	27
07:15 AM	0	0	1	0	0	1	1	15	0	0	0	16	0	0	1	0	1	1	1	9	0	0	0	10	1	28	29
07:30 AM	0	0	1	0	0	1	0	6	0	0	0	6	0	0	0	0	0	0	0	6	0	0	0	6	0	13	13
07:45 AM	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	7	0	0	0	7	0	14	14
Total	0	0	2	0	0	2	1	39	0	0	0	40	1	0	1	0	1	2	1	36	1	0	0	38	1	82	83
08:00 AM	0	0	1	0	0	1	1	13	1	0	1	15	0	0	0	0	0	0	0	10	0	0	0	10	1	26	27
08:15 AM	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	8	0	0	0	8	0	15	15
08:30 AM	0	0	0	0	0	0	1	7	0	0	0	8	0	0	0	0	0	0	1	7	0	0	0	8	0	16	16
08:45 AM	0	0	0	0	0	0	0	14	0	0	0	14	0	0	0	0	0	0	1	11	0	0	0	12	0	26	26
Total	0	0	1	0	0	1	2	41	1	0	1	44	0	0	0	0	0	0	2	36	0	0	0	38	1	83	84
Grand Total	0	0	3	0	0	3	3	80	1	0	1	84	1	0	1	0	1	2	3	72	1	0	0	76	2	165	167
Apprch %	0	0	100				3.6	95.2	1.2				50	0	50				3.9	94.7	1.3						
Total %	0	0	1.8			1.8	1.8	48.5	0.6			50.9	0.6	0	0.6			1.2	1.8	43.6	0.6			46.1	1.2	98.8	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	7	0	7	14
08:00 AM	0	0	**1**	**1**	**1**	**13**	**1**	**15**	0	0	0	0	0	**10**	0	**10**	**26**
08:15 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	8	0	8	15
08:30 AM	0	0	0	0	1	7	0	8	0	0	0	0	**1**	7	0	8	16
Total Volume	0	0	1	1	2	34	1	37	0	0	0	0	1	32	0	33	71
% App. Total	0	0	100		5.4	91.9	2.7		0	0	0		3	97	0		
PHF	.000	.000	.250	.250	.500	.654	.250	.617	.000	.000	.000	.000	.250	.800	.000	.825	.683

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Brea Boulevard
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Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	0	0	0	0	0	7	0	7	0	0	0	0	0	7	0	7	
+15 mins.	0	0	**1**	**1**	**1**	**13**	**1**	**15**	0	0	0	0	0	**10**	0	**10**	
+30 mins.	0	0	0	0	0	7	0	7	0	0	0	0	0	8	0	8	
+45 mins.	0	0	0	0	1	7	0	8	0	0	0	0	**1**	7	0	8	
Total Volume	0	0	1	1	2	34	1	37	0	0	0	0	1	32	0	33	
% App. Total	0	0	100		5.4	91.9	2.7		0	0	0		3	97	0		
PHF	.000	.000	.250	.250	.500	.654	.250	.617	.000	.000	.000	.000	.250	.800	.000	.825	

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Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

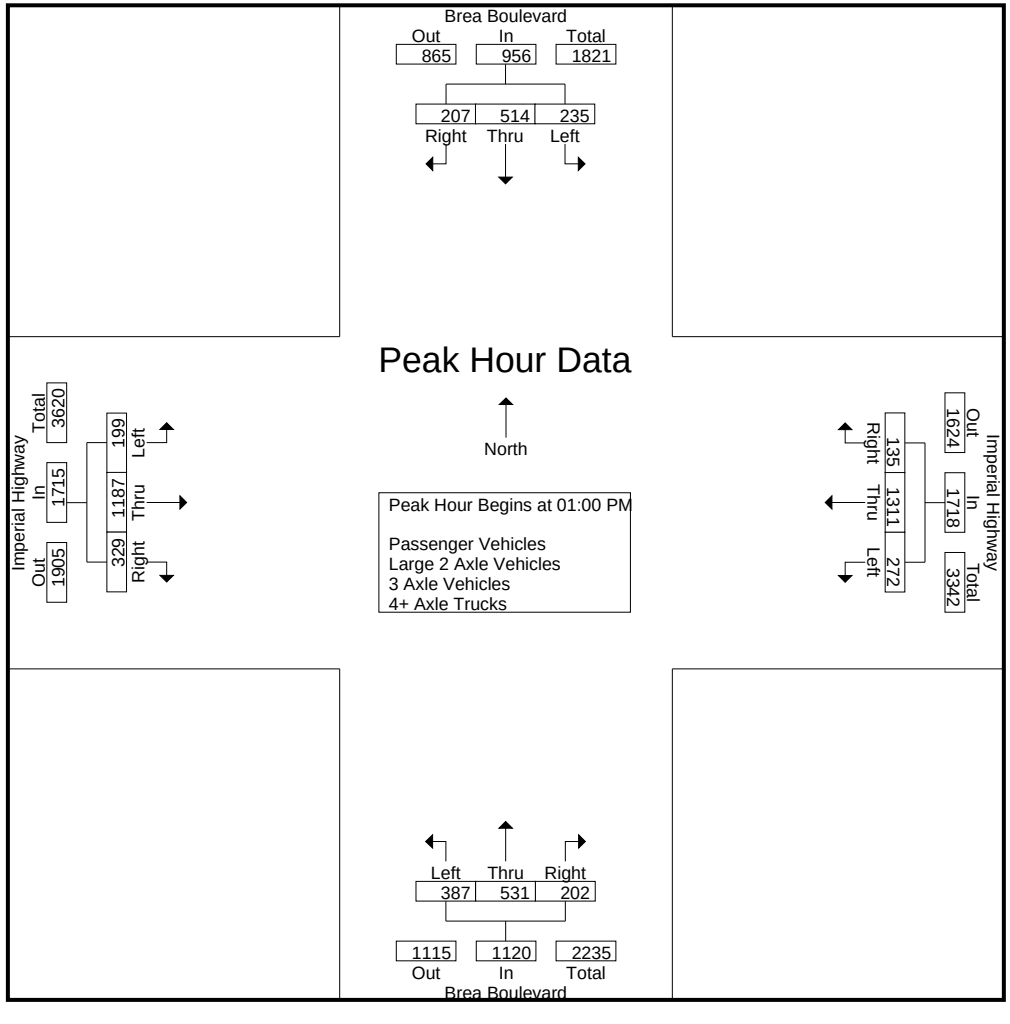
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	44	126	44	9	11	214	60	293	46	3	22	399	80	99	71	3	35	250	56	310	68	4	33	434	120	1297	1417
12:15 PM	49	126	40	6	15	215	75	308	38	2	15	421	86	92	54	1	26	232	49	339	72	1	25	460	91	1328	1419
12:30 PM	56	134	52	12	20	242	62	314	24	3	15	400	94	104	60	2	24	258	48	304	83	0	32	435	108	1335	1443
12:45 PM	42	119	51	16	25	212	52	310	31	3	7	393	86	115	74	3	29	275	39	312	72	0	23	423	106	1303	1409
Total	191	505	187	43	71	883	249	1225	139	11	59	1613	346	410	259	9	114	1015	192	1265	295	5	113	1752	425	5263	5688
01:00 PM	50	132	51	9	13	233	58	298	38	0	16	394	88	136	54	1	30	278	49	297	74	1	30	420	100	1325	1425
01:15 PM	58	108	56	5	16	222	67	309	28	3	12	404	105	137	50	4	21	292	59	305	70	2	33	434	96	1352	1448
01:30 PM	63	138	56	2	17	257	73	346	37	6	8	456	109	123	54	2	23	286	45	322	113	1	40	480	99	1479	1578
01:45 PM	64	136	44	12	9	244	74	358	32	2	17	464	85	135	44	2	22	264	46	263	72	1	29	381	94	1353	1447
Total	235	514	207	28	55	956	272	1311	135	11	53	1718	387	531	202	9	96	1120	199	1187	329	5	132	1715	389	5509	5898
Grand Total	426	1019	394	71	126	1839	521	2536	274	22	112	3331	733	941	461	18	210	2135	391	2452	624	10	245	3467	814	10772	11586
Apprch %	23.2	55.4	21.4				15.6	76.1	8.2				34.3	44.1	21.6				11.3	70.7	18						
Total %	4	9.5	3.7			17.1	4.8	23.5	2.5			30.9	6.8	8.7	4.3			19.8	3.6	22.8	5.8			32.2	7	93	
Passenger Vehicles	413	1006	383			1997	508	2406	269			3316	724	924	455			2327	386	2337	611			3582	0	0	11222
% Passenger Vehicles	96.9	98.7	97.2	100	98.4	98.1	97.5	94.9	98.2	100	99.1	95.7	98.8	98.2	98.7	100	98.1	98.5	98.7	95.3	97.9	100	97.1	96.2	0	0	96.9
Large 2 Axle Vehicles	10	13	8			33	10	68	1			80	7	14	5			30	5	51	11			72	0	0	215
% Large 2 Axle Vehicles	2.3	1.3	2	0	1.6	1.6	1.9	2.7	0.4	0	0.9	2.3	1	1.5	1.1	0	1.9	1.3	1.3	2.1	1.8	0	2	1.9	0	0	1.9
3 Axle Vehicles	2	0	1			3	1	19	2			22	1	2	1			4	0	17	2			21	0	0	50
% 3 Axle Vehicles	0.5	0	0.3	0	0	0.1	0.2	0.7	0.7	0	0	0.6	0.1	0.2	0.2	0	0	0.2	0	0.7	0.3	0	0.8	0.6	0	0	0.4
4+ Axle Trucks	1	0	2			3	2	43	2			47	1	1	0			2	0	47	0			47	0	0	99
% 4+ Axle Trucks	0.2	0	0.5	0	0	0.1	0.4	1.7	0.7	0	0	1.4	0.1	0.1	0	0	0	0.1	0	1.9	0	0	0	1.3	0	0	0.9

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 12:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	50	132	51	233	58	298	**38**	394	88	136	**54**	278	49	297	74	420	1325
01:15 PM	58	108	**56**	222	67	309	28	404	105	**137**	50	**292**	**59**	305	70	434	1352
01:30 PM	63	**138**	56	**257**	73	346	37	456	**109**	123	54	286	45	**322**	**113**	**480**	**1479**
01:45 PM	**64**	136	44	244	**74**	**358**	32	**464**	85	135	44	264	46	263	72	381	1353
Total Volume	235	514	207	956	272	1311	135	1718	387	531	202	1120	199	1187	329	1715	5509
% App. Total	24.6	53.8	21.7		15.8	76.3	7.9		34.6	47.4	18		11.6	69.2	19.2		
PHF	.918	.931	.924	.930	.919	.916	.888	.926	.888	.969	.935	.959	.843	.922	.728	.893	.931

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City of Brea
N/S: Brea Boulevard
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Weather: Clear

File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 12:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				12:45 PM				12:45 PM				
+0 mins.	50	132	51	233	58	298	**38**	394	86	115	**74**	275	39	312	72	423	
+15 mins.	58	108	**56**	222	67	309	28	404	88	136	54	278	49	297	74	420	
+30 mins.	63	**138**	56	**257**	73	346	37	456	105	**137**	50	**292**	**59**	305	70	434	
+45 mins.	**64**	136	44	244	**74**	**358**	32	**464**	**109**	123	54	286	45	**322**	**113**	**480**	
Total Volume	235	514	207	956	272	1311	135	1718	388	511	232	1131	192	1236	329	1757	
% App. Total	24.6	53.8	21.7		15.8	76.3	7.9		34.3	45.2	20.5		10.9	70.3	18.7		
PHF	.918	.931	.924	.930	.919	.916	.888	.926	.890	.932	.784	.968	.814	.960	.728	.915	

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Page No : 1

Groups Printed- Passenger Vehicles

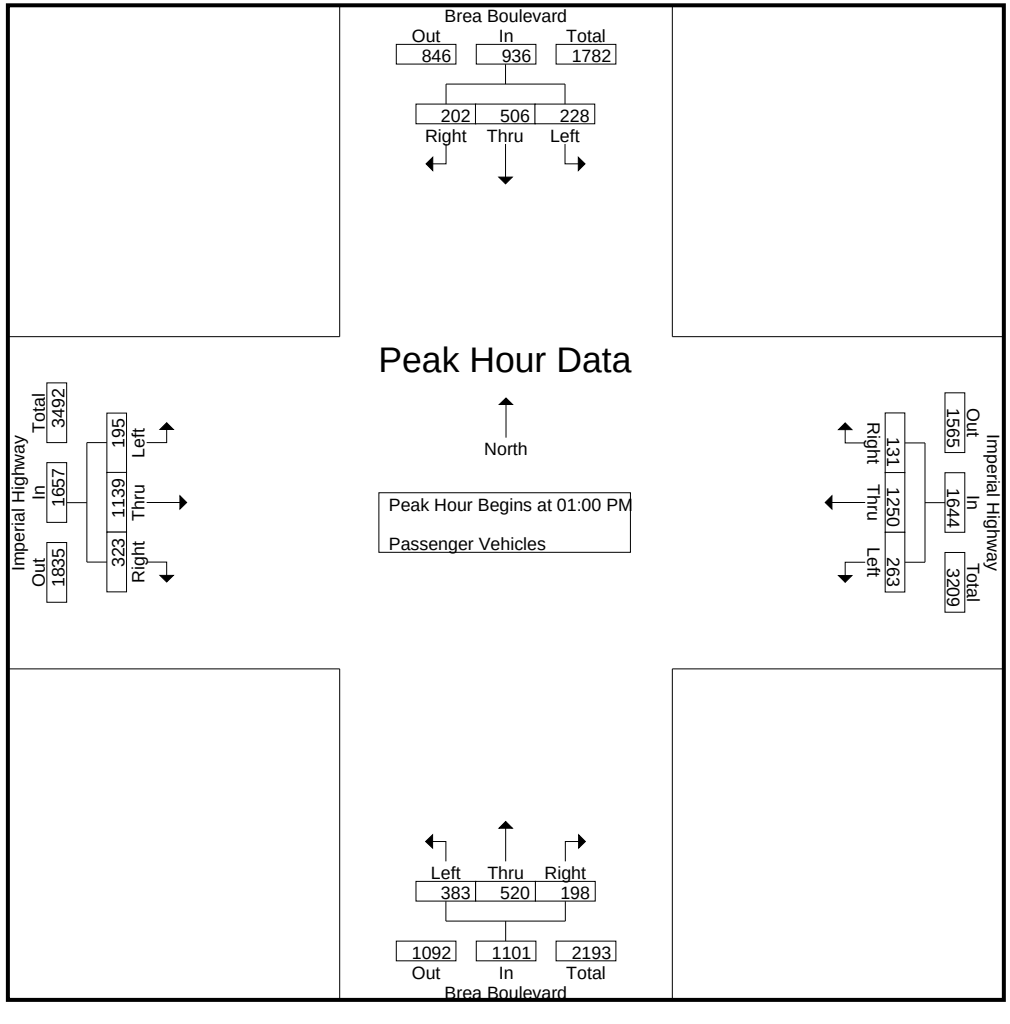
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	43	124	42	9	11	209	60	277	46	3	22	383	79	97	71	3	35	247	56	300	66	4	32	422	119	1261	1380
12:15 PM	48	124	40	6	15	212	74	289	38	2	15	401	84	91	54	1	26	229	49	320	69	1	24	438	90	1280	1370
12:30 PM	55	134	51	12	19	240	61	293	24	3	15	378	93	103	60	2	24	256	48	286	82	0	31	416	106	1290	1396
12:45 PM	39	118	48	16	25	205	50	297	30	3	7	377	85	113	72	3	27	270	38	292	71	0	23	401	104	1253	1357
Total	185	500	181	43	70	866	245	1156	138	11	59	1539	341	404	257	9	112	1002	191	1198	288	5	110	1677	419	5084	5503
01:00 PM	50	130	51	9	13	231	56	289	37	0	16	382	86	133	53	1	29	272	49	285	73	1	29	407	98	1292	1390
01:15 PM	55	108	52	5	15	215	64	288	28	3	12	380	104	136	50	4	21	290	59	295	69	2	32	423	94	1308	1402
01:30 PM	62	134	55	2	17	251	71	329	35	6	8	435	108	121	52	2	23	281	44	310	110	1	39	464	98	1431	1529
01:45 PM	61	134	44	12	9	239	72	344	31	2	16	447	85	130	43	2	21	258	43	249	71	1	28	363	91	1307	1398
Total	228	506	202	28	54	936	263	1250	131	11	52	1644	383	520	198	9	94	1101	195	1139	323	5	128	1657	381	5338	5719
Grand Total	413	1006	383	71	124	1802	508	2406	269	22	111	3183	724	924	455	18	206	2103	386	2337	611	10	238	3334	800	10422	11222
Apprch %	22.9	55.8	21.3				16	75.6	8.5				34.4	43.9	21.6				11.6	70.1	18.3						
Total %	4	9.7	3.7			17.3	4.9	23.1	2.6			30.5	6.9	8.9	4.4			20.2	3.7	22.4	5.9			32	7.1	92.9	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	50	130	51	231	56	289	**37**	382	86	133	**53**	272	49	285	73	407	1292
01:15 PM	55	108	52	215	64	288	28	380	104	**136**	50	**290**	**59**	295	69	423	1308
01:30 PM	**62**	**134**	**55**	**251**	71	329	35	435	**108**	121	52	281	44	**310**	**110**	**464**	**1431**
01:45 PM	61	134	44	239	**72**	**344**	31	**447**	85	130	43	258	43	249	71	363	1307
Total Volume	228	506	202	936	263	1250	131	1644	383	520	198	1101	195	1139	323	1657	5338
% App. Total	24.4	54.1	21.6		16	76	8		34.8	47.2	18		11.8	68.7	19.5		
PHF	.919	.944	.918	.932	.913	.908	.885	.919	.887	.956	.934	.949	.826	.919	.734	.893	.933

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City of Brea
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Start Date : 12/21/2022
Page No : 2



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	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	50	130	51	231	56	289	**37**	382	86	133	**53**	272	49	285	73	407	
+15 mins.	55	108	52	215	64	288	28	380	104	**136**	50	**290**	**59**	295	69	423	
+30 mins.	**62**	**134**	**55**	**251**	71	329	35	435	**108**	121	52	281	44	**310**	**110**	**464**	
+45 mins.	61	134	44	239	**72**	**344**	31	**447**	85	130	43	258	43	249	71	363	
Total Volume	228	506	202	936	263	1250	131	1644	383	520	198	1101	195	1139	323	1657	
% App. Total	24.4	54.1	21.6		16	76	8		34.8	47.2	18		11.8	68.7	19.5		
PHF	.919	.944	.918	.932	.913	.908	.885	.919	.887	.956	.934	.949	.826	.919	.734	.893	

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Page No : 1

Groups Printed- Large 2 Axle Vehicles

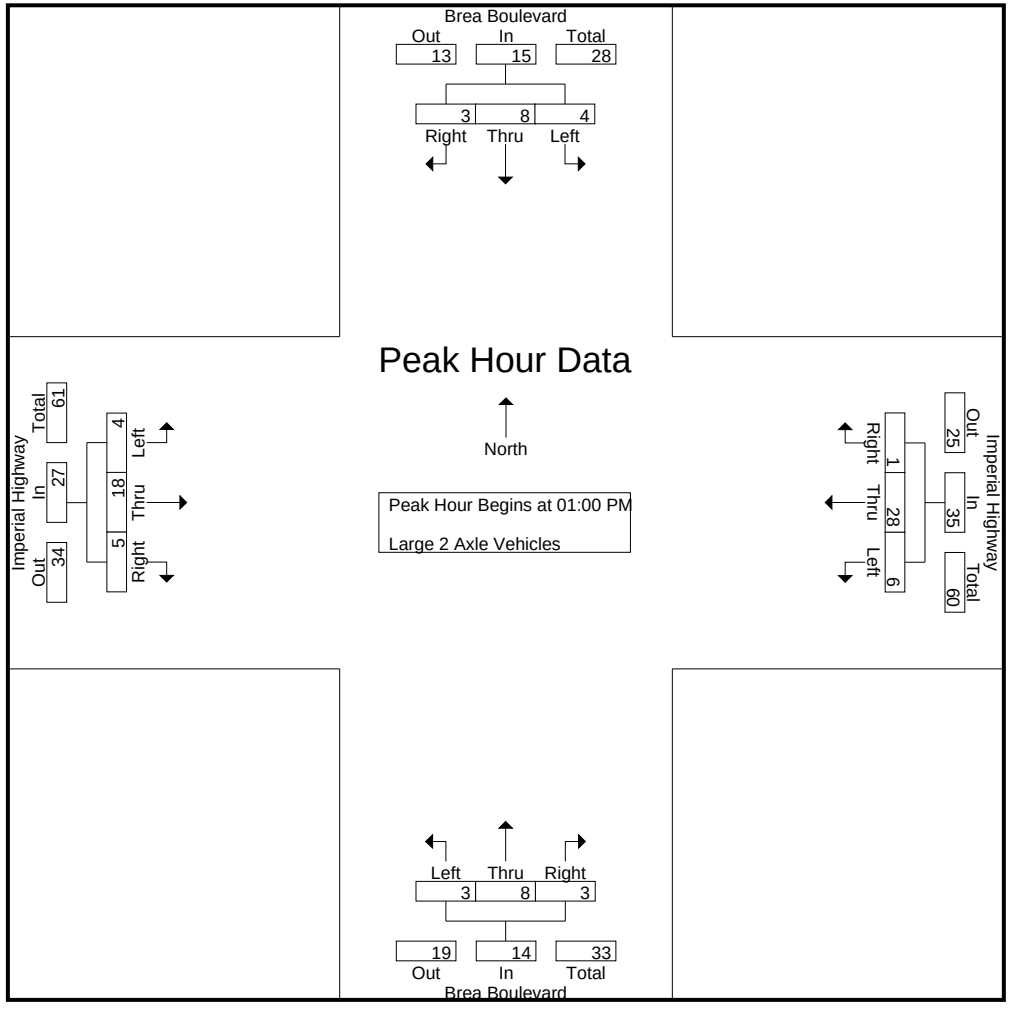
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	1	2	2	0	0	5	0	13	0	0	0	13	0	2	0	0	0	2	0	5	2	0	1	7	1	27	28
12:15 PM	1	2	0	0	0	3	1	8	0	0	0	9	2	1	0	0	0	3	0	10	3	0	1	13	1	28	29
12:30 PM	1	0	1	0	1	2	1	10	0	0	0	11	1	1	0	0	0	2	0	9	0	0	0	9	1	24	25
12:45 PM	3	1	2	0	0	6	2	9	0	0	0	11	1	2	2	0	2	5	1	9	1	0	0	11	2	33	35
Total	6	5	5	0	1	16	4	40	0	0	0	44	4	6	2	0	2	12	1	33	6	0	2	40	5	112	117
01:00 PM	0	2	0	0	0	2	0	5	0	0	0	5	1	2	1	0	1	4	0	5	1	0	1	6	2	17	19
01:15 PM	2	0	3	0	1	5	2	7	0	0	0	9	1	1	0	0	0	2	0	4	1	0	1	5	2	21	23
01:30 PM	0	4	0	0	0	4	2	9	0	0	0	11	1	1	1	0	0	3	1	2	2	0	0	5	0	23	23
01:45 PM	2	2	0	0	0	4	2	7	1	0	1	10	0	4	1	0	1	5	3	7	1	0	1	11	3	30	33
Total	4	8	3	0	1	15	6	28	1	0	1	35	3	8	3	0	2	14	4	18	5	0	3	27	7	91	98
Grand Total	10	13	8	0	2	31	10	68	1	0	1	79	7	14	5	0	4	26	5	51	11	0	5	67	12	203	215
Apprch %	32.3	41.9	25.8				12.7	86.1	1.3				26.9	53.8	19.2				7.5	76.1	16.4						
Total %	4.9	6.4	3.9			15.3	4.9	33.5	0.5			38.9	3.4	6.9	2.5			12.8	2.5	25.1	5.4			33	5.6	94.4	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	2	0	2	0	5	0	5	**1**	2	**1**	4	0	5	1	6	17
01:15 PM	**2**	0	**3**	**5**	**2**	7	0	9	1	1	0	2	0	4	1	5	21
01:30 PM	0	**4**	0	4	2	**9**	0	**11**	1	1	1	3	1	2	**2**	5	23
01:45 PM	2	2	0	4	2	7	**1**	10	0	**4**	1	**5**	**3**	**7**	1	**11**	**30**
Total Volume	4	8	3	15	6	28	1	35	3	8	3	14	4	18	5	27	91
% App. Total	26.7	53.3	20		17.1	80	2.9		21.4	57.1	21.4		14.8	66.7	18.5		
PHF	.500	.500	.250	.750	.750	.778	.250	.795	.750	.500	.750	.700	.333	.643	.625	.614	.758

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	0	2	0	2	0	5	0	5	**1**	2	**1**	4	0	5	1	6	
+15 mins.	**2**	0	**3**	**5**	**2**	7	0	9	1	1	0	2	0	4	1	5	
+30 mins.	0	**4**	0	4	2	**9**	0	**11**	1	1	1	3	1	2	**2**	5	
+45 mins.	2	2	0	4	2	7	**1**	10	0	**4**	1	**5**	**3**	**7**	1	**11**	
Total Volume	4	8	3	15	6	28	1	35	3	8	3	14	4	18	5	27	
% App. Total	26.7	53.3	20		17.1	80	2.9		21.4	57.1	21.4		14.8	66.7	18.5		
PHF	.500	.500	.250	.750	.750	.778	.250	.795	.750	.500	.750	.700	.333	.643	.625	.614	

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City of Brea
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File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

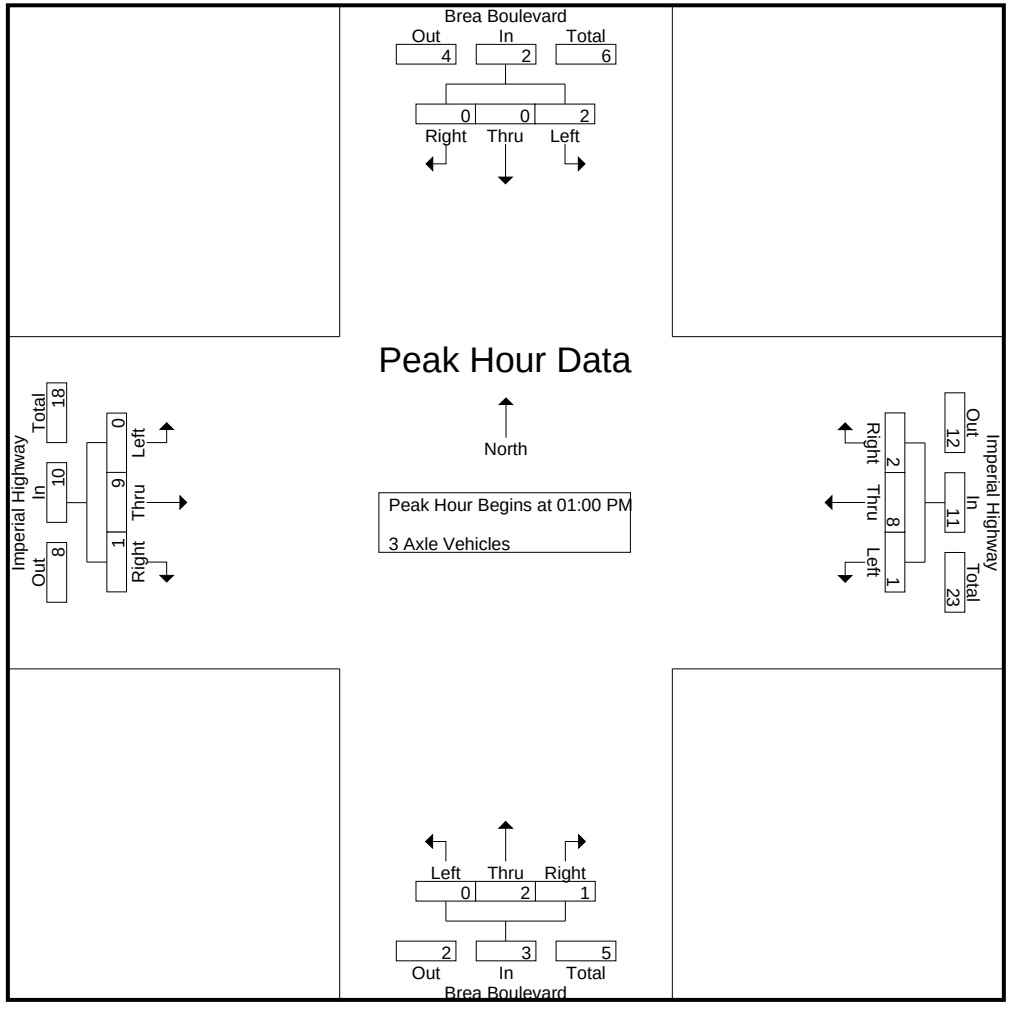
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	3	3
12:15 PM	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	1	0	6	6
12:30 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	3	1	0	1	4	1	8	9
12:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	5	5
Total	0	0	1	0	0	1	0	11	0	0	0	11	1	0	0	0	0	1	0	8	1	0	1	9	1	22	23
01:00 PM	0	0	0	0	0	0	1	2	1	0	0	4	0	1	0	0	0	1	0	4	0	0	0	4	0	9	9
01:15 PM	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	0	4	4
01:30 PM	1	0	0	0	0	1	0	3	1	0	0	4	0	1	1	0	0	2	0	2	1	0	1	3	1	10	11
01:45 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	3	3
Total	2	0	0	0	0	2	1	8	2	0	0	11	0	2	1	0	0	3	0	9	1	0	1	10	1	26	27
Grand Total	2	0	1	0	0	3	1	19	2	0	0	22	1	2	1	0	0	4	0	17	2	0	2	19	2	48	50
Apprch %	66.7	0	33.3				4.5	86.4	9.1				25	50	25				0	89.5	10.5						
Total %	4.2	0	2.1			6.2	2.1	39.6	4.2			45.8	2.1	4.2	2.1			8.3	0	35.4	4.2			39.6	4	96	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	**1**	2	**1**	**4**	0	**1**	0	1	0	**4**	0	**4**	9
01:15 PM	**1**	0	0	**1**	0	1	0	1	0	0	0	0	0	2	0	2	4
01:30 PM	1	0	0	1	0	**3**	1	4	0	1	**1**	**2**	0	2	**1**	3	**10**
01:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
Total Volume	2	0	0	2	1	8	2	11	0	2	1	3	0	9	1	10	26
% App. Total	100	0	0		9.1	72.7	18.2		0	66.7	33.3		0	90	10		
PHF	.500	.000	.000	.500	.250	.667	.500	.688	.000	.500	.250	.375	.000	.563	.250	.625	.650

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
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Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	0	0	0	0	**1**	2	**1**	**4**	0	**1**	0	1	0	**4**	0	**4**	
+15 mins.	**1**	0	0	**1**	0	1	0	1	0	0	0	0	0	2	0	2	
+30 mins.	1	0	0	1	0	**3**	1	4	0	1	**1**	**2**	0	2	**1**	3	
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	
Total Volume	2	0	0	2	1	8	2	11	0	2	1	3	0	9	1	10	
% App. Total	100	0	0		9.1	72.7	18.2		0	66.7	33.3		0	90	10		
PHF	.500	.000	.000	.500	.250	.667	.500	.688	.000	.500	.250	.375	.000	.563	.250	.625	

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Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

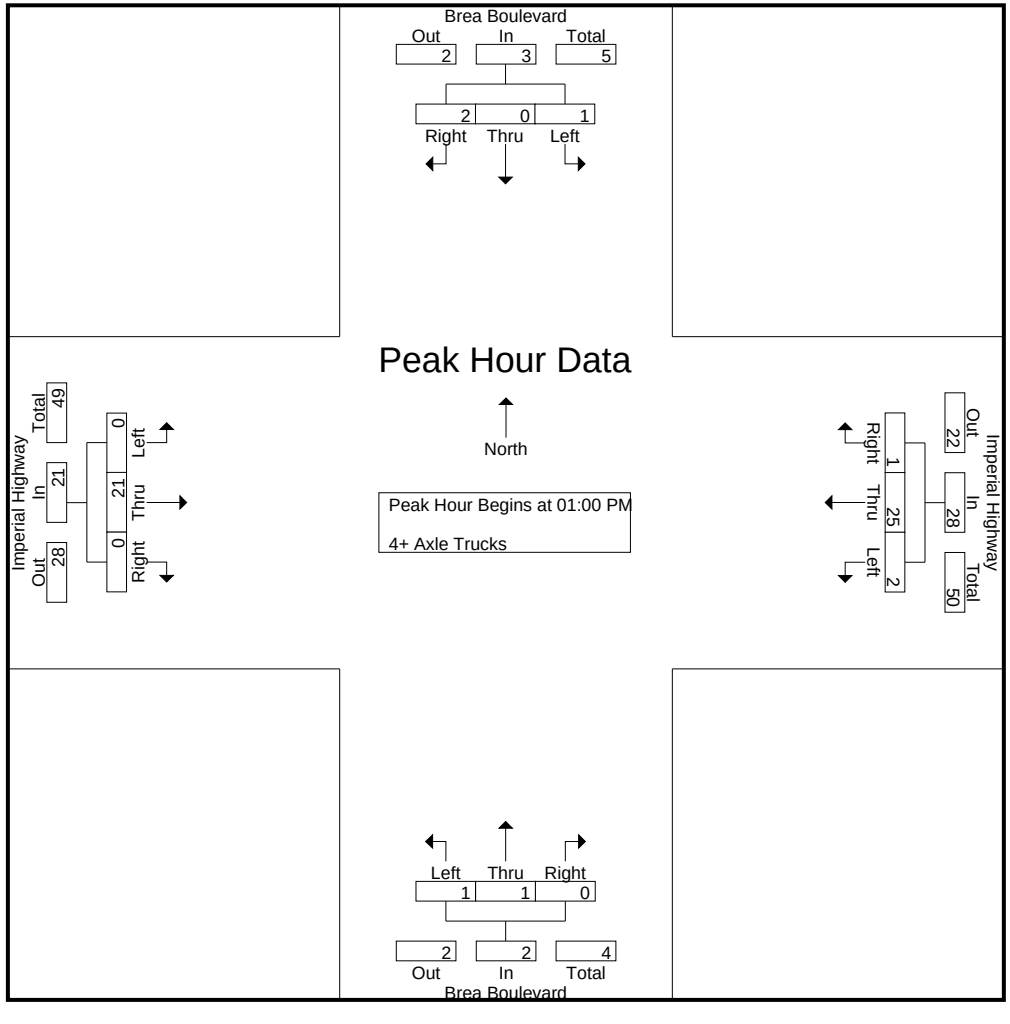
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	6	6
12:15 PM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	8	0	0	0	8	0	14	14
12:30 PM	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	6	0	0	0	6	0	13	13
12:45 PM	0	0	0	0	0	0	0	4	1	0	0	5	0	0	0	0	0	0	0	7	0	0	0	7	0	12	12
Total	0	0	0	0	0	0	0	18	1	0	0	19	0	0	0	0	0	0	0	26	0	0	0	26	0	45	45
01:00 PM	0	0	0	0	0	0	1	2	0	0	0	3	1	0	0	0	0	1	0	3	0	0	0	3	0	7	7
01:15 PM	0	0	1	0	0	1	1	13	0	0	0	14	0	0	0	0	0	0	0	4	0	0	0	4	0	19	19
01:30 PM	0	0	1	0	0	1	0	5	1	0	0	6	0	0	0	0	0	0	0	8	0	0	0	8	0	15	15
01:45 PM	1	0	0	0	0	1	0	5	0	0	0	5	0	1	0	0	0	1	0	6	0	0	0	6	0	13	13
Total	1	0	2	0	0	3	2	25	1	0	0	28	1	1	0	0	0	2	0	21	0	0	0	21	0	54	54
Grand Total	1	0	2	0	0	3	2	43	2	0	0	47	1	1	0	0	0	2	0	47	0	0	0	47	0	99	99
Apprch %	33.3	0	66.7				4.3	91.5	4.3				50	50	0				0	100	0						
Total %	1	0	2			3	2	43.4	2			47.5	1	1	0			2	0	47.5	0			47.5	0	100	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	**1**	2	0	3	**1**	0	0	**1**	0	3	0	3	7
01:15 PM	0	0	**1**	**1**	1	**13**	0	**14**	0	0	0	0	0	4	0	4	**19**
01:30 PM	0	0	1	1	0	5	**1**	6	0	0	0	0	0	**8**	0	**8**	15
01:45 PM	**1**	0	0	1	0	5	0	5	0	**1**	0	1	0	6	0	6	13
Total Volume	1	0	2	3	2	25	1	28	1	1	0	2	0	21	0	21	54
% App. Total	33.3	0	66.7		7.1	89.3	3.6		50	50	0		0	100	0		
PHF	.250	.000	.500	.750	.500	.481	.250	.500	.250	.250	.000	.500	.000	.656	.000	.656	.711

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Brea Boulevard
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File Name : 01A_BRE_Brea_Imp MD
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	0	0	0	0	**1**	2	0	3	**1**	0	0	**1**	0	3	0	3	
+15 mins.	0	0	**1**	**1**	1	**13**	0	**14**	0	0	0	0	0	4	0	4	
+30 mins.	0	0	1	1	0	5	**1**	6	0	0	0	0	0	**8**	0	**8**	
+45 mins.	**1**	0	0	1	0	5	0	5	0	**1**	0	1	0	6	0	6	
Total Volume	1	0	2	3	2	25	1	28	1	1	0	2	0	21	0	21	
% App. Total	33.3	0	66.7		7.1	89.3	3.6		50	50	0		0	100	0		
PHF	.250	.000	.500	.750	.500	.481	.250	.500	.250	.250	.000	.500	.000	.656	.000	.656	

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City of Brea
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File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

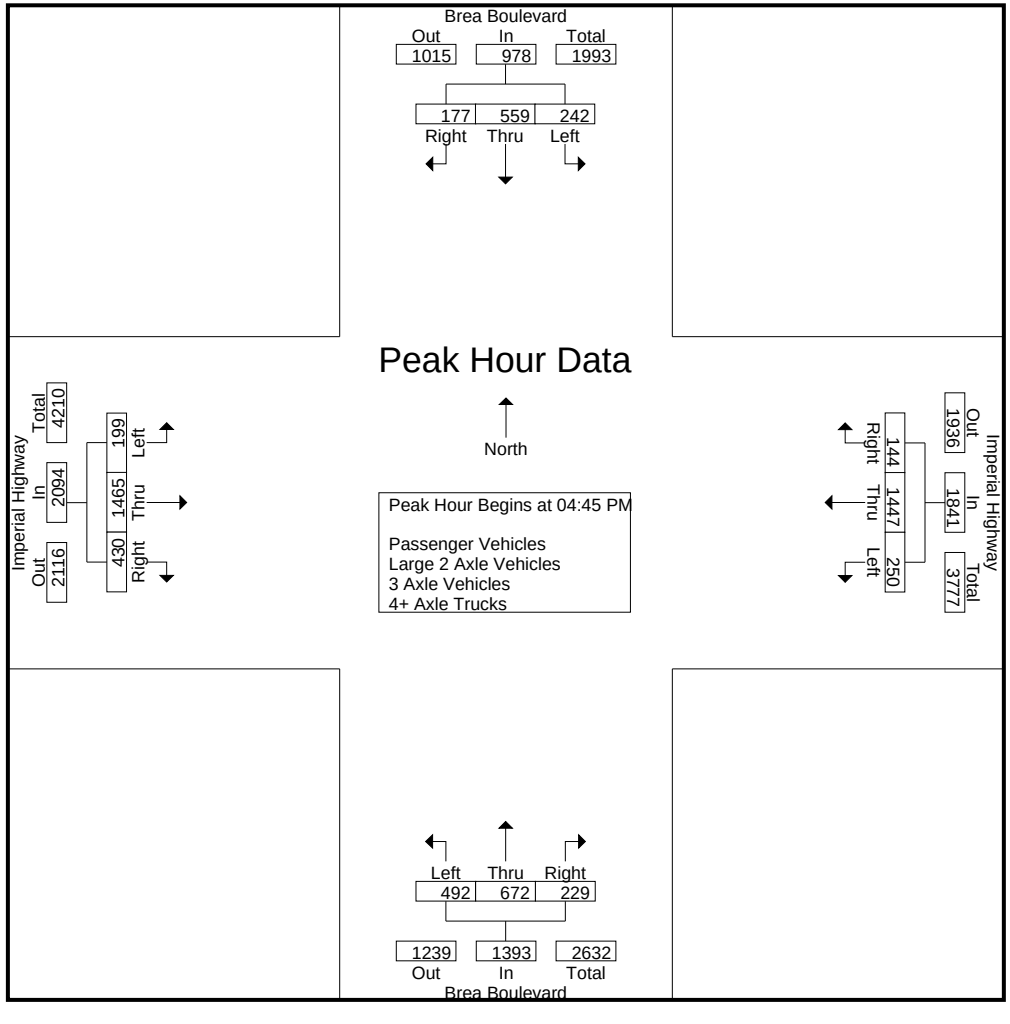
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	51	136	30	7	8	217	58	334	24	1	14	416	102	164	49	2	28	315	56	339	98	1	30	493	91	1441	1532
04:15 PM	53	162	37	7	2	252	60	341	32	4	16	433	127	165	57	1	27	349	53	330	95	1	40	478	98	1512	1610
04:30 PM	37	146	49	13	9	232	72	377	22	4	6	471	118	160	66	0	32	344	46	337	108	1	47	491	112	1538	1650
04:45 PM	61	156	41	8	9	258	70	349	33	5	13	452	123	176	49	0	17	348	49	360	94	1	42	503	95	1561	1656
Total	202	600	157	35	28	959	260	1401	111	14	49	1772	470	665	221	3	104	1356	204	1366	395	4	159	1965	396	6052	6448
05:00 PM	50	134	49	6	12	233	66	368	36	3	14	470	122	178	65	2	29	365	48	365	114	3	45	527	114	1595	1709
05:15 PM	73	160	45	8	10	278	55	311	30	1	11	396	133	164	58	0	28	355	52	353	107	0	36	512	94	1541	1635
05:30 PM	58	109	42	18	9	209	59	419	45	3	21	523	114	154	57	1	26	325	50	387	115	0	44	552	122	1609	1731
05:45 PM	62	142	41	7	10	245	58	387	40	0	22	485	106	157	46	1	21	309	55	300	72	2	29	427	92	1466	1558
Total	243	545	177	39	41	965	238	1485	151	7	68	1874	475	653	226	4	104	1354	205	1405	408	5	154	2018	422	6211	6633
Grand Total	445	1145	334	74	69	1924	498	2886	262	21	117	3646	945	1318	447	7	208	2710	409	2771	803	9	313	3983	818	12263	13081
Apprch %	23.1	59.5	17.4				13.7	79.2	7.2				34.9	48.6	16.5				10.3	69.6	20.2						
Total %	3.6	9.3	2.7			15.7	4.1	23.5	2.1			29.7	7.7	10.7	3.6			22.1	3.3	22.6	6.5			32.5	6.3	93.7	
Passenger Vehicles	438	1136	331			2045	496	2793	258			3683	931	1310	447			2903	405	2723	796			4244	0	0	12875
% Passenger Vehicles	98.4	99.2	99.1	100	95.7	98.9	99.6	96.8	98.5	100	98.3	97.3	98.5	99.4	100	100	100	99.2	99	98.3	99.1	100	99.4	98.6	0	0	98.4
Large 2 Axle Vehicles	4	7	2			15	1	38	3			44	9	8	0			17	3	20	7			32	0	0	108
% Large 2 Axle Vehicles	0.9	0.6	0.6	0	2.9	0.7	0.2	1.3	1.1	0	1.7	1.2	1	0.6	0	0	0	0.6	0.7	0.7	0.9	0	0.6	0.7	0	0	0.8
3 Axle Vehicles	2	0	1			4	0	5	1			6	5	0	0			5	1	6	0			7	0	0	22
% 3 Axle Vehicles	0.4	0	0.3	0	1.4	0.2	0	0.2	0.4	0	0	0.2	0.5	0	0	0	0	0.2	0.2	0.2	0	0	0	0.2	0	0	0.2
4+ Axle Trucks	1	2	0			3	1	50	0			51	0	0	0			0	0	22	0			22	0	0	76
% 4+ Axle Trucks	0.2	0.2	0	0	0	0.1	0.2	1.7	0	0	0	1.3	0	0	0	0	0	0	0	0.8	0	0	0	0.5	0	0	0.6

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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	61	156	41	258	**70**	349	33	452	123	176	49	348	49	360	94	503	1561
05:00 PM	50	134	**49**	233	66	368	36	470	122	**178**	**65**	**365**	48	365	114	527	1595
05:15 PM	**73**	**160**	45	**278**	55	311	30	396	**133**	164	58	355	**52**	353	107	512	1541
05:30 PM	58	109	42	209	59	**419**	**45**	**523**	114	154	57	325	50	**387**	**115**	**552**	**1609**
Total Volume	242	559	177	978	250	1447	144	1841	492	672	229	1393	199	1465	430	2094	6306
% App. Total	24.7	57.2	18.1		13.6	78.6	7.8		35.3	48.2	16.4		9.5	70	20.5		
PHF	.829	.873	.903	.879	.893	.863	.800	.880	.925	.944	.881	.954	.957	.946	.935	.948	.980

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City of Brea
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File Name : 01A_BRE_Brea_Imp PM
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Page No : 2



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N/S: Brea Boulevard
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Site Code : 221110
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	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				05:00 PM				04:30 PM				04:45 PM				
+0 mins.	37	146	**49**	232	**66**	368	36	470	118	160	**66**	344	49	360	94	503	
+15 mins.	61	156	41	258	55	311	30	396	123	176	49	348	48	365	114	527	
+30 mins.	50	134	49	233	59	**419**	**45**	**523**	122	**178**	65	**365**	**52**	353	107	512	
+45 mins.	**73**	**160**	45	**278**	58	387	40	485	**133**	164	58	355	50	**387**	**115**	**552**	
Total Volume	221	596	184	1001	238	1485	151	1874	496	678	238	1412	199	1465	430	2094	
% App. Total	22.1	59.5	18.4		12.7	79.2	8.1		35.1	48	16.9		9.5	70	20.5		
PHF	.757	.931	.939	.900	.902	.886	.839	.896	.932	.952	.902	.967	.957	.946	.935	.948	

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Corona, CA 92878
(951)268-6268

City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

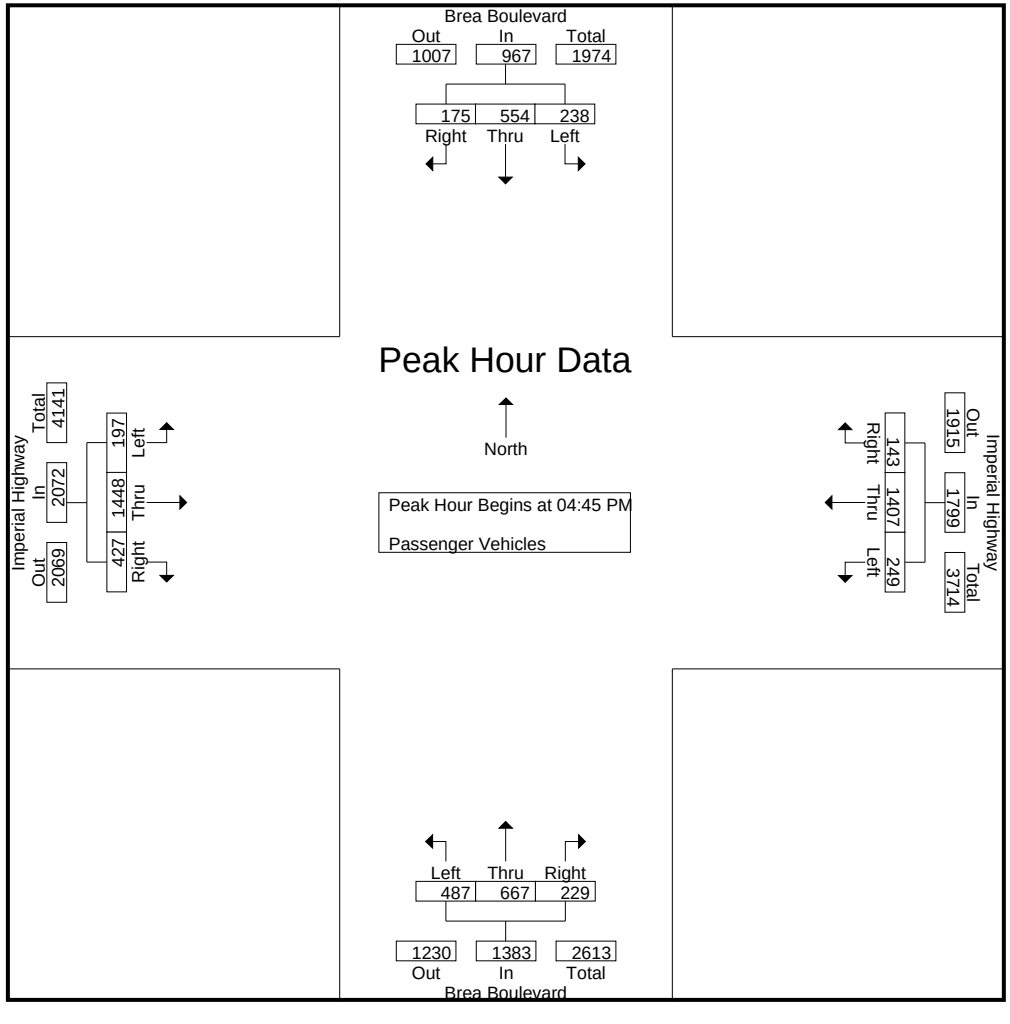
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	49	134	30	7	8	213	57	312	24	1	14	393	100	163	49	2	28	312	55	330	96	1	30	481	91	1399	1490
04:15 PM	53	162	37	7	2	252	60	325	30	4	15	415	123	164	57	1	27	344	52	320	94	1	40	466	97	1477	1574
04:30 PM	36	145	48	13	8	229	72	369	21	4	5	462	115	159	66	0	32	340	46	328	107	1	47	481	110	1512	1622
04:45 PM	59	154	40	8	8	253	70	337	33	5	13	440	118	173	49	0	17	340	48	353	94	1	42	495	94	1528	1622
Total	197	595	155	35	26	947	259	1343	108	14	47	1710	456	659	221	3	104	1336	201	1331	391	4	159	1923	392	5916	6308
05:00 PM	50	133	49	6	12	232	66	358	36	3	14	460	122	178	65	2	29	365	48	363	113	3	44	524	113	1581	1694
05:15 PM	71	160	45	8	10	276	54	301	29	1	11	384	133	163	58	0	28	354	51	349	105	0	35	505	93	1519	1612
05:30 PM	58	107	41	18	8	206	59	411	45	3	21	515	114	153	57	1	26	324	50	383	115	0	44	548	121	1593	1714
05:45 PM	62	141	41	7	10	244	58	380	40	0	22	478	106	157	46	1	21	309	55	297	72	2	29	424	92	1455	1547
Total	241	541	176	39	40	958	237	1450	150	7	68	1837	475	651	226	4	104	1352	204	1392	405	5	152	2001	419	6148	6567
Grand Total	438	1136	331	74	66	1905	496	2793	258	21	115	3547	931	1310	447	7	208	2688	405	2723	796	9	311	3924	811	12064	12875
Apprch %	23	59.6	17.4				14	78.7	7.3				34.6	48.7	16.6				10.3	69.4	20.3						
Total %	3.6	9.4	2.7			15.8	4.1	23.2	2.1			29.4	7.7	10.9	3.7			22.3	3.4	22.6	6.6			32.5	6.3	93.7	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	59	154	40	253	**70**	337	33	440	118	173	49	340	48	353	94	495	1528
05:00 PM	50	133	**49**	232	66	358	36	460	122	**178**	**65**	**365**	48	363	113	524	1581
05:15 PM	**71**	**160**	45	**276**	54	301	29	384	**133**	163	58	354	**51**	349	105	505	1519
05:30 PM	58	107	41	206	59	**411**	**45**	**515**	114	153	57	324	50	**383**	**115**	**548**	**1593**
Total Volume	238	554	175	967	249	1407	143	1799	487	667	229	1383	197	1448	427	2072	6221
% App. Total	24.6	57.3	18.1		13.8	78.2	7.9		35.2	48.2	16.6		9.5	69.9	20.6		
PHF	.838	.866	.893	.876	.889	.856	.794	.873	.915	.937	.881	.947	.966	.945	.928	.945	.976

Counts Unlimited, Inc.
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Corona, CA 92878
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	59	154	40	253	**70**	337	33	440	118	173	49	340	48	353	94	495	
+15 mins.	50	133	**49**	232	66	358	36	460	122	**178**	**65**	**365**	48	363	113	524	
+30 mins.	**71**	**160**	45	**276**	54	301	29	384	**133**	163	58	354	**51**	349	105	505	
+45 mins.	58	107	41	206	59	**411**	**45**	**515**	114	153	57	324	50	**383**	**115**	**548**	
Total Volume	238	554	175	967	249	1407	143	1799	487	667	229	1383	197	1448	427	2072	
% App. Total	24.6	57.3	18.1		13.8	78.2	7.9		35.2	48.2	16.6		9.5	69.9	20.6		
PHF	.838	.866	.893	.876	.889	.856	.794	.873	.915	.937	.881	.947	.966	.945	.928	.945	

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City of Brea
N/S: Brea Boulevard
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Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

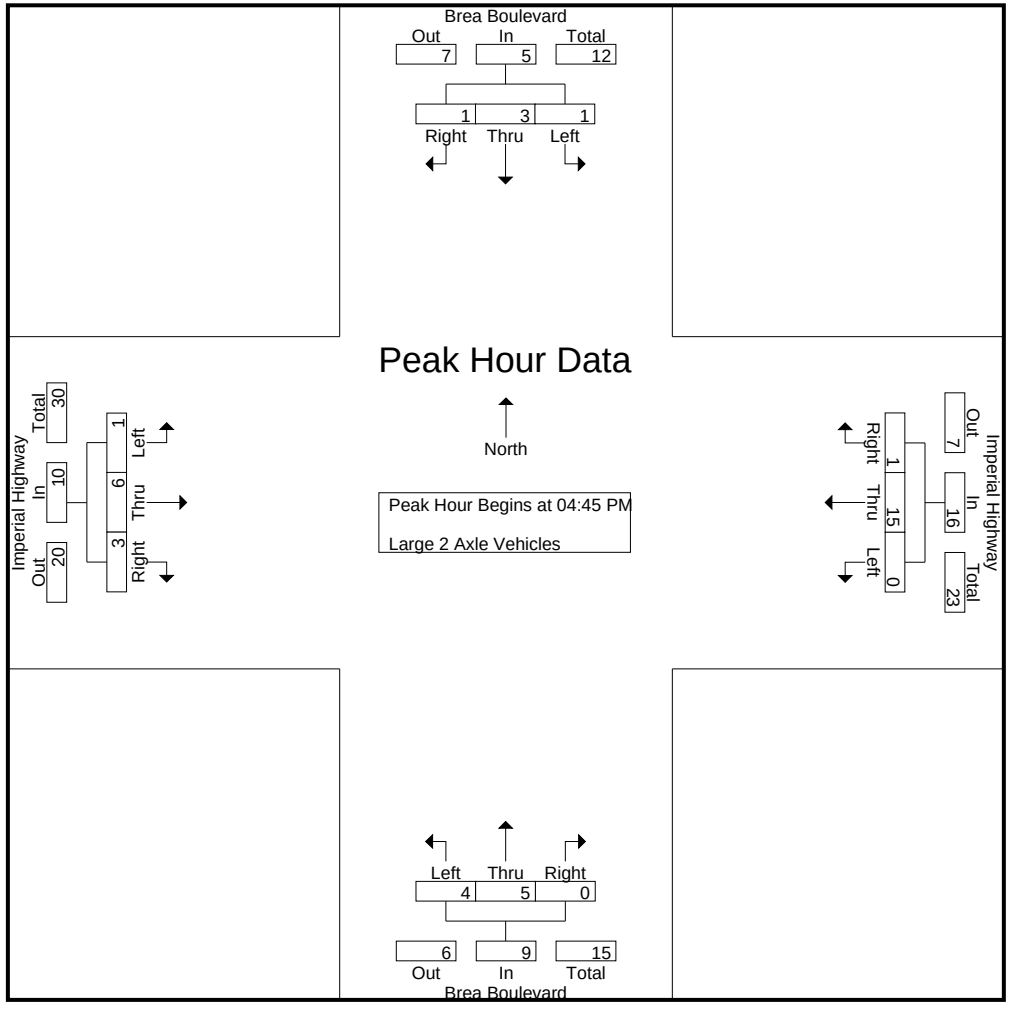
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	2	0	0	0	4	1	14	0	0	0	15	2	1	0	0	0	3	1	6	2	0	0	9	0	31	31
04:15 PM	0	0	0	0	0	0	0	4	1	0	1	5	1	1	0	0	0	2	1	6	1	0	0	8	1	15	16
04:30 PM	1	1	1	0	1	3	0	3	1	0	1	4	2	1	0	0	0	3	0	2	1	0	0	3	2	13	15
04:45 PM	0	0	0	0	0	0	0	5	0	0	0	5	4	3	0	0	0	7	0	1	0	0	0	1	0	13	13
Total	3	3	1	0	1	7	1	26	2	0	2	29	9	6	0	0	0	15	2	15	4	0	0	21	3	72	75
05:00 PM	0	1	0	0	0	1	0	3	0	0	0	3	0	0	0	0	0	0	0	2	1	0	1	3	1	7	8
05:15 PM	1	0	0	0	0	1	0	5	1	0	0	6	0	1	0	0	0	1	1	2	2	0	1	5	1	13	14
05:30 PM	0	2	1	0	1	3	0	2	0	0	0	2	0	1	0	0	0	1	0	1	0	0	0	1	1	7	8
05:45 PM	0	1	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Total	1	4	1	0	1	6	0	12	1	0	0	13	0	2	0	0	0	2	1	5	3	0	2	9	3	30	33
Grand Total	4	7	2	0	2	13	1	38	3	0	2	42	9	8	0	0	0	17	3	20	7	0	2	30	6	102	108
Apprch %	30.8	53.8	15.4				2.4	90.5	7.1				52.9	47.1	0				10	66.7	23.3						
Total %	3.9	6.9	2			12.7	1	37.3	2.9			41.2	8.8	7.8	0			16.7	2.9	19.6	6.9			29.4	5.6	94.4	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	**5**	0	5	**4**	**3**	0	**7**	0	1	0	1	**13**
05:00 PM	0	1	0	1	0	3	0	3	0	0	0	0	0	**2**	1	3	7
05:15 PM	**1**	0	0	1	0	5	**1**	**6**	0	1	0	1	**1**	2	**2**	**5**	13
05:30 PM	0	**2**	**1**	**3**	0	2	0	2	0	1	0	1	0	1	0	1	7
Total Volume	1	3	1	5	0	15	1	16	4	5	0	9	1	6	3	10	40
% App. Total	20	60	20		0	93.8	6.2		44.4	55.6	0		10	60	30		
PHF	.250	.375	.250	.417	.000	.750	.250	.667	.250	.417	.000	.321	.250	.750	.375	.500	.769

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	**5**	0	5	**4**	**3**	0	**7**	0	1	0	1	
+15 mins.	0	1	0	1	0	3	0	3	0	0	0	0	0	**2**	1	3	
+30 mins.	**1**	0	0	1	0	5	**1**	**6**	0	1	0	1	**1**	2	**2**	**5**	
+45 mins.	0	**2**	**1**	**3**	0	2	0	2	0	1	0	1	0	1	0	1	
Total Volume	1	3	1	5	0	15	1	16	4	5	0	9	1	6	3	10	
% App. Total	20	60	20		0	93.8	6.2		44.4	55.6	0		10	60	30		
PHF	.250	.375	.250	.417	.000	.750	.250	.667	.250	.417	.000	.321	.250	.750	.375	.500	

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

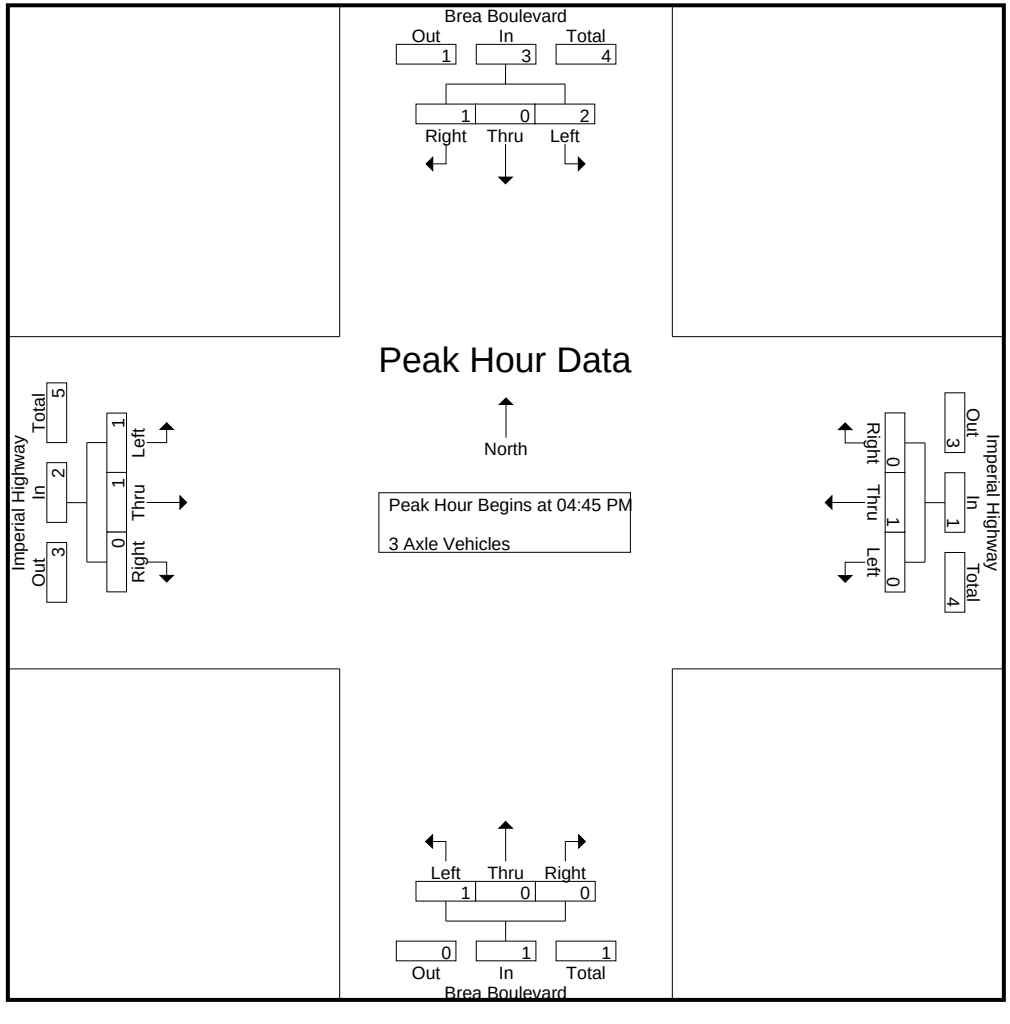
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	3	0	0	0	0	3	0	1	0	0	0	1	0	5	5
04:30 PM	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	0	1	0	2	0	0	0	2	0	5	5
04:45 PM	1	0	1	0	1	2	0	1	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	1	5	6
Total	1	0	1	0	1	2	0	4	1	0	0	5	5	0	0	0	0	5	1	3	0	0	0	4	1	16	17
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	0	3	3
Total	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	3	0	5	5
Grand Total	2	0	1	0	1	3	0	5	1	0	0	6	5	0	0	0	0	5	1	6	0	0	0	7	1	21	22
Apprch %	66.7	0	33.3				0	83.3	16.7				100	0	0				14.3	85.7	0						
Total %	9.5	0	4.8			14.3	0	23.8	4.8			28.6	23.8	0	0			23.8	4.8	28.6	0			33.3	4.5	95.5	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**1**	0	**1**	**2**	0	**1**	0	**1**	**1**	0	0	**1**	**1**	0	0	**1**	**5**
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	**1**	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	0	1	3	0	1	0	1	1	0	0	1	1	1	0	2	7
% App. Total	66.7	0	33.3		0	100	0		100	0	0		50	50	0		
PHF	.500	.000	.250	.375	.000	.250	.000	.250	.250	.000	.000	.250	.250	.250	.000	.500	.350

Counts Unlimited, Inc.
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



Counts Unlimited, Inc.
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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	**1**	0	**1**	**2**	0	**1**	0	**1**	**1**	0	0	**1**	**1**	0	0	**1**	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	1	0	0	1	0	0	0	0	0	0	0	0	0	**1**	0	1	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	2	0	1	3	0	1	0	1	1	0	0	1	1	1	0	2	
% App. Total	66.7	0	33.3		0	100	0		100	0	0		50	50	0		
PHF	.500	.000	.250	.375	.000	.250	.000	.250	.250	.000	.000	.250	.250	.250	.000	.500	

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

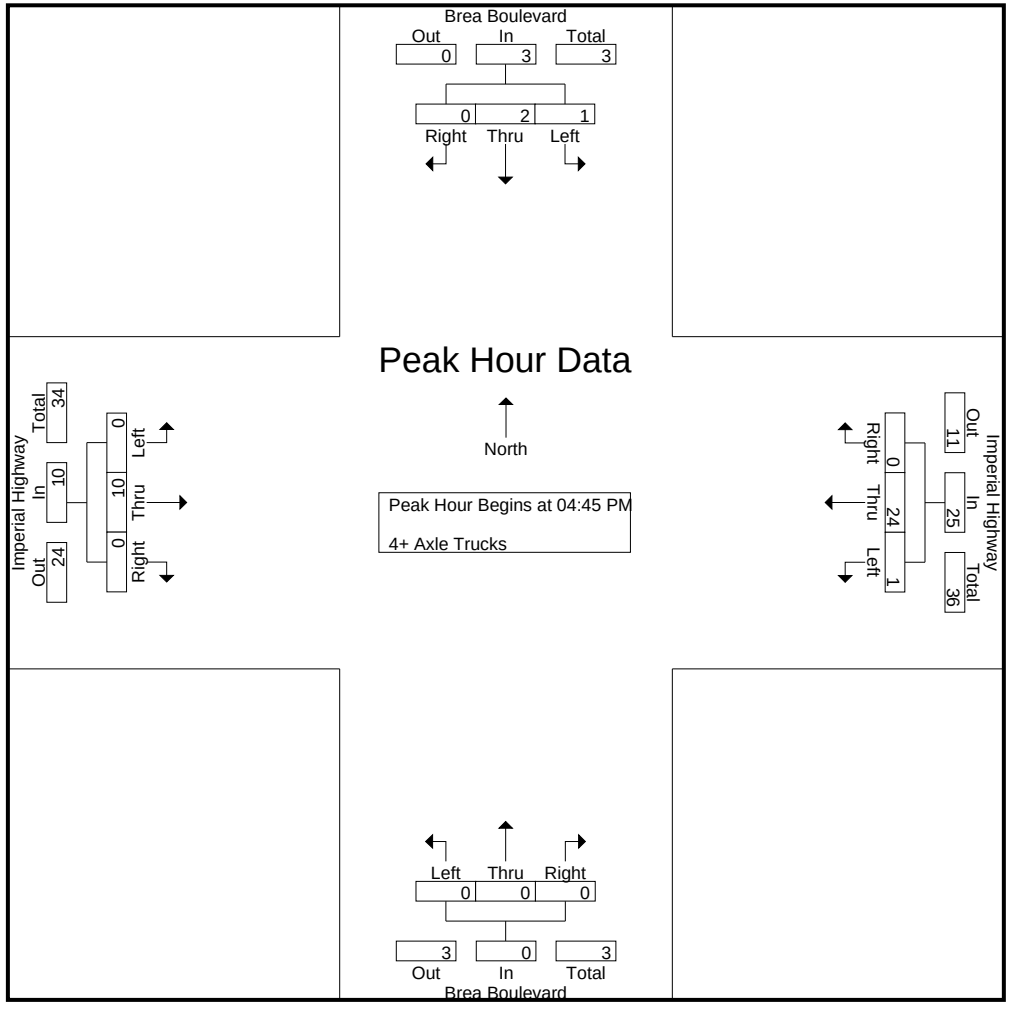
	Brea Boulevard Southbound						Imperial Highway Westbound						Brea Boulevard Northbound						Imperial Highway Eastbound								
Start Time	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Left	Thru	Right	U-Turns	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	3	0	0	0	3	0	10	10
04:15 PM	0	0	0	0	0	0	0	12	0	0	0	12	0	0	0	0	0	0	0	3	0	0	0	3	0	15	15
04:30 PM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	5	0	0	0	5	0	8	8
04:45 PM	1	2	0	0	0	3	0	6	0	0	0	6	0	0	0	0	0	0	0	6	0	0	0	6	0	15	15
Total	1	2	0	0	0	3	0	28	0	0	0	28	0	0	0	0	0	0	0	17	0	0	0	17	0	48	48
05:00 PM	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
05:15 PM	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	0	0	0	1	0	0	0	1	0	7	7
05:30 PM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	3	0	0	0	3	0	9	9
05:45 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	1	0	5	5
Total	0	0	0	0	0	0	1	22	0	0	0	23	0	0	0	0	0	0	0	5	0	0	0	5	0	28	28
Grand Total	1	2	0	0	0	3	1	50	0	0	0	51	0	0	0	0	0	0	0	22	0	0	0	22	0	76	76
Apprch %	33.3	66.7	0				2	98	0				0	0	0				0	100	0						
Total %	1.3	2.6	0			3.9	1.3	65.8	0			67.1	0	0	0			0	0	28.9	0			28.9	0	100	

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**1**	**2**	0	**3**	0	6	0	6	0	0	0	0	0	**6**	0	**6**	**15**
05:00 PM	0	0	0	0	0	**7**	0	**7**	0	0	0	0	0	0	0	0	7
05:15 PM	0	0	0	0	**1**	5	0	6	0	0	0	0	0	1	0	1	7
05:30 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	3	0	3	9
Total Volume	1	2	0	3	1	24	0	25	0	0	0	0	0	10	0	10	38
% App. Total	33.3	66.7	0		4	96	0		0	0	0		0	100	0		
PHF	.250	.250	.000	.250	.250	.857	.000	.893	.000	.000	.000	.000	.000	.417	.000	.417	.633

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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Brea Boulevard
E/W: Imperial Highway
Weather: Clear

File Name : 01A_BRE_Brea_Imp PM
Site Code : 221110
Start Date : 12/21/2022

	Brea Boulevard Southbound				Imperial Highway Westbound				Brea Boulevard Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	**1**	**2**	0	**3**	0	6	0	6	0	0	0	0	0	**6**	0	**6**	
+15 mins.	0	0	0	0	0	**7**	0	**7**	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	**1**	5	0	6	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	6	0	6	0	0	0	0	0	3	0	3	
Total Volume	1	2	0	3	1	24	0	25	0	0	0	0	0	10	0	10	
% App. Total	33.3	66.7	0		4	96	0		0	0	0		0	100	0		
PHF	.250	.250	.000	.250	.250	.857	.000	.893	.000	.000	.000	.000	.000	.417	.000	.417	

Location: Brea
N/S: Brea Boulevard
E/W: Imperial Highway

Date: 12/21/2022
Day: Wednesday

PEDESTRIANS

	North Leg Brea Boulevard	East Leg Imperial Highway	South Leg Brea Boulevard	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	2	1	0	2	5
7:15 AM	0	0	0	0	0
7:30 AM	0	4	3	0	7
7:45 AM	2	3	3	4	12
8:00 AM	2	1	1	4	8
8:15 AM	0	0	0	0	0
8:30 AM	0	0	2	2	4
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	6	10	9	12	37

	North Leg Brea Boulevard	East Leg Imperial Highway	South Leg Brea Boulevard	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
12:00 PM	0	0	0	0	0
12:15 PM	0	0	1	0	1
12:30 PM	0	1	2	2	5
12:45 PM	1	1	2	0	4
1:00 PM	2	2	3	3	10
1:15 PM	1	0	0	2	3
1:30 PM	5	4	3	4	16
1:45 PM	2	1	3	2	8
TOTAL VOLUMES:	11	9	14	13	47

	North Leg Brea Boulevard	East Leg Imperial Highway	South Leg Brea Boulevard	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	0	0	1
4:15 PM	2	0	0	5	7
4:30 PM	2	0	2	0	4
4:45 PM	1	1	0	4	6
5:00 PM	5	1	5	1	12
5:15 PM	0	0	0	3	3
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	12	2	7	13	34

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Location: Brea
N/S: Brea Boulevard
E/W: Imperial Highway

Date: 12/21/2022
Day: Wednesday

BICYCLES

	Southbound Brea Boulevard			Westbound Imperial Highway			Northbound Brea Boulevard			Eastbound Imperial Highway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	2
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	1	0	1
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	2	0	0	0	0	0	2
TOTAL VOLUMES:	0	2	0	0	1	0	2	2	0	0	1	0	8

	Southbound Brea Boulevard			Westbound Imperial Highway			Northbound Brea Boulevard			Eastbound Imperial Highway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
1:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	5	0	0	1	0	8

	Southbound Brea Boulevard			Westbound Imperial Highway			Northbound Brea Boulevard			Eastbound Imperial Highway			
	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	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	4	0	0	0	0	0	1	1	0	1	0	7

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

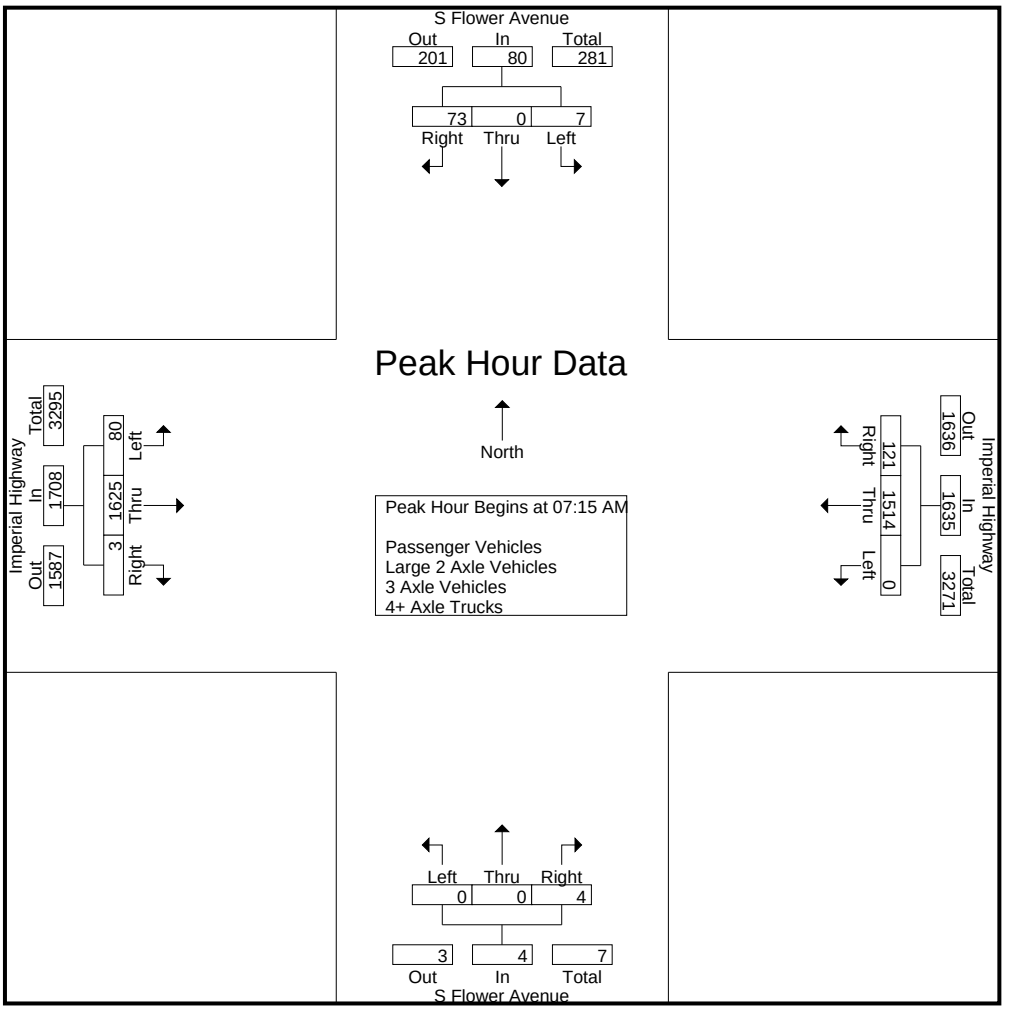
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	16	16	0	275	3	278	0	0	4	4	5	344	0	349	647
07:15 AM	1	0	17	18	0	331	14	345	0	0	0	0	14	418	0	432	795
07:30 AM	0	0	19	19	0	346	31	377	0	0	1	1	16	412	1	429	826
07:45 AM	5	0	19	24	0	426	60	486	0	0	0	0	38	376	1	415	925
Total	6	0	71	77	0	1378	108	1486	0	0	5	5	73	1550	2	1625	3193
08:00 AM	1	0	18	19	0	411	16	427	0	0	3	3	12	419	1	432	881
08:15 AM	0	0	21	21	0	316	8	324	0	0	2	2	9	435	3	447	794
08:30 AM	2	0	19	21	0	361	2	363	0	0	1	1	9	383	2	394	779
08:45 AM	3	0	15	18	0	344	9	353	0	0	4	4	11	388	0	399	774
Total	6	0	73	79	0	1432	35	1467	0	0	10	10	41	1625	6	1672	3228
Grand Total	12	0	144	156	0	2810	143	2953	0	0	15	15	114	3175	8	3297	6421
Apprch %	7.7	0	92.3		0	95.2	4.8		0	0	100		3.5	96.3	0.2		
Total %	0.2	0	2.2	2.4	0	43.8	2.2	46	0	0	0.2	0.2	1.8	49.4	0.1	51.3	
Passenger Vehicles	12	0	141	153	0	2633	140	2773	0	0	14	14	114	2979	8	3101	6041
% Passenger Vehicles	100	0	97.9	98.1	0	93.7	97.9	93.9	0	0	93.3	93.3	100	93.8	100	94.1	94.1
Large 2 Axle Vehicles	0	0	1	1	0	86	1	87	0	0	1	1	0	111	0	111	200
% Large 2 Axle Vehicles	0	0	0.7	0.6	0	3.1	0.7	2.9	0	0	6.7	6.7	0	3.5	0	3.4	3.1
3 Axle Vehicles	0	0	1	1	0	16	2	18	0	0	0	0	0	31	0	31	50
% 3 Axle Vehicles	0	0	0.7	0.6	0	0.6	1.4	0.6	0	0	0	0	0	1	0	0.9	0.8
4+ Axle Trucks	0	0	1	1	0	75	0	75	0	0	0	0	0	54	0	54	130
% 4+ Axle Trucks	0	0	0.7	0.6	0	2.7	0	2.5	0	0	0	0	0	1.7	0	1.6	2

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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	0	17	18	0	331	14	345	0	0	0	0	14	418	0	**432**	795
07:30 AM	0	0	**19**	19	0	346	31	377	0	0	1	1	16	412	**1**	429	826
07:45 AM	**5**	0	19	**24**	0	**426**	**60**	**486**	0	0	0	0	**38**	376	1	415	**925**
08:00 AM	1	0	18	19	0	411	16	427	0	0	**3**	**3**	12	**419**	1	432	881
Total Volume	7	0	73	80	0	1514	121	1635	0	0	4	4	80	1625	3	1708	3427
% App. Total	8.8	0	91.2		0	92.6	7.4		0	0	100		4.7	95.1	0.2		
PHF	.350	.000	.961	.833	.000	.888	.504	.841	.000	.000	.333	.333	.526	.970	.750	.988	.926

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
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				07:15 AM				08:00 AM				07:30 AM			
+0 mins.	**5**	0	19	**24**	0	331	14	345	0	0	3	3	16	412	1	429
+15 mins.	1	0	18	19	0	346	31	377	0	0	2	2	**38**	376	1	415
+30 mins.	0	0	**21**	21	0	**426**	**60**	**486**	0	0	1	1	12	419	1	432
+45 mins.	2	0	19	21	0	411	16	427	0	0	**4**	**4**	9	**435**	**3**	**447**
Total Volume	8	0	77	85	0	1514	121	1635	0	0	10	10	75	1642	6	1723
% App. Total	9.4	0	90.6		0	92.6	7.4		0	0	100		4.4	95.3	0.3	
PHF	.400	.000	.917	.885	.000	.888	.504	.841	.000	.000	.625	.625	.493	.944	.500	.964

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City of Brea
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File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles

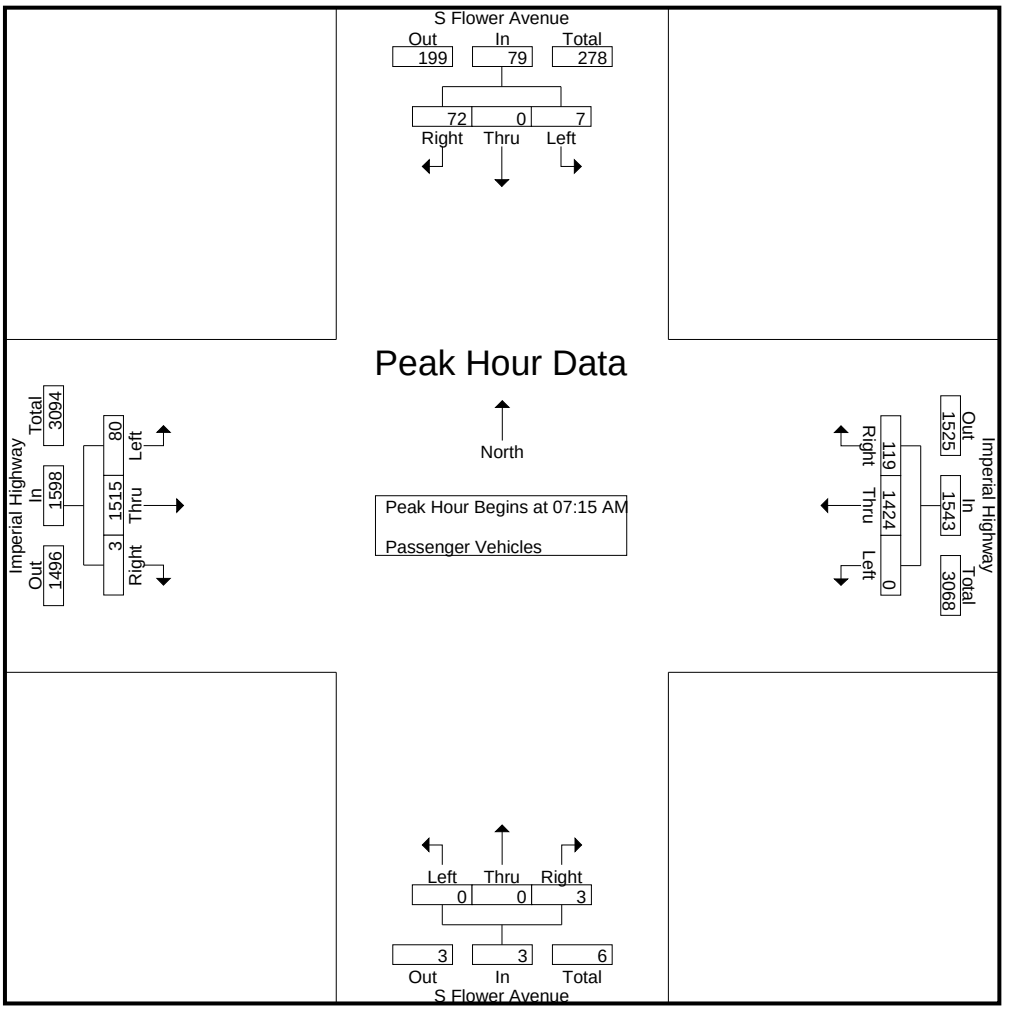
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	16	16	0	251	2	253	0	0	4	4	5	322	0	327	600
07:15 AM	1	0	17	18	0	303	14	317	0	0	0	0	14	387	0	401	736
07:30 AM	0	0	19	19	0	327	29	356	0	0	1	1	16	384	1	401	777
07:45 AM	5	0	18	23	0	406	60	466	0	0	0	0	38	349	1	388	877
Total	6	0	70	76	0	1287	105	1392	0	0	5	5	73	1442	2	1517	2990
08:00 AM	1	0	18	19	0	388	16	404	0	0	2	2	12	395	1	408	833
08:15 AM	0	0	20	20	0	296	8	304	0	0	2	2	9	418	3	430	756
08:30 AM	2	0	18	20	0	345	2	347	0	0	1	1	9	358	2	369	737
08:45 AM	3	0	15	18	0	317	9	326	0	0	4	4	11	366	0	377	725
Total	6	0	71	77	0	1346	35	1381	0	0	9	9	41	1537	6	1584	3051
Grand Total	12	0	141	153	0	2633	140	2773	0	0	14	14	114	2979	8	3101	6041
Apprch %	7.8	0	92.2		0	95	5		0	0	100		3.7	96.1	0.3		
Total %	0.2	0	2.3	2.5	0	43.6	2.3	45.9	0	0	0.2	0.2	1.9	49.3	0.1	51.3	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	1	0	17	18	0	303	14	317	0	0	0	0	14	387	0	401	736
07:30 AM	0	0	**19**	19	0	327	29	356	0	0	1	1	16	384	**1**	401	777
07:45 AM	**5**	0	18	**23**	0	**406**	**60**	**466**	0	0	0	0	**38**	349	1	388	**877**
08:00 AM	1	0	18	19	0	388	16	404	0	0	**2**	**2**	12	**395**	1	**408**	833
Total Volume	7	0	72	79	0	1424	119	1543	0	0	3	3	80	1515	3	1598	3223
% App. Total	8.9	0	91.1		0	92.3	7.7		0	0	100		5	94.8	0.2		
PHF	.350	.000	.947	.859	.000	.877	.496	.828	.000	.000	.375	.375	.526	.959	.750	.979	.919

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File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	1	0	17	18	0	303	14	317	0	0	0	0	14	387	0	401
+15 mins.	0	0	**19**	19	0	327	29	356	0	0	1	1	16	384	**1**	401
+30 mins.	**5**	0	18	**23**	0	**406**	**60**	**466**	0	0	0	0	**38**	349	1	388
+45 mins.	1	0	18	19	0	388	16	404	0	0	**2**	**2**	12	**395**	1	**408**
Total Volume	7	0	72	79	0	1424	119	1543	0	0	3	3	80	1515	3	1598
% App. Total	8.9	0	91.1		0	92.3	7.7		0	0	100		5	94.8	0.2	
PHF	.350	.000	.947	.859	.000	.877	.496	.828	.000	.000	.375	.375	.526	.959	.750	.979

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City of Brea
N/S: S Flower Avenue
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File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

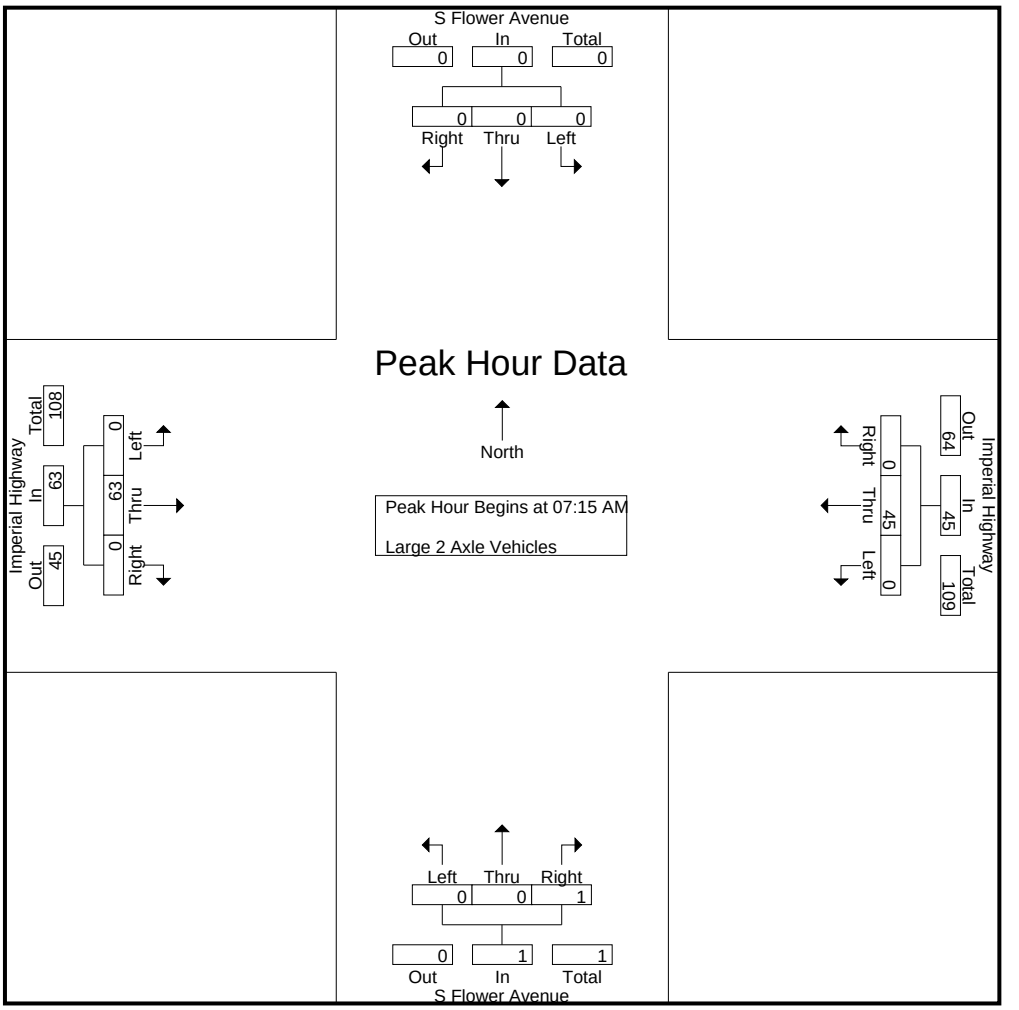
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	11	1	12	0	0	0	0	0	13	0	13	25
07:15 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	17	0	17	27
07:30 AM	0	0	0	0	0	8	0	8	0	0	0	0	0	17	0	17	25
07:45 AM	0	0	0	0	0	13	0	13	0	0	0	0	0	15	0	15	28
Total	0	0	0	0	0	42	1	43	0	0	0	0	0	62	0	62	105
08:00 AM	0	0	0	0	0	14	0	14	0	0	1	1	0	14	0	14	29
08:15 AM	0	0	1	1	0	9	0	9	0	0	0	0	0	9	0	9	19
08:30 AM	0	0	0	0	0	6	0	6	0	0	0	0	0	14	0	14	20
08:45 AM	0	0	0	0	0	15	0	15	0	0	0	0	0	12	0	12	27
Total	0	0	1	1	0	44	0	44	0	0	1	1	0	49	0	49	95
Grand Total	0	0	1	1	0	86	1	87	0	0	1	1	0	111	0	111	200
Apprch %	0	0	100		0	98.9	1.1		0	0	100		0	100	0		
Total %	0	0	0.5	0.5	0	43	0.5	43.5	0	0	0.5	0.5	0	55.5	0	55.5	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	**17**	0	**17**	27
07:30 AM	0	0	0	0	0	8	0	8	0	0	0	0	0	17	0	17	25
07:45 AM	0	0	0	0	0	13	0	13	0	0	0	0	0	15	0	15	28
08:00 AM	0	0	0	0	0	**14**	0	**14**	0	0	**1**	**1**	0	14	0	14	**29**
Total Volume	0	0	0	0	0	45	0	45	0	0	1	1	0	63	0	63	109
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.804	.000	.804	.000	.000	.250	.250	.000	.926	.000	.926	.940

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	10	0	10	0	0	0	0	0	**17**	0	**17**
+15 mins.	0	0	0	0	0	8	0	8	0	0	0	0	0	17	0	17
+30 mins.	0	0	0	0	0	13	0	13	0	0	0	0	0	15	0	15
+45 mins.	0	0	0	0	0	**14**	0	**14**	0	0	**1**	**1**	0	14	0	14
Total Volume	0	0	0	0	0	45	0	45	0	0	1	1	0	63	0	63
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0	
PHF	.000	.000	.000	.000	.000	.804	.000	.804	.000	.000	.250	.250	.000	.926	.000	.926

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

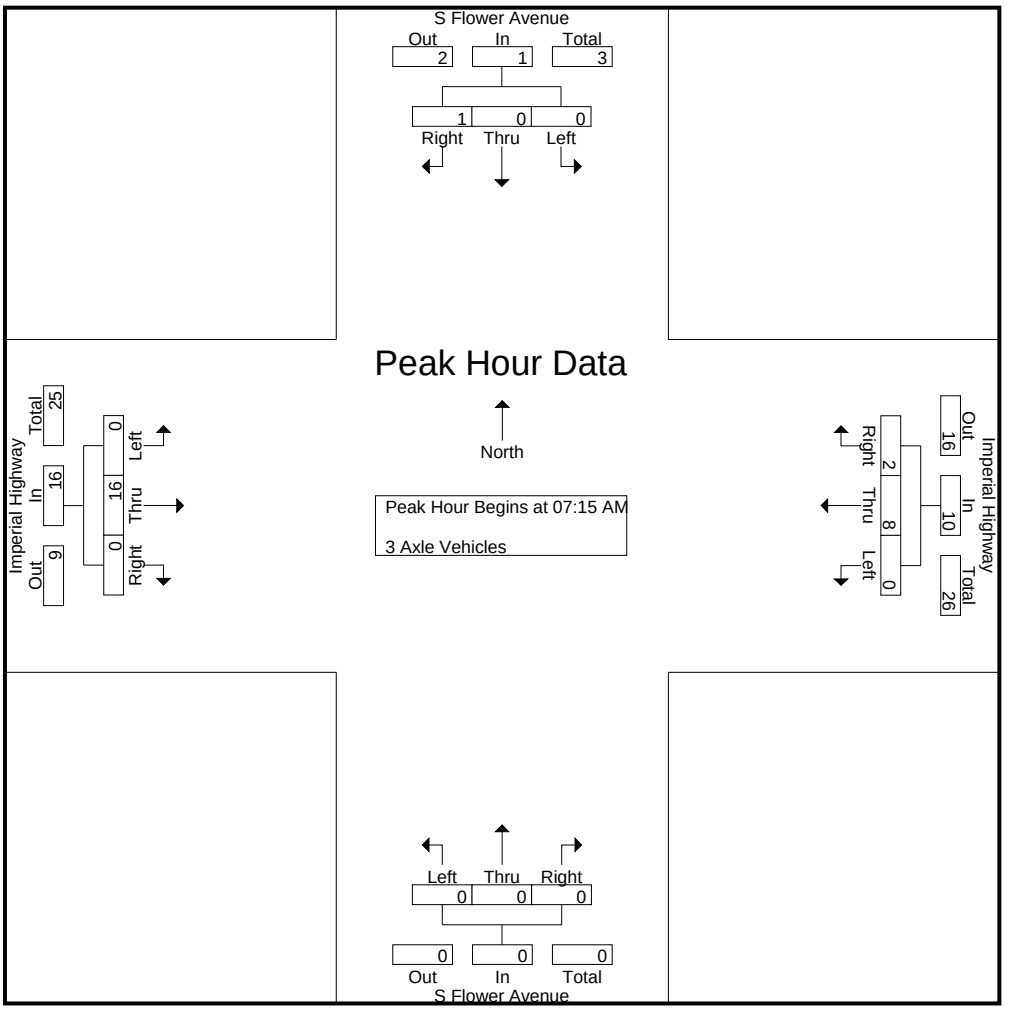
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	4	0	4	6
07:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	7	0	7	9
07:30 AM	0	0	0	0	0	3	2	5	0	0	0	0	0	4	0	4	9
07:45 AM	0	0	1	1	0	1	0	1	0	0	0	0	0	3	0	3	5
Total	0	0	1	1	0	8	2	10	0	0	0	0	0	18	0	18	29
08:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
08:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
08:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
08:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	6
Total	0	0	0	0	0	8	0	8	0	0	0	0	0	13	0	13	21
Grand Total	0	0	1	1	0	16	2	18	0	0	0	0	0	31	0	31	50
Apprch %	0	0	100		0	88.9	11.1		0	0	0		0	100	0		
Total %	0	0	2	2	0	32	4	36	0	0	0	0	0	62	0	62	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	**7**	0	**7**	**9**
07:30 AM	0	0	0	0	0	**3**	**2**	**5**	0	0	0	0	0	4	0	4	9
07:45 AM	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	3	0	3	5
08:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total Volume	0	0	1	1	0	8	2	10	0	0	0	0	0	16	0	16	27
% App. Total	0	0	100		0	80	20		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.667	.250	.500	.000	.000	.000	.000	.000	.571	.000	.571	.750

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	**7**	0	**7**
+15 mins.	0	0	0	0	0	**3**	**2**	**5**	0	0	0	0	0	4	0	4
+30 mins.	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	3	0	3
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2
Total Volume	0	0	1	1	0	8	2	10	0	0	0	0	0	16	0	16
% App. Total	0	0	100		0	80	20		0	0	0		0	100	0	
PHF	.000	.000	.250	.250	.000	.667	.250	.500	.000	.000	.000	.000	.000	.571	.000	.571

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

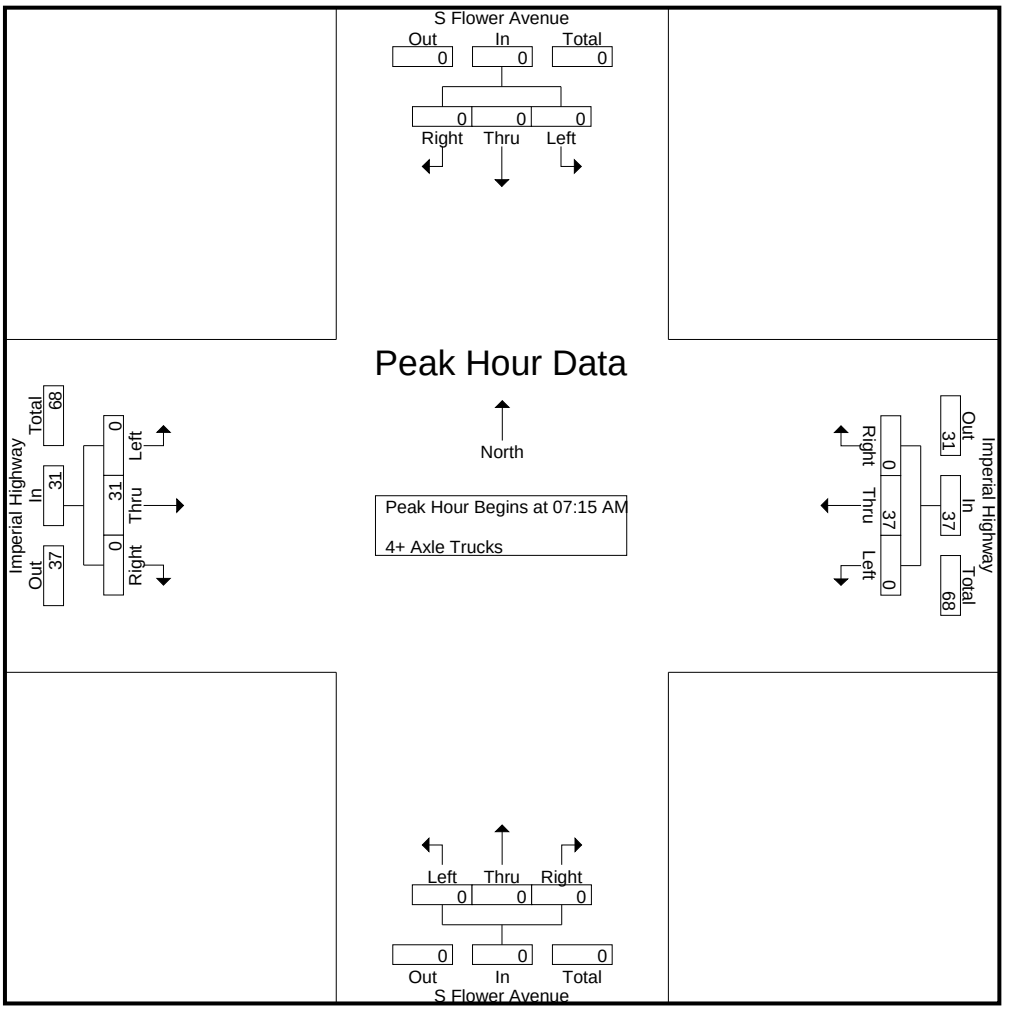
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	11	0	11	0	0	0	0	0	5	0	5	16
07:15 AM	0	0	0	0	0	16	0	16	0	0	0	0	0	7	0	7	23
07:30 AM	0	0	0	0	0	8	0	8	0	0	0	0	0	7	0	7	15
07:45 AM	0	0	0	0	0	6	0	6	0	0	0	0	0	9	0	9	15
Total	0	0	0	0	0	41	0	41	0	0	0	0	0	28	0	28	69
08:00 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	8	0	8	15
08:15 AM	0	0	0	0	0	10	0	10	0	0	0	0	0	3	0	3	13
08:30 AM	0	0	1	1	0	8	0	8	0	0	0	0	0	8	0	8	17
08:45 AM	0	0	0	0	0	9	0	9	0	0	0	0	0	7	0	7	16
Total	0	0	1	1	0	34	0	34	0	0	0	0	0	26	0	26	61
Grand Total	0	0	1	1	0	75	0	75	0	0	0	0	0	54	0	54	130
Apprch %	0	0	100		0	100	0		0	0	0		0	100	0		
Total %	0	0	0.8	0.8	0	57.7	0	57.7	0	0	0	0	0	41.5	0	41.5	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	**16**	0	**16**	0	0	0	0	0	7	0	7	**23**
07:30 AM	0	0	0	0	0	8	0	8	0	0	0	0	0	7	0	7	15
07:45 AM	0	0	0	0	0	6	0	6	0	0	0	0	0	**9**	0	**9**	15
08:00 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	8	0	8	15
Total Volume	0	0	0	0	0	37	0	37	0	0	0	0	0	31	0	31	68
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.578	.000	.578	.000	.000	.000	.000	.000	.861	.000	.861	.739

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp AM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	**16**	0	**16**	0	0	0	0	0	7	0	7
+15 mins.	0	0	0	0	0	8	0	8	0	0	0	0	0	7	0	7
+30 mins.	0	0	0	0	0	6	0	6	0	0	0	0	0	**9**	0	**9**
+45 mins.	0	0	0	0	0	7	0	7	0	0	0	0	0	8	0	8
Total Volume	0	0	0	0	0	37	0	37	0	0	0	0	0	31	0	31
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.578	.000	.578	.000	.000	.000	.000	.000	.861	.000	.861

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

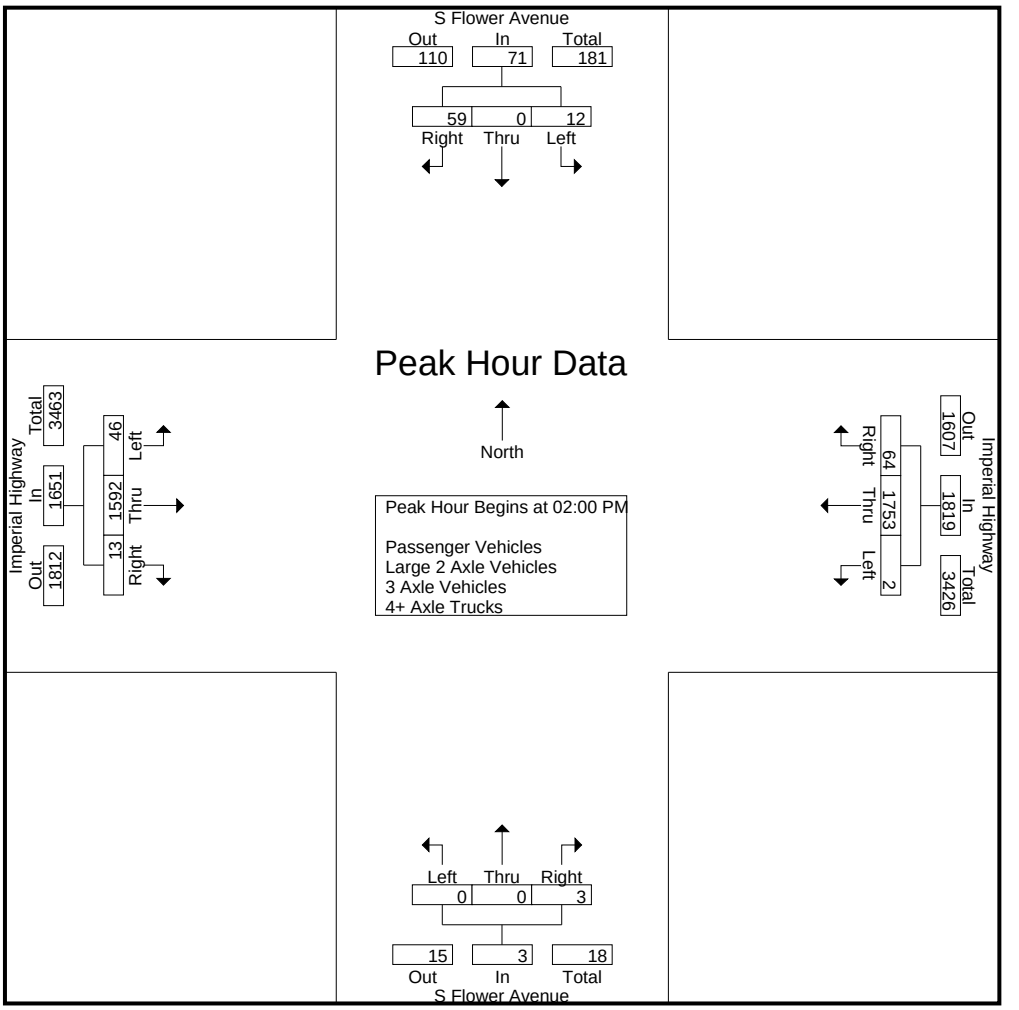
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	3	0	14	17	0	380	2	382	0	0	2	2	14	363	1	378	779
01:15 PM	3	0	9	12	0	383	9	392	0	0	1	1	10	391	0	401	806
01:30 PM	2	0	15	17	0	397	5	402	0	0	1	1	13	429	1	443	863
01:45 PM	5	0	7	12	0	373	15	388	0	0	2	2	17	397	2	416	818
Total	13	0	45	58	0	1533	31	1564	0	0	6	6	54	1580	4	1638	3266
02:00 PM	4	0	11	15	0	412	18	430	0	0	1	1	9	379	3	391	837
02:15 PM	4	0	17	21	0	453	25	478	0	0	1	1	11	388	3	402	902
02:30 PM	2	0	17	19	0	479	13	492	0	0	0	0	14	452	4	470	981
02:45 PM	2	0	14	16	2	409	8	419	0	0	1	1	12	373	3	388	824
Total	12	0	59	71	2	1753	64	1819	0	0	3	3	46	1592	13	1651	3544
Grand Total	25	0	104	129	2	3286	95	3383	0	0	9	9	100	3172	17	3289	6810
Apprch %	19.4	0	80.6		0.1	97.1	2.8		0	0	100		3	96.4	0.5		
Total %	0.4	0	1.5	1.9	0	48.3	1.4	49.7	0	0	0.1	0.1	1.5	46.6	0.2	48.3	
Passenger Vehicles	25	0	100	125	2	3082	95	3179	0	0	9	9	96	3013	16	3125	6438
% Passenger Vehicles	100	0	96.2	96.9	100	93.8	100	94	0	0	100	100	96	95	94.1	95	94.5
Large 2 Axle Vehicles	0	0	4	4	0	121	0	121	0	0	0	0	4	96	1	101	226
% Large 2 Axle Vehicles	0	0	3.8	3.1	0	3.7	0	3.6	0	0	0	0	4	3	5.9	3.1	3.3
3 Axle Vehicles	0	0	0	0	0	30	0	30	0	0	0	0	0	19	0	19	49
% 3 Axle Vehicles	0	0	0	0	0	0.9	0	0.9	0	0	0	0	0	0.6	0	0.6	0.7
4+ Axle Trucks	0	0	0	0	0	53	0	53	0	0	0	0	0	44	0	44	97
% 4+ Axle Trucks	0	0	0	0	0	1.6	0	1.6	0	0	0	0	0	1.4	0	1.3	1.4

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	**4**	0	11	15	0	412	18	430	0	0	**1**	**1**	9	379	3	391	837
02:15 PM	4	0	**17**	**21**	0	453	**25**	478	0	0	1	1	11	388	3	402	902
02:30 PM	2	0	17	19	0	**479**	13	**492**	0	0	0	0	**14**	**452**	**4**	**470**	**981**
02:45 PM	2	0	14	16	**2**	409	8	419	0	0	1	1	12	373	3	388	824
Total Volume	12	0	59	71	2	1753	64	1819	0	0	3	3	46	1592	13	1651	3544
% App. Total	16.9	0	83.1		0.1	96.4	3.5		0	0	100		2.8	96.4	0.8		
PHF	.750	.000	.868	.845	.250	.915	.640	.924	.000	.000	.750	.750	.821	.881	.813	.878	.903

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				01:00 PM				01:45 PM			
+0 mins.	**4**	0	11	15	0	412	18	430	0	0	**2**	**2**	**17**	397	2	416
+15 mins.	4	0	**17**	**21**	0	453	**25**	478	0	0	1	1	9	379	3	391
+30 mins.	2	0	17	19	0	**479**	13	**492**	0	0	1	1	11	388	3	402
+45 mins.	2	0	14	16	**2**	409	8	419	0	0	2	2	14	**452**	**4**	**470**
Total Volume	12	0	59	71	2	1753	64	1819	0	0	6	6	51	1616	12	1679
% App. Total	16.9	0	83.1		0.1	96.4	3.5		0	0	100		3	96.2	0.7	
PHF	.750	.000	.868	.845	.250	.915	.640	.924	.000	.000	.750	.750	.750	.894	.750	.893

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles

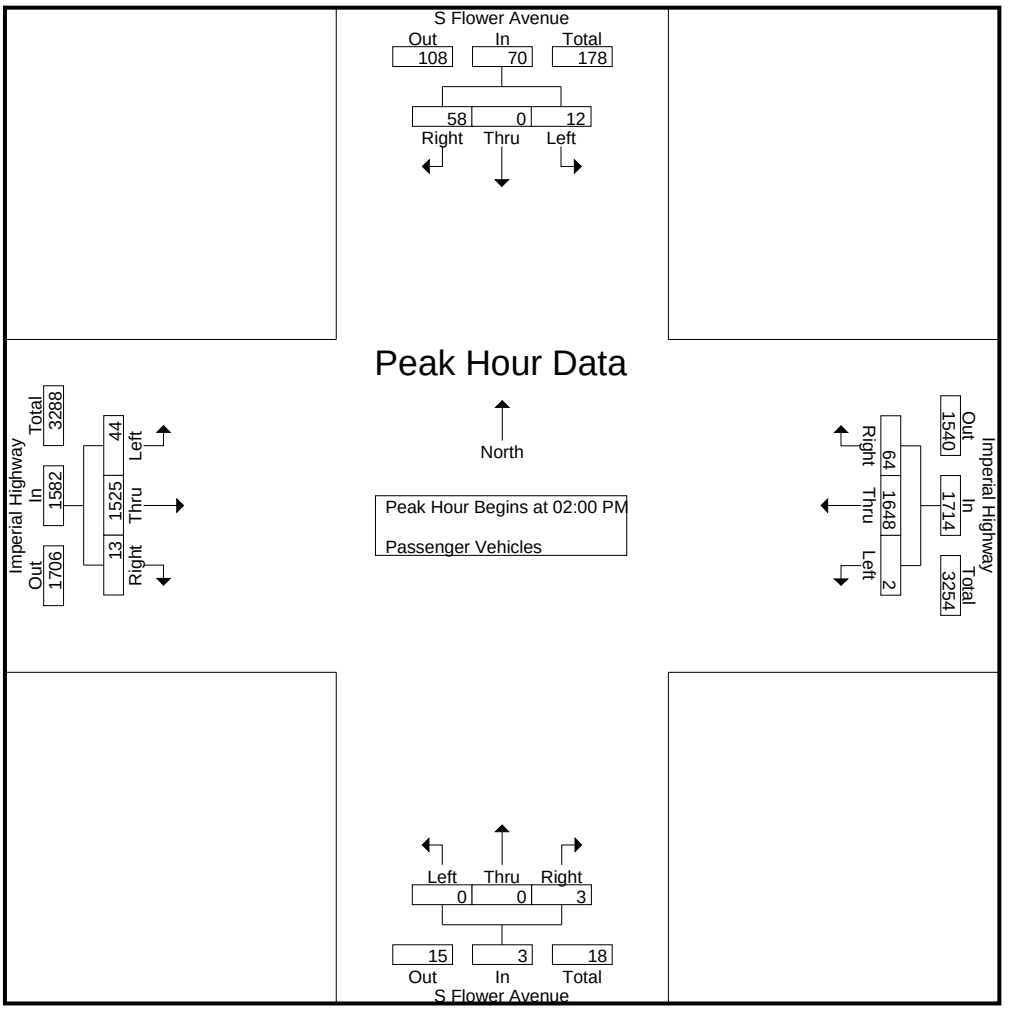
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	3	0	13	16	0	353	2	355	0	0	2	2	13	333	1	347	720
01:15 PM	3	0	8	11	0	355	9	364	0	0	1	1	9	375	0	384	760
01:30 PM	2	0	14	16	0	371	5	376	0	0	1	1	13	401	0	414	807
01:45 PM	5	0	7	12	0	355	15	370	0	0	2	2	17	379	2	398	782
Total	13	0	42	55	0	1434	31	1465	0	0	6	6	52	1488	3	1543	3069
02:00 PM	4	0	11	15	0	380	18	398	0	0	1	1	9	360	3	372	786
02:15 PM	4	0	16	20	0	429	25	454	0	0	1	1	11	370	3	384	859
02:30 PM	2	0	17	19	0	454	13	467	0	0	0	0	12	430	4	446	932
02:45 PM	2	0	14	16	2	385	8	395	0	0	1	1	12	365	3	380	792
Total	12	0	58	70	2	1648	64	1714	0	0	3	3	44	1525	13	1582	3369
Grand Total	25	0	100	125	2	3082	95	3179	0	0	9	9	96	3013	16	3125	6438
Apprch %	20	0	80		0.1	96.9	3		0	0	100		3.1	96.4	0.5		
Total %	0.4	0	1.6	1.9	0	47.9	1.5	49.4	0	0	0.1	0.1	1.5	46.8	0.2	48.5	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	**4**	0	11	15	0	380	18	398	0	0	**1**	**1**	9	360	3	372	786
02:15 PM	4	0	16	**20**	0	429	**25**	454	0	0	1	1	11	370	3	384	859
02:30 PM	2	0	**17**	19	0	**454**	13	**467**	0	0	0	0	**12**	**430**	**4**	**446**	**932**
02:45 PM	2	0	14	16	**2**	385	8	395	0	0	1	1	12	365	3	380	792
Total Volume	12	0	58	70	2	1648	64	1714	0	0	3	3	44	1525	13	1582	3369
% App. Total	17.1	0	82.9		0.1	96.1	3.7		0	0	100		2.8	96.4	0.8		
PHF	.750	.000	.853	.875	.250	.907	.640	.918	.000	.000	.750	.750	.917	.887	.813	.887	.904

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	**4**	0	11	15	0	380	18	398	0	0	**1**	**1**	9	360	3	372
+15 mins.	4	0	16	**20**	0	429	**25**	454	0	0	1	1	11	370	3	384
+30 mins.	2	0	**17**	19	0	**454**	13	**467**	0	0	0	0	**12**	**430**	**4**	**446**
+45 mins.	2	0	14	16	**2**	385	8	395	0	0	1	1	12	365	3	380
Total Volume	12	0	58	70	2	1648	64	1714	0	0	3	3	44	1525	13	1582
% App. Total	17.1	0	82.9		0.1	96.1	3.7		0	0	100		2.8	96.4	0.8	
PHF	.750	.000	.853	.875	.250	.907	.640	.918	.000	.000	.750	.750	.917	.887	.813	.887

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

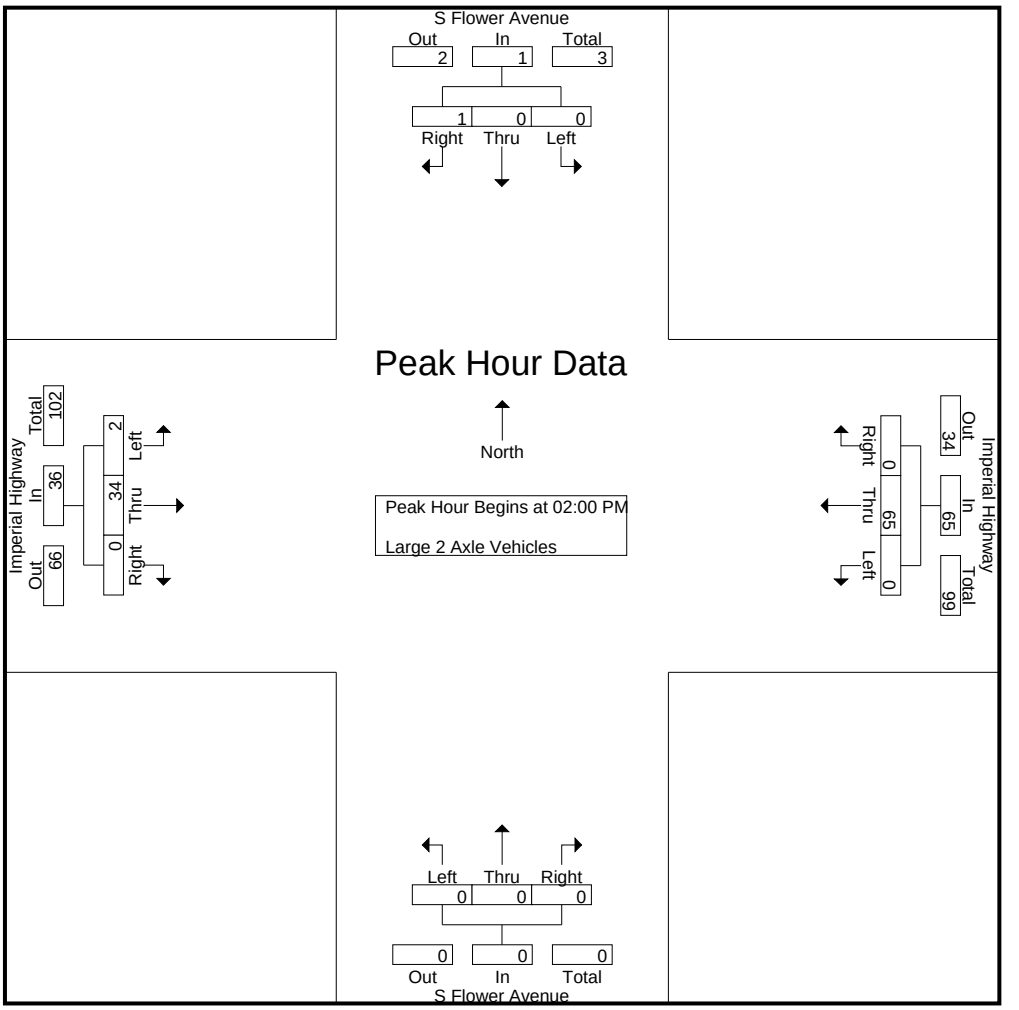
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	1	1	0	15	0	15	0	0	0	0	1	22	0	23	39
01:15 PM	0	0	1	1	0	17	0	17	0	0	0	0	1	10	0	11	29
01:30 PM	0	0	1	1	0	15	0	15	0	0	0	0	0	16	1	17	33
01:45 PM	0	0	0	0	0	9	0	9	0	0	0	0	0	14	0	14	23
Total	0	0	3	3	0	56	0	56	0	0	0	0	2	62	1	65	124
02:00 PM	0	0	0	0	0	20	0	20	0	0	0	0	0	11	0	11	31
02:15 PM	0	0	1	1	0	13	0	13	0	0	0	0	0	10	0	10	24
02:30 PM	0	0	0	0	0	18	0	18	0	0	0	0	2	10	0	12	30
02:45 PM	0	0	0	0	0	14	0	14	0	0	0	0	0	3	0	3	17
Total	0	0	1	1	0	65	0	65	0	0	0	0	2	34	0	36	102
Grand Total	0	0	4	4	0	121	0	121	0	0	0	0	4	96	1	101	226
Apprch %	0	0	100		0	100	0		0	0	0		4	95	1		
Total %	0	0	1.8	1.8	0	53.5	0	53.5	0	0	0	0	1.8	42.5	0.4	44.7	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	**20**	0	**20**	0	0	0	0	0	**11**	0	11	**31**
02:15 PM	0	0	**1**	**1**	0	13	0	13	0	0	0	0	0	10	0	10	24
02:30 PM	0	0	0	0	0	18	0	18	0	0	0	0	**2**	10	0	**12**	30
02:45 PM	0	0	0	0	0	14	0	14	0	0	0	0	0	3	0	3	17
Total Volume	0	0	1	1	0	65	0	65	0	0	0	0	2	34	0	36	102
% App. Total	0	0	100		0	100	0		0	0	0		5.6	94.4	0		
PHF	.000	.000	.250	.250	.000	.813	.000	.813	.000	.000	.000	.000	.250	.773	.000	.750	.823

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City of Brea
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E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	**20**	0	**20**	0	0	0	0	0	**11**	0	11
+15 mins.	0	0	**1**	**1**	0	13	0	13	0	0	0	0	0	10	0	10
+30 mins.	0	0	0	0	0	18	0	18	0	0	0	0	**2**	10	0	**12**
+45 mins.	0	0	0	0	0	14	0	14	0	0	0	0	0	3	0	3
Total Volume	0	0	1	1	0	65	0	65	0	0	0	0	2	34	0	36
% App. Total	0	0	100		0	100	0		0	0	0		5.6	94.4	0	
PHF	.000	.000	.250	.250	.000	.813	.000	.813	.000	.000	.000	.000	.250	.773	.000	.750

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

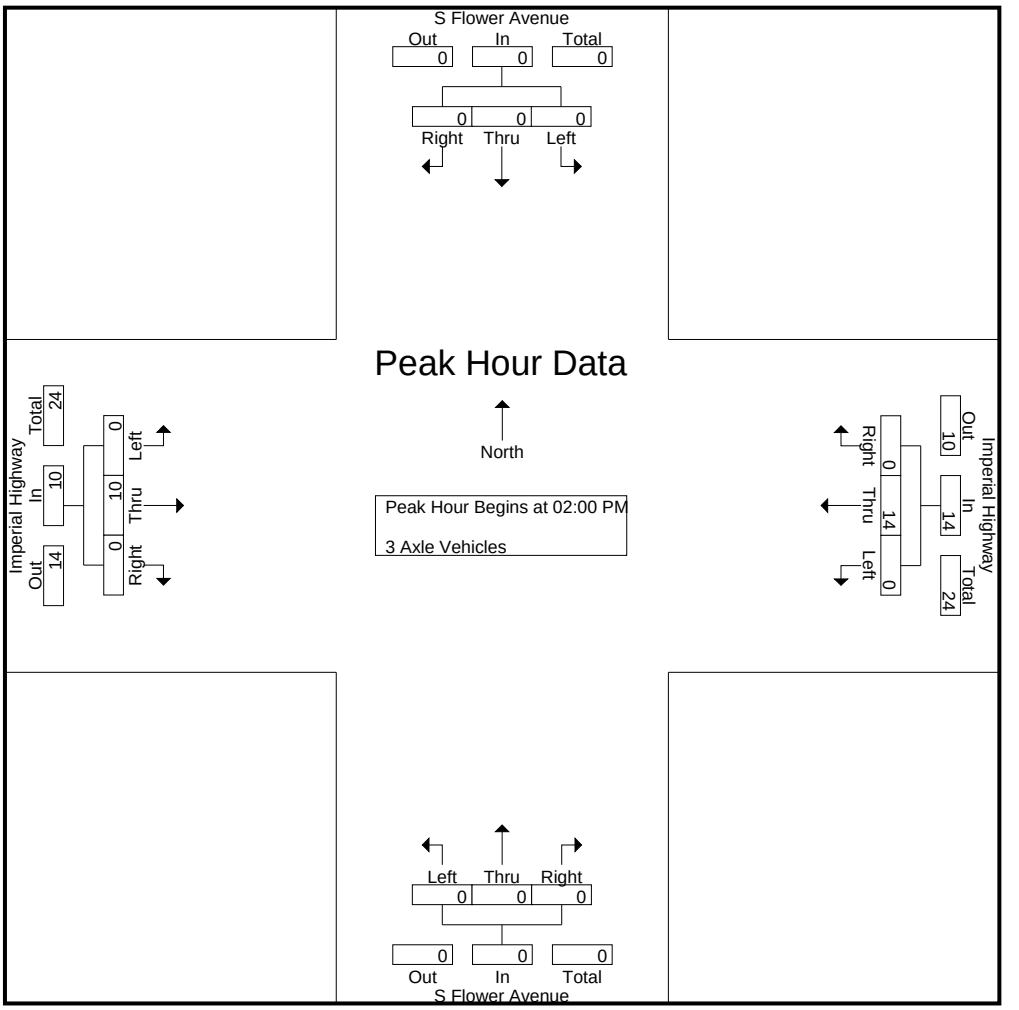
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	2	0	2	7
01:15 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	1	0	1	7
01:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	4	7
01:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total	0	0	0	0	0	16	0	16	0	0	0	0	0	9	0	9	25
02:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
02:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
02:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
02:45 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	1	0	1	7
Total	0	0	0	0	0	14	0	14	0	0	0	0	0	10	0	10	24
Grand Total	0	0	0	0	0	30	0	30	0	0	0	0	0	19	0	19	49
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	61.2	0	61.2	0	0	0	0	0	38.8	0	38.8	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
02:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
02:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	**4**	0	**4**	**8**
02:45 PM	0	0	0	0	0	**6**	0	**6**	0	0	0	0	0	1	0	1	7
Total Volume	0	0	0	0	0	14	0	14	0	0	0	0	0	10	0	10	24
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.583	.000	.583	.000	.000	.000	.000	.000	.625	.000	.625	.750

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3
+30 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	**4**	0	**4**
+45 mins.	0	0	0	0	0	**6**	0	**6**	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	14	0	14	0	0	0	0	0	10	0	10
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.583	.000	.583	.000	.000	.000	.000	.000	.625	.000	.625

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

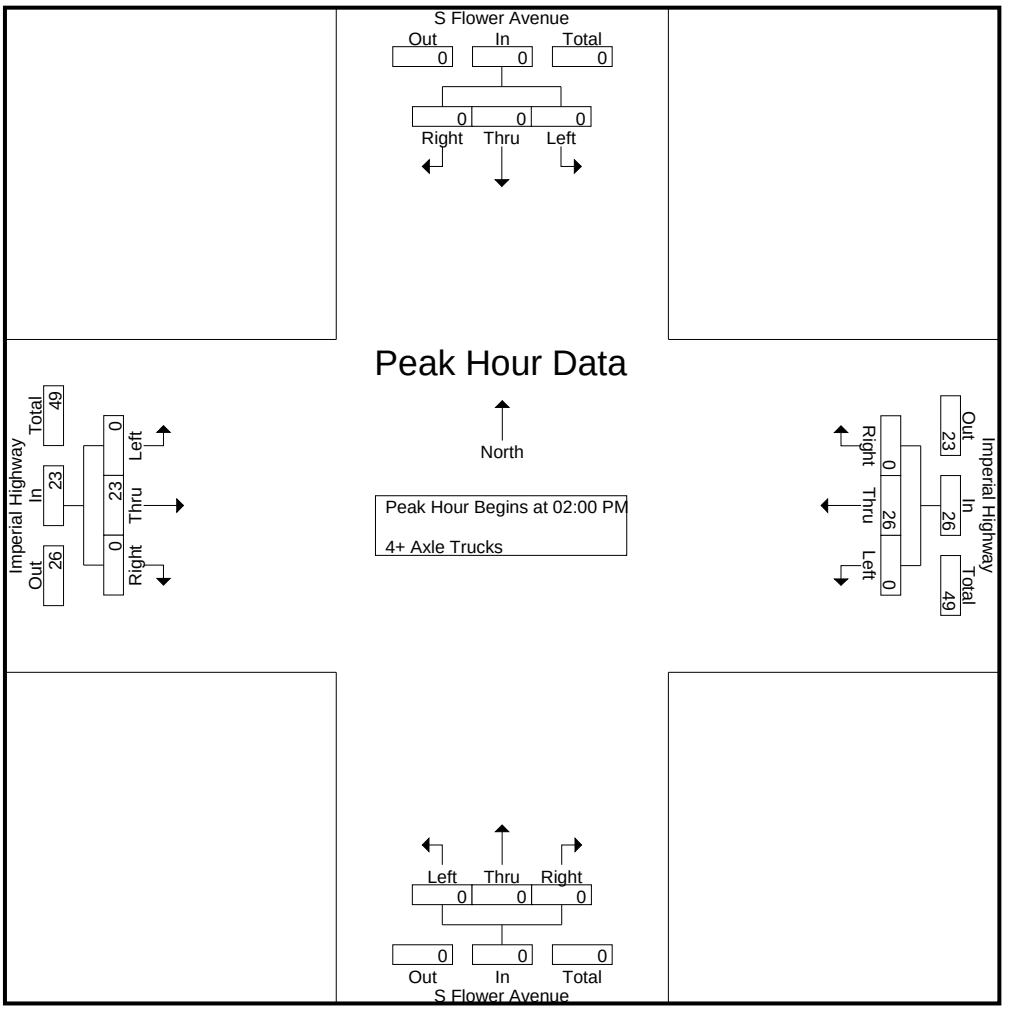
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	6	0	6	13
01:15 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	5	0	5	10
01:30 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	8	0	8	16
01:45 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	2	0	2	9
Total	0	0	0	0	0	27	0	27	0	0	0	0	0	21	0	21	48
02:00 PM	0	0	0	0	0	10	0	10	0	0	0	0	0	6	0	6	16
02:15 PM	0	0	0	0	0	9	0	9	0	0	0	0	0	5	0	5	14
02:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	8	0	8	11
02:45 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
Total	0	0	0	0	0	26	0	26	0	0	0	0	0	23	0	23	49
Grand Total	0	0	0	0	0	53	0	53	0	0	0	0	0	44	0	44	97
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	54.6	0	54.6	0	0	0	0	0	45.4	0	45.4	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	6	0	6	**16**
02:15 PM	0	0	0	0	0	9	0	9	0	0	0	0	0	5	0	5	14
02:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	**8**	0	**8**	11
02:45 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
Total Volume	0	0	0	0	0	26	0	26	0	0	0	0	0	23	0	23	49
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.650	.000	.650	.000	.000	.000	.000	.000	.719	.000	.719	.766

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp MD
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	**10**	0	**10**	0	0	0	0	0	6	0	6
+15 mins.	0	0	0	0	0	9	0	9	0	0	0	0	0	5	0	5
+30 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	**8**	0	**8**
+45 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4
Total Volume	0	0	0	0	0	26	0	26	0	0	0	0	0	23	0	23
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.650	.000	.650	.000	.000	.000	.000	.000	.719	.000	.719

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

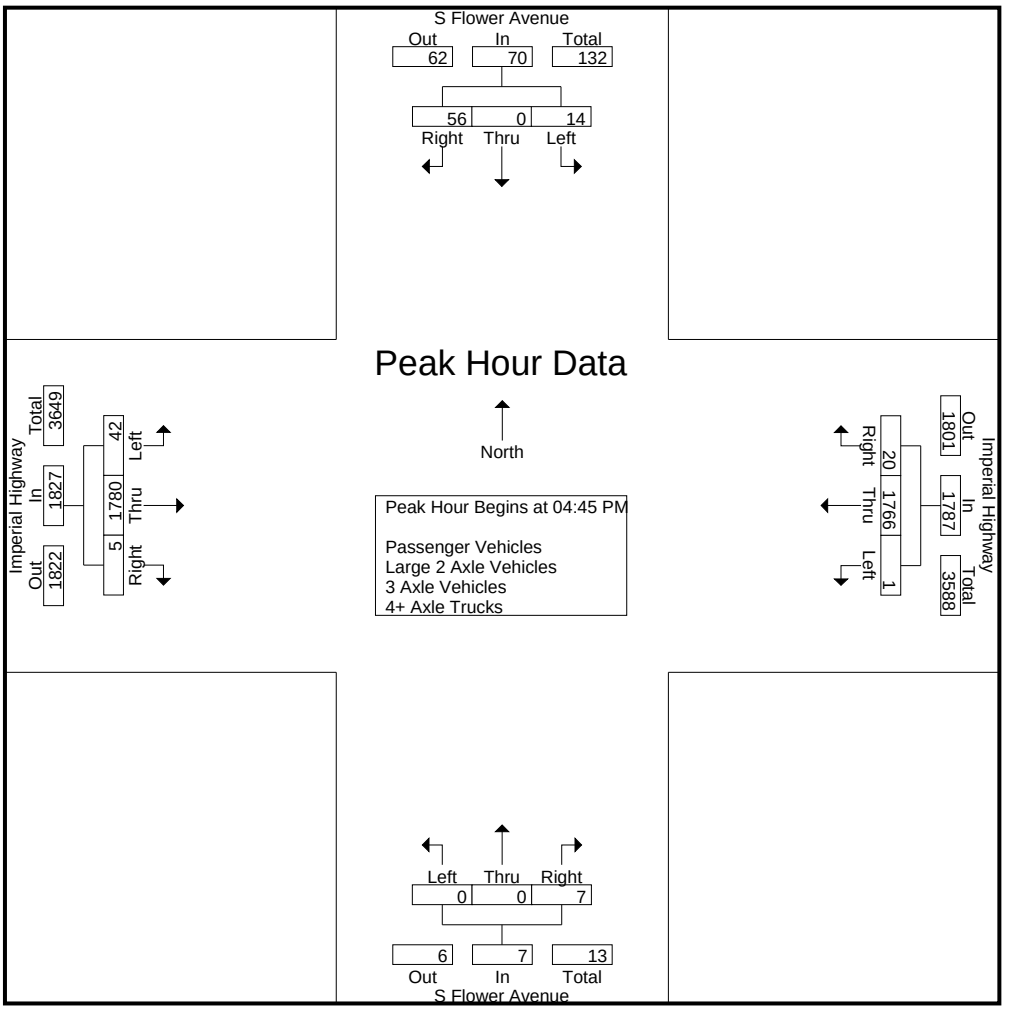
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	2	0	25	27	0	407	7	414	0	0	1	1	7	396	4	407	849
04:15 PM	0	0	12	12	0	425	3	428	0	0	2	2	22	410	3	435	877
04:30 PM	1	0	17	18	0	460	4	464	0	0	4	4	25	429	3	457	943
04:45 PM	8	0	22	30	0	435	7	442	0	0	2	2	11	444	1	456	930
Total	11	0	76	87	0	1727	21	1748	0	0	9	9	65	1679	11	1755	3599
05:00 PM	1	0	14	15	0	429	2	431	0	0	1	1	16	456	4	476	923
05:15 PM	2	0	13	15	0	429	5	434	0	0	2	2	9	427	0	436	887
05:30 PM	3	0	7	10	1	473	6	480	0	0	2	2	6	453	0	459	951
05:45 PM	1	0	15	16	0	462	4	466	0	0	1	1	26	398	1	425	908
Total	7	0	49	56	1	1793	17	1811	0	0	6	6	57	1734	5	1796	3669
Grand Total	18	0	125	143	1	3520	38	3559	0	0	15	15	122	3413	16	3551	7268
Apprch %	12.6	0	87.4		0	98.9	1.1		0	0	100		3.4	96.1	0.5		
Total %	0.2	0	1.7	2	0	48.4	0.5	49	0	0	0.2	0.2	1.7	47	0.2	48.9	
Passenger Vehicles	18	0	121	139	1	3413	38	3452	0	0	14	14	118	3329	16	3463	7068
% Passenger Vehicles	100	0	96.8	97.2	100	97	100	97	0	0	93.3	93.3	96.7	97.5	100	97.5	97.2
Large 2 Axle Vehicles	0	0	4	4	0	71	0	71	0	0	1	1	4	39	0	43	119
% Large 2 Axle Vehicles	0	0	3.2	2.8	0	2	0	2	0	0	6.7	6.7	3.3	1.1	0	1.2	1.6
3 Axle Vehicles	0	0	0	0	0	2	0	2	0	0	0	0	0	10	0	10	12
% 3 Axle Vehicles	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	0.3	0	0.3	0.2
4+ Axle Trucks	0	0	0	0	0	34	0	34	0	0	0	0	0	35	0	35	69
% 4+ Axle Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0.9

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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	**8**	0	**22**	**30**	0	435	**7**	442	0	0	**2**	**2**	11	444	1	456	930
05:00 PM	1	0	14	15	0	429	2	431	0	0	1	1	**16**	**456**	**4**	**476**	923
05:15 PM	2	0	13	15	0	429	5	434	0	0	2	2	9	427	0	436	887
05:30 PM	3	0	7	10	**1**	**473**	6	**480**	0	0	2	2	6	453	0	459	**951**
Total Volume	14	0	56	70	1	1766	20	1787	0	0	7	7	42	1780	5	1827	3691
% App. Total	20	0	80		0.1	98.8	1.1		0	0	100		2.3	97.4	0.3		
PHF	.438	.000	.636	.583	.250	.933	.714	.931	.000	.000	.875	.875	.656	.976	.313	.960	.970

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City of Brea
N/S: S Flower Avenue
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Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
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:

	04:00 PM				05:00 PM				04:00 PM				04:45 PM			
+0 mins.	2	0	**25**	27	0	429	2	431	0	0	1	1	11	444	1	456
+15 mins.	0	0	12	12	0	429	5	434	0	0	2	2	**16**	**456**	**4**	**476**
+30 mins.	1	0	17	18	**1**	**473**	**6**	**480**	0	0	**4**	**4**	9	427	0	436
+45 mins.	**8**	0	22	**30**	0	462	4	466	0	0	2	2	6	453	0	459
Total Volume	11	0	76	87	1	1793	17	1811	0	0	9	9	42	1780	5	1827
% App. Total	12.6	0	87.4		0.1	99	0.9		0	0	100		2.3	97.4	0.3	
PHF	.344	.000	.760	.725	.250	.948	.708	.943	.000	.000	.563	.563	.656	.976	.313	.960

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City of Brea
N/S: S Flower Avenue
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Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Passenger Vehicles

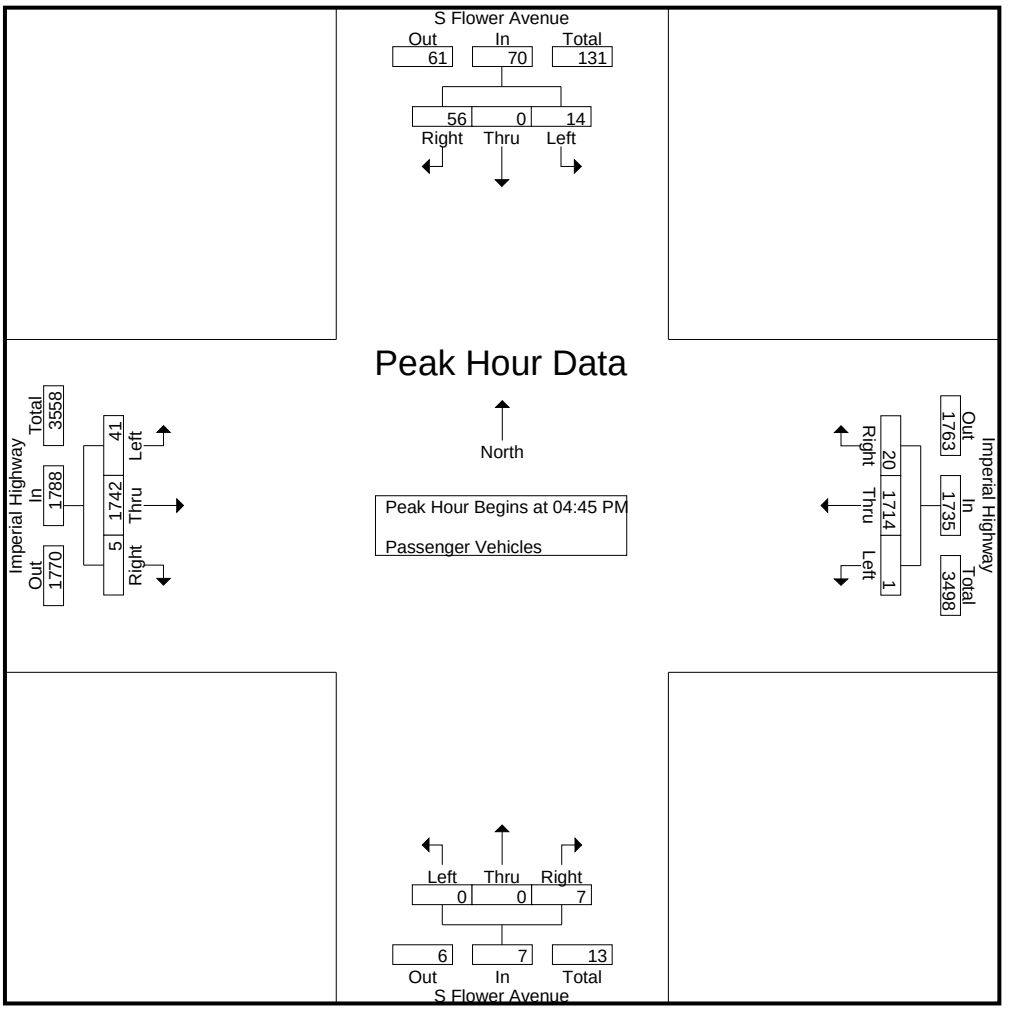
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	2	0	22	24	0	395	7	402	0	0	1	1	6	379	4	389	816
04:15 PM	0	0	12	12	0	403	3	406	0	0	1	1	20	395	3	418	837
04:30 PM	1	0	16	17	0	443	4	447	0	0	4	4	25	422	3	450	918
04:45 PM	8	0	22	30	0	418	7	425	0	0	2	2	11	434	1	446	903
Total	11	0	72	83	0	1659	21	1680	0	0	8	8	62	1630	11	1703	3474
05:00 PM	1	0	14	15	0	416	2	418	0	0	1	1	16	446	4	466	900
05:15 PM	2	0	13	15	0	416	5	421	0	0	2	2	9	420	0	429	867
05:30 PM	3	0	7	10	1	464	6	471	0	0	2	2	5	442	0	447	930
05:45 PM	1	0	15	16	0	458	4	462	0	0	1	1	26	391	1	418	897
Total	7	0	49	56	1	1754	17	1772	0	0	6	6	56	1699	5	1760	3594
Grand Total	18	0	121	139	1	3413	38	3452	0	0	14	14	118	3329	16	3463	7068
Apprch %	12.9	0	87.1		0	98.9	1.1		0	0	100		3.4	96.1	0.5		
Total %	0.3	0	1.7	2	0	48.3	0.5	48.8	0	0	0.2	0.2	1.7	47.1	0.2	49	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**8**	0	**22**	**30**	0	418	**7**	425	0	0	**2**	**2**	11	434	1	446	903
05:00 PM	1	0	14	15	0	416	2	418	0	0	1	1	**16**	**446**	**4**	**466**	900
05:15 PM	2	0	13	15	0	416	5	421	0	0	2	2	9	420	0	429	867
05:30 PM	3	0	7	10	**1**	**464**	6	**471**	0	0	2	2	5	442	0	447	**930**
Total Volume	14	0	56	70	1	1714	20	1735	0	0	7	7	41	1742	5	1788	3600
% App. Total	20	0	80		0.1	98.8	1.2		0	0	100		2.3	97.4	0.3		
PHF	.438	.000	.636	.583	.250	.923	.714	.921	.000	.000	.875	.875	.641	.976	.313	.959	.968

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	**8**	0	**22**	**30**	0	418	**7**	425	0	0	**2**	**2**	11	434	1	446
+15 mins.	1	0	14	15	0	416	2	418	0	0	1	1	**16**	**446**	**4**	**466**
+30 mins.	2	0	13	15	0	416	5	421	0	0	2	2	9	420	0	429
+45 mins.	3	0	7	10	**1**	**464**	6	**471**	0	0	2	2	5	442	0	447
Total Volume	14	0	56	70	1	1714	20	1735	0	0	7	7	41	1742	5	1788
% App. Total	20	0	80		0.1	98.8	1.2		0	0	100		2.3	97.4	0.3	
PHF	.438	.000	.636	.583	.250	.923	.714	.921	.000	.000	.875	.875	.641	.976	.313	.959

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

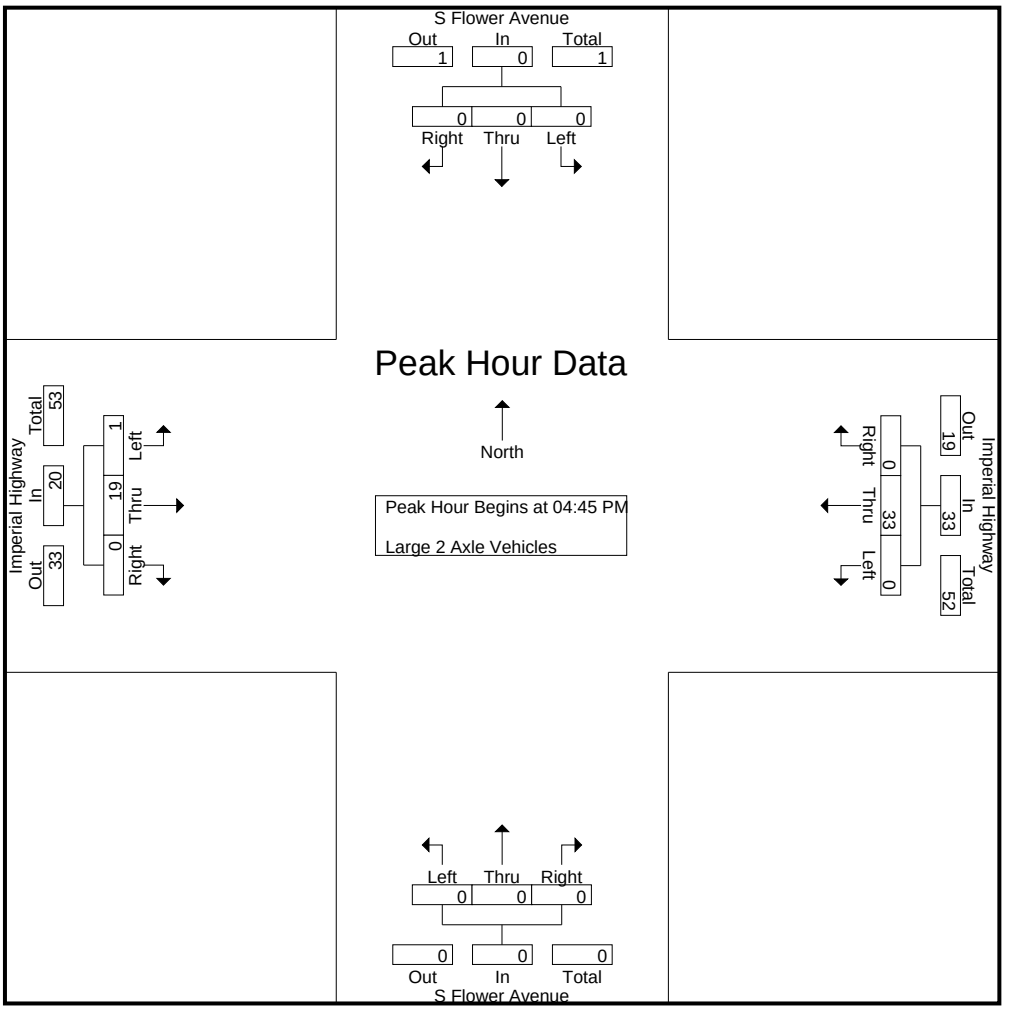
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	3	3	0	6	0	6	0	0	0	0	1	6	0	7	16
04:15 PM	0	0	0	0	0	15	0	15	0	0	1	1	2	9	0	11	27
04:30 PM	0	0	1	1	0	15	0	15	0	0	0	0	0	4	0	4	20
04:45 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	8	0	8	16
Total	0	0	4	4	0	44	0	44	0	0	1	1	3	27	0	30	79
05:00 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	2	0	2	9
05:15 PM	0	0	0	0	0	12	0	12	0	0	0	0	0	3	0	3	15
05:30 PM	0	0	0	0	0	6	0	6	0	0	0	0	1	6	0	7	13
05:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
Total	0	0	0	0	0	27	0	27	0	0	0	0	1	12	0	13	40
Grand Total	0	0	4	4	0	71	0	71	0	0	1	1	4	39	0	43	119
Apprch %	0	0	100		0	100	0		0	0	100		9.3	90.7	0		
Total %	0	0	3.4	3.4	0	59.7	0	59.7	0	0	0.8	0.8	3.4	32.8	0	36.1	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	**8**	0	**8**	**16**
05:00 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	2	0	2	9
05:15 PM	0	0	0	0	0	**12**	0	**12**	0	0	0	0	0	3	0	3	15
05:30 PM	0	0	0	0	0	6	0	6	0	0	0	0	**1**	6	0	7	13
Total Volume	0	0	0	0	0	33	0	33	0	0	0	0	1	19	0	20	53
% App. Total	0	0	0		0	100	0		0	0	0		5	95	0		
PHF	.000	.000	.000	.000	.000	.688	.000	.688	.000	.000	.000	.000	.250	.594	.000	.625	.828

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	8	0	8	0	0	0	0	0	**8**	0	**8**
+15 mins.	0	0	0	0	0	7	0	7	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	**12**	0	**12**	0	0	0	0	0	3	0	3
+45 mins.	0	0	0	0	0	6	0	6	0	0	0	0	**1**	6	0	7
Total Volume	0	0	0	0	0	33	0	33	0	0	0	0	1	19	0	20
% App. Total	0	0	0		0	100	0		0	0	0		5	95	0	
PHF	.000	.000	.000	.000	.000	.688	.000	.688	.000	.000	.000	.000	.250	.594	.000	.625

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

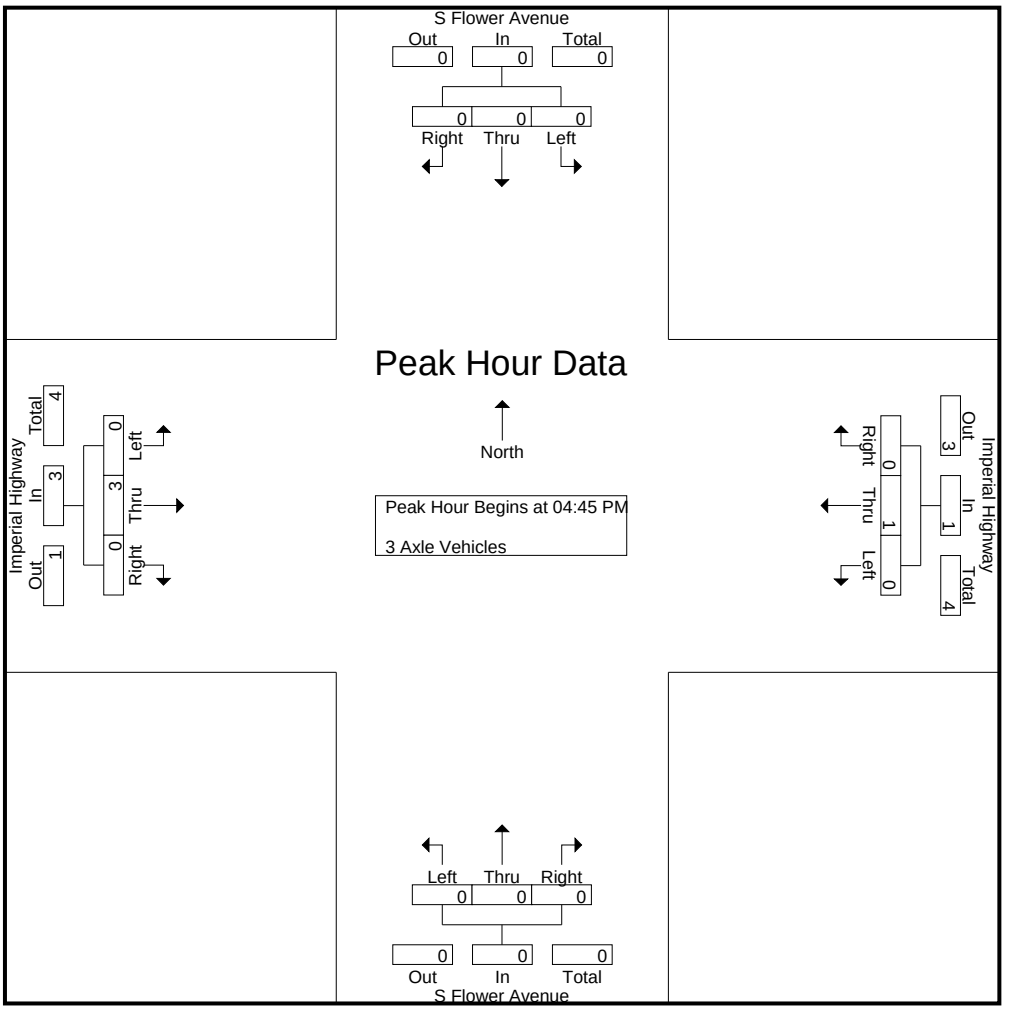
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	6	0	6	7
05:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
Grand Total	0	0	0	0	0	2	0	2	0	0	0	0	0	10	0	10	12
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	16.7	0	16.7	0	0	0	0	0	83.3	0	83.3	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**3**	0	**3**	**4**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.250

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**3**	0	**3**
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

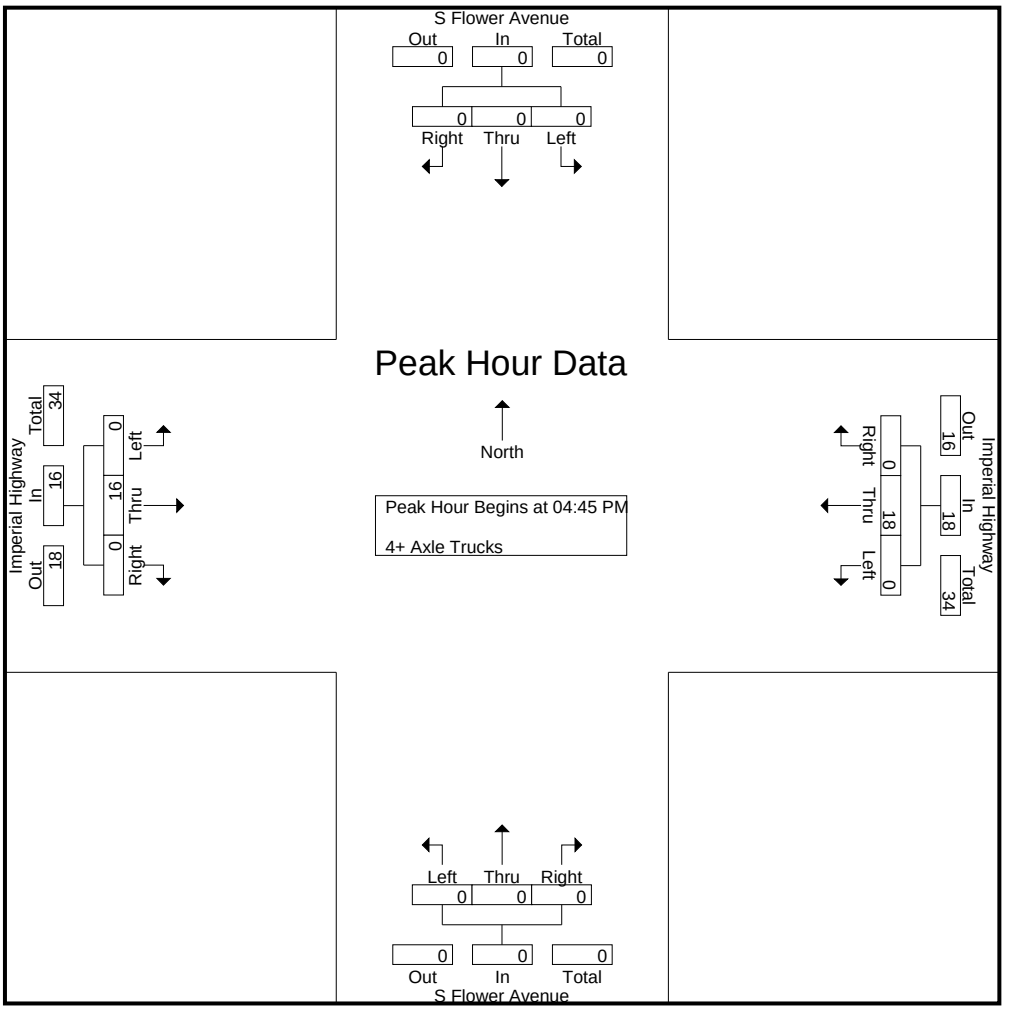
	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	7	0	7	12
04:15 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	5	0	5	12
04:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
04:45 PM	0	0	0	0	0	9	0	9	0	0	0	0	0	2	0	2	11
Total	0	0	0	0	0	23	0	23	0	0	0	0	0	16	0	16	39
05:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	5	0	5	10
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
05:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	8
05:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	7
Total	0	0	0	0	0	11	0	11	0	0	0	0	0	19	0	19	30
Grand Total	0	0	0	0	0	34	0	34	0	0	0	0	0	35	0	35	69
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	49.3	0	49.3	0	0	0	0	0	50.7	0	50.7	

	S Flower Avenue Southbound				Imperial Highway Westbound				S Flower Avenue Northbound				Imperial Highway 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	**9**	0	**9**	0	0	0	0	0	2	0	2	**11**
05:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	**5**	0	**5**	10
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
05:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	8
Total Volume	0	0	0	0	0	18	0	18	0	0	0	0	0	16	0	16	34
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.800	.000	.800	.773

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City of Brea
N/S: S Flower Avenue
E/W: Imperial Highway
Weather: Clear

File Name : 02_BRE_Flo_Imp PM
Site Code : 221110
Start Date : 12/8/2022
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	**9**	0	**9**	0	0	0	0	0	2	0	2
+15 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	**5**	0	**5**
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4
+45 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5
Total Volume	0	0	0	0	0	18	0	18	0	0	0	0	0	16	0	16
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.800	.000	.800

Location: Brea
N/S: S Flower Avenue
E/W: Imperial Highway

Date: 12/8/2022
Day: Thursday

PEDESTRIANS

	North Leg S Flower Avenue	East Leg Imperial Highway	South Leg S Flower Avenue	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	2	0	0	0	2
7:15 AM	3	0	0	0	3
7:30 AM	0	0	1	0	1
7:45 AM	2	0	0	0	2
8:00 AM	0	0	1	0	1
8:15 AM	1	0	1	0	2
8:30 AM	0	0	4	0	4
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	8	0	8	0	16

	North Leg S Flower Avenue	East Leg Imperial Highway	South Leg S Flower Avenue	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	1	0	0	0	1
2:00 PM	2	0	0	0	2
2:15 PM	9	0	0	0	9
2:30 PM	0	0	1	0	1
2:45 PM	1	0	1	0	2
TOTAL VOLUMES:	13	0	2	0	15

	North Leg S Flower Avenue	East Leg Imperial Highway	South Leg S Flower Avenue	West Leg Imperial Highway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	1	0	2
4:15 PM	0	0	1	0	1
4:30 PM	2	0	0	0	2
4:45 PM	3	0	1	0	4
5:00 PM	0	0	0	0	0
5:15 PM	2	0	1	0	3
5:30 PM	0	0	1	0	1
5:45 PM	0	0	1	0	1
TOTAL VOLUMES:	8	0	6	0	14

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Location: Brea
N/S: S Flower Avenue
E/W: Imperial Highway

Date: 12/8/2022
Day: Thursday

BICYCLES

	Southbound S Flower Avenue			Westbound Imperial Highway			Northbound S Flower Avenue			Eastbound Imperial Highway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	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	1	0	0	0	0	0	1	0	2
8:45 AM	0	0	0	0	2	0	0	0	0	0	1	0	3
TOTAL VOLUMES:	0	0	0	0	4	0	0	0	0	0	2	0	6

	Southbound S Flower Avenue			Westbound Imperial Highway			Northbound S Flower Avenue			Eastbound Imperial Highway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

	Southbound S Flower Avenue			Westbound Imperial Highway			Northbound S Flower Avenue			Eastbound Imperial Highway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
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	1	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	2	0	5

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

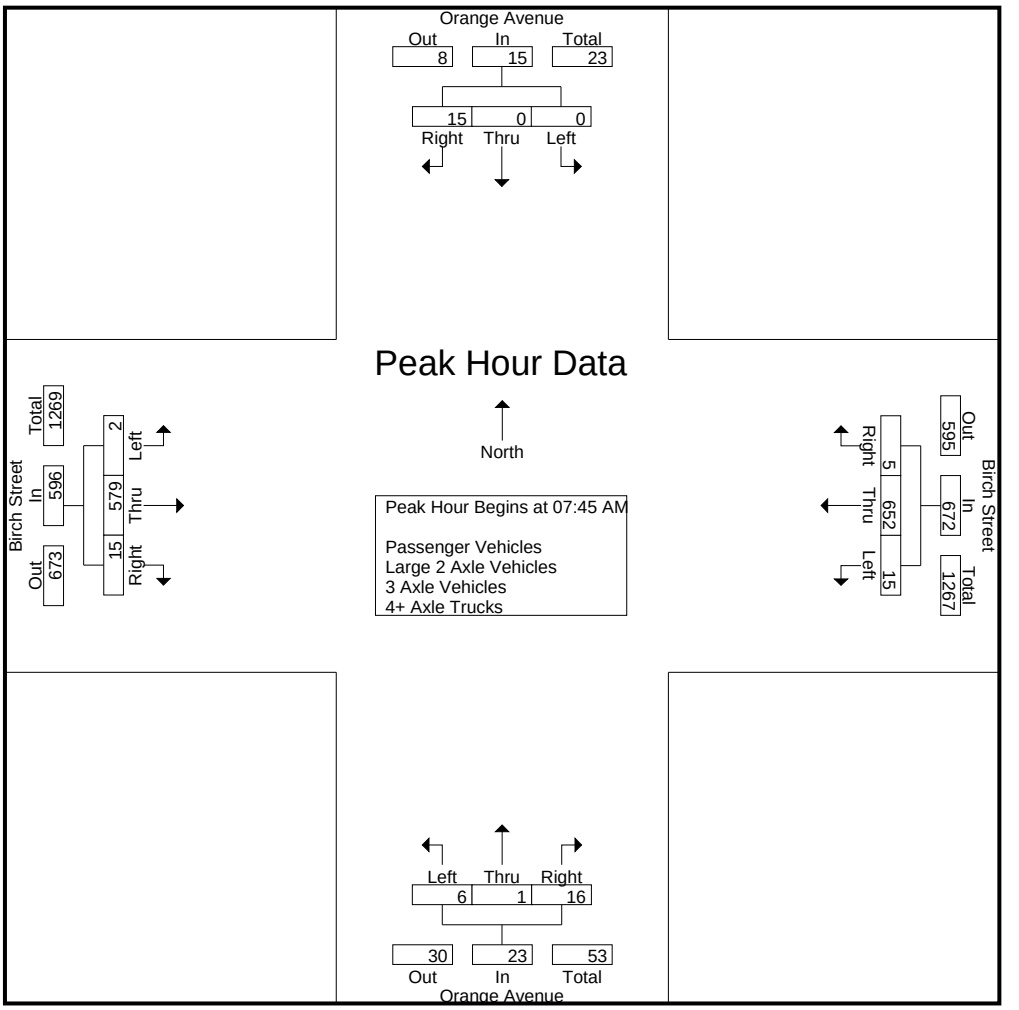
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	1	53	2	56	0	0	1	1	0	58	3	61	119
07:15 AM	0	0	3	3	4	76	2	82	0	1	2	3	0	70	2	72	160
07:30 AM	0	0	5	5	2	103	0	105	0	0	3	3	0	87	2	89	202
07:45 AM	0	0	7	7	6	184	2	192	1	0	5	6	1	156	10	167	372
Total	0	0	16	16	13	416	6	435	1	1	11	13	1	371	17	389	853
08:00 AM	0	0	3	3	3	179	0	182	3	1	9	13	1	143	2	146	344
08:15 AM	0	0	3	3	2	153	2	157	2	0	0	2	0	139	2	141	303
08:30 AM	0	0	2	2	4	136	1	141	0	0	2	2	0	141	1	142	287
08:45 AM	0	0	4	4	2	128	0	130	1	0	1	2	0	157	4	161	297
Total	0	0	12	12	11	596	3	610	6	1	12	19	1	580	9	590	1231
Grand Total	0	0	28	28	24	1012	9	1045	7	2	23	32	2	951	26	979	2084
Apprch %	0	0	100		2.3	96.8	0.9		21.9	6.2	71.9		0.2	97.1	2.7		
Total %	0	0	1.3	1.3	1.2	48.6	0.4	50.1	0.3	0.1	1.1	1.5	0.1	45.6	1.2	47	
Passenger Vehicles	0	0	27	27	24	992	9	1025	7	2	22	31	2	932	26	960	2043
% Passenger Vehicles	0	0	96.4	96.4	100	98	100	98.1	100	100	95.7	96.9	100	98	100	98.1	98
Large 2 Axle Vehicles	0	0	1	1	0	19	0	19	0	0	1	1	0	18	0	18	39
% Large 2 Axle Vehicles	0	0	3.6	3.6	0	1.9	0	1.8	0	0	4.3	3.1	0	1.9	0	1.8	1.9
3 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 07:45 AM																	
07:45 AM	0	0	**7**	**7**	**6**	**184**	**2**	**192**	1	0	5	6	**1**	**156**	**10**	**167**	**372**
08:00 AM	0	0	3	3	3	179	0	182	**3**	**1**	**9**	**13**	1	143	2	146	344
08:15 AM	0	0	3	3	2	153	2	157	2	0	0	2	0	139	2	141	303
08:30 AM	0	0	2	2	4	136	1	141	0	0	2	2	0	141	1	142	287
Total Volume	0	0	15	15	15	652	5	672	6	1	16	23	2	579	15	596	1306
% App. Total	0	0	100		2.2	97	0.7		26.1	4.3	69.6		0.3	97.1	2.5		
PHF	.000	.000	.536	.536	.625	.886	.625	.875	.500	.250	.444	.442	.500	.928	.375	.892	.878

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:45 AM				07:15 AM				07:45 AM			
+0 mins.	0	0	3	3	**6**	**184**	**2**	**192**	0	**1**	2	3	**1**	**156**	**10**	**167**
+15 mins.	0	0	5	5	3	179	0	182	0	0	3	3	1	143	2	146
+30 mins.	0	0	**7**	**7**	2	153	2	157	1	0	5	6	0	139	2	141
+45 mins.	0	0	3	3	4	136	1	141	**3**	1	**9**	**13**	0	141	1	142
Total Volume	0	0	18	18	15	652	5	672	4	2	19	25	2	579	15	596
% App. Total	0	0	100		2.2	97	0.7		16	8	76		0.3	97.1	2.5	
PHF	.000	.000	.643	.643	.625	.886	.625	.875	.333	.500	.528	.481	.500	.928	.375	.892

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

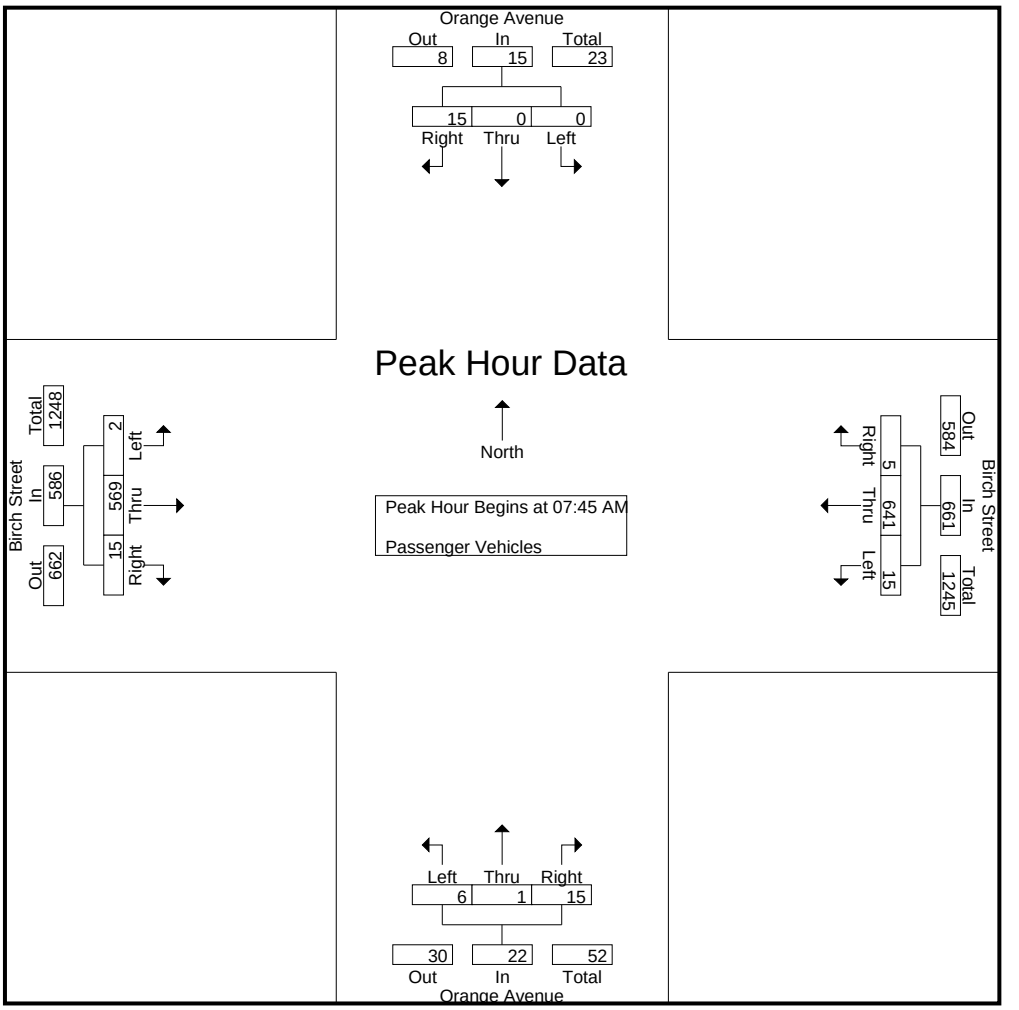
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	1	53	2	56	0	0	1	1	0	57	3	60	118
07:15 AM	0	0	3	3	4	74	2	80	0	1	2	3	0	68	2	70	156
07:30 AM	0	0	4	4	2	100	0	102	0	0	3	3	0	86	2	88	197
07:45 AM	0	0	7	7	6	181	2	189	1	0	5	6	1	156	10	167	369
Total	0	0	15	15	13	408	6	427	1	1	11	13	1	367	17	385	840
08:00 AM	0	0	3	3	3	173	0	176	3	1	8	12	1	142	2	145	336
08:15 AM	0	0	3	3	2	151	2	155	2	0	0	2	0	131	2	133	293
08:30 AM	0	0	2	2	4	136	1	141	0	0	2	2	0	140	1	141	286
08:45 AM	0	0	4	4	2	124	0	126	1	0	1	2	0	152	4	156	288
Total	0	0	12	12	11	584	3	598	6	1	11	18	1	565	9	575	1203
Grand Total	0	0	27	27	24	992	9	1025	7	2	22	31	2	932	26	960	2043
Apprch %	0	0	100		2.3	96.8	0.9		22.6	6.5	71		0.2	97.1	2.7		
Total %	0	0	1.3	1.3	1.2	48.6	0.4	50.2	0.3	0.1	1.1	1.5	0.1	45.6	1.3	47	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	**7**	**7**	**6**	**181**	**2**	**189**	1	0	5	6	**1**	**156**	**10**	**167**	**369**
08:00 AM	0	0	3	3	3	173	0	176	**3**	**1**	**8**	**12**	1	142	2	145	336
08:15 AM	0	0	3	3	2	151	2	155	2	0	0	2	0	131	2	133	293
08:30 AM	0	0	2	2	4	136	1	141	0	0	2	2	0	140	1	141	286
Total Volume	0	0	15	15	15	641	5	661	6	1	15	22	2	569	15	586	1284
% App. Total	0	0	100		2.3	97	0.8		27.3	4.5	68.2		0.3	97.1	2.6		
PHF	.000	.000	.536	.536	.625	.885	.625	.874	.500	.250	.469	.458	.500	.912	.375	.877	.870

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	0	0	**7**	**7**	**6**	**181**	**2**	**189**	1	0	5	6	**1**	**156**	**10**	**167**
+15 mins.	0	0	3	3	3	173	0	176	**3**	**1**	**8**	**12**	1	142	2	145
+30 mins.	0	0	3	3	2	151	2	155	2	0	0	2	0	131	2	133
+45 mins.	0	0	2	2	4	136	1	141	0	0	2	2	0	140	1	141
Total Volume	0	0	15	15	15	641	5	661	6	1	15	22	2	569	15	586
% App. Total	0	0	100		2.3	97	0.8		27.3	4.5	68.2		0.3	97.1	2.6	
PHF	.000	.000	.536	.536	.625	.885	.625	.874	.500	.250	.469	.458	.500	.912	.375	.877

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

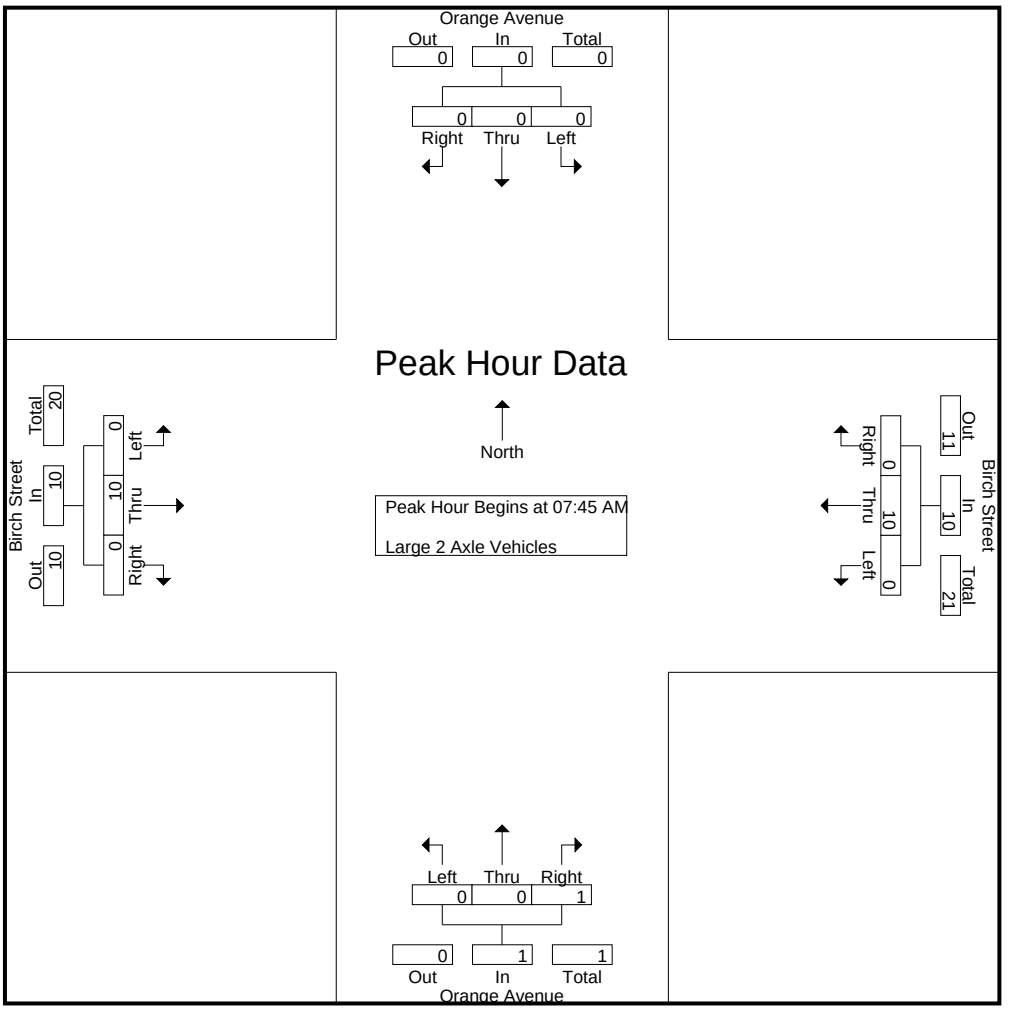
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
07:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
07:30 AM	0	0	1	1	0	3	0	3	0	0	0	0	0	1	0	1	5
07:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	0	0	1	1	0	7	0	7	0	0	0	0	0	4	0	4	12
08:00 AM	0	0	0	0	0	6	0	6	0	0	1	1	0	1	0	1	8
08:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	8	0	8	10
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:45 AM	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
Total	0	0	0	0	0	12	0	12	0	0	1	1	0	14	0	14	27
Grand Total	0	0	1	1	0	19	0	19	0	0	1	1	0	18	0	18	39
Apprch %	0	0	100		0	100	0		0	0	100		0	100	0		
Total %	0	0	2.6	2.6	0	48.7	0	48.7	0	0	2.6	2.6	0	46.2	0	46.2	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	**6**	0	**6**	0	0	**1**	**1**	0	1	0	1	8
08:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	**8**	0	**8**	**10**
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	10	0	10	0	0	1	1	0	10	0	10	21
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.417	.000	.417	.000	.000	.250	.250	.000	.313	.000	.313	.525

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**6**	0	**6**	0	0	**1**	**1**	0	1	0	1
+30 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	**8**	0	**8**
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	10	0	10	0	0	1	1	0	10	0	10
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0	
PHF	.000	.000	.000	.000	.000	.417	.000	.417	.000	.000	.250	.250	.000	.313	.000	.313

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

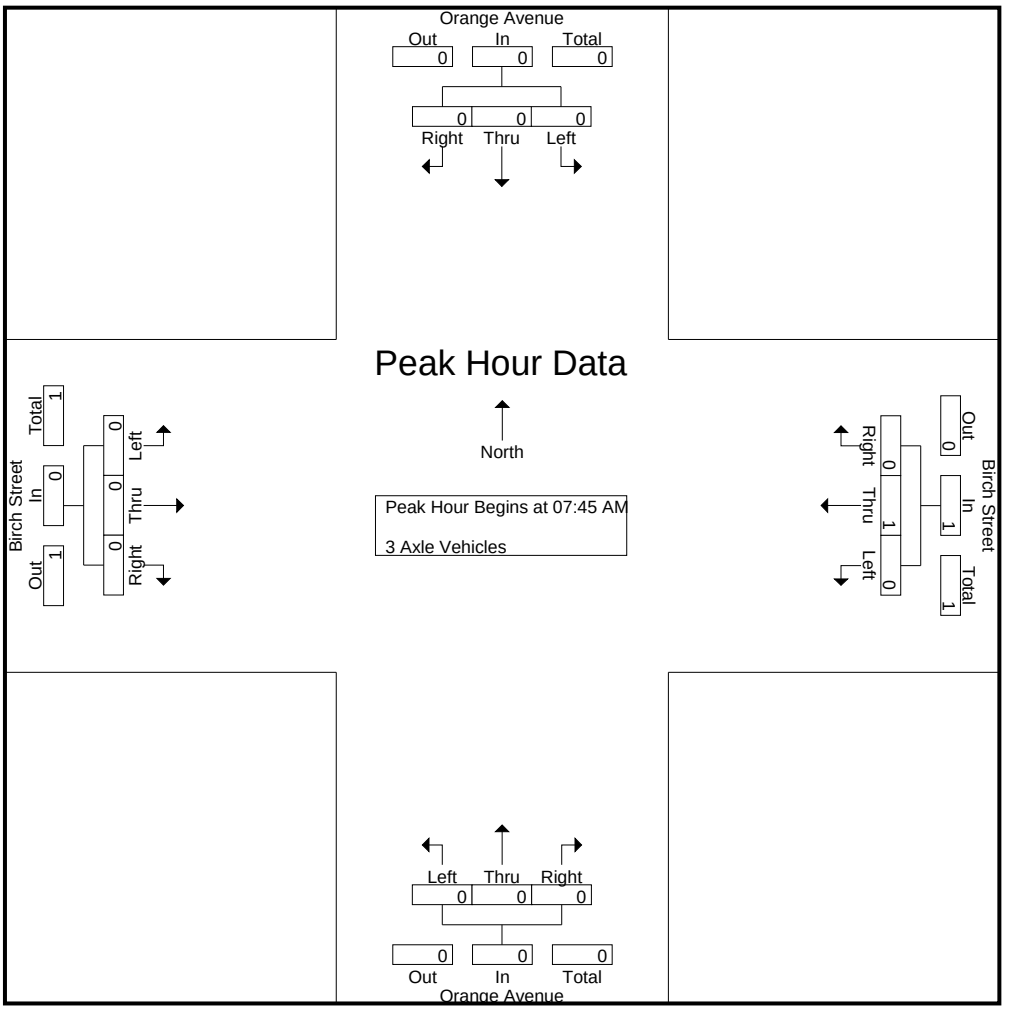
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0		0	100	0		0	0	0		0	0	0		
Total %	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Brea
N/S: Orange Avenue
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File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
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File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

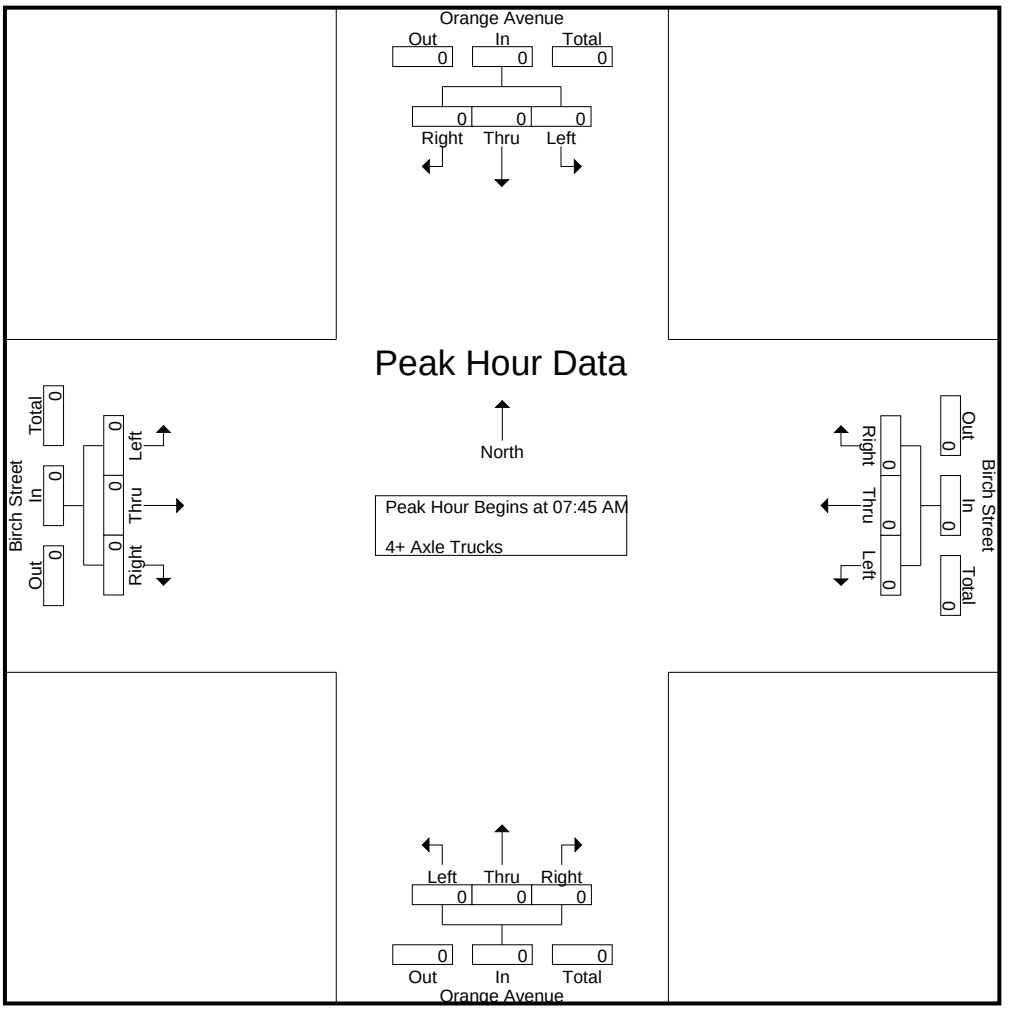
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0	0		0	0	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch AM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

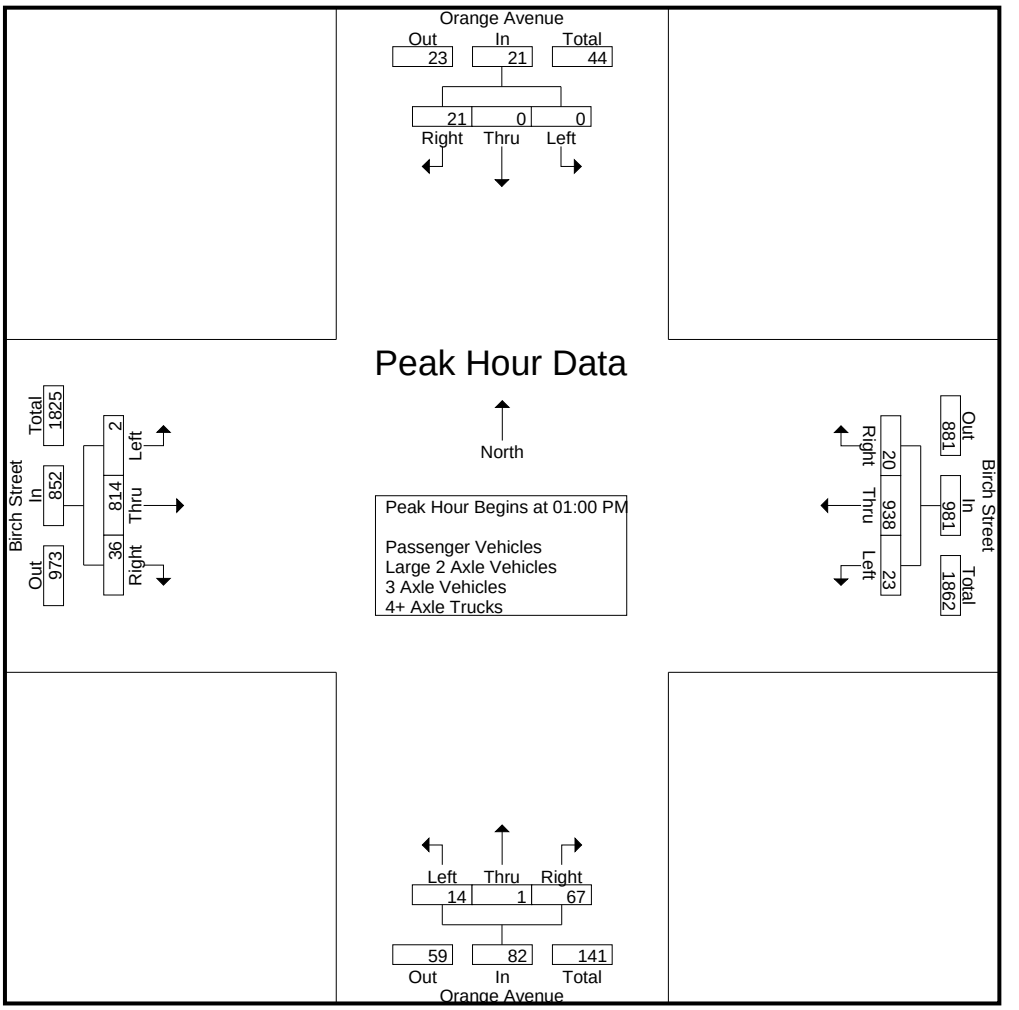
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00 PM	0	0	5	5	5	190	8	203	2	2	5	9	3	194	13	210	427
12:15 PM	0	0	6	6	5	219	4	228	1	0	5	6	1	167	6	174	414
12:30 PM	0	0	6	6	7	233	5	245	1	0	4	5	1	185	9	195	451
12:45 PM	0	0	8	8	4	208	3	215	1	0	7	8	2	203	12	217	448
Total	0	0	25	25	21	850	20	891	5	2	21	28	7	749	40	796	1740
01:00 PM	0	0	6	6	3	204	5	212	3	0	5	8	0	207	8	215	441
01:15 PM	0	0	7	7	6	227	5	238	1	1	10	12	1	185	12	198	455
01:30 PM	0	0	7	7	8	270	8	286	5	0	20	25	0	217	14	231	549
01:45 PM	0	0	1	1	6	237	2	245	5	0	32	37	1	205	2	208	491
Total	0	0	21	21	23	938	20	981	14	1	67	82	2	814	36	852	1936
Grand Total	0	0	46	46	44	1788	40	1872	19	3	88	110	9	1563	76	1648	3676
Apprch %	0	0	100		2.4	95.5	2.1		17.3	2.7	80		0.5	94.8	4.6		
Total %	0	0	1.3	1.3	1.2	48.6	1.1	50.9	0.5	0.1	2.4	3	0.2	42.5	2.1	44.8	
Passenger Vehicles	0	0	44	44	44	1762	39	1845	19	3	85	107	9	1546	76	1631	3627
% Passenger Vehicles	0	0	95.7	95.7	100	98.5	97.5	98.6	100	100	96.6	97.3	100	98.9	100	99	98.7
Large 2 Axle Vehicles	0	0	2	2	0	25	1	26	0	0	2	2	0	17	0	17	47
% Large 2 Axle Vehicles	0	0	4.3	4.3	0	1.4	2.5	1.4	0	0	2.3	1.8	0	1.1	0	1	1.3
3 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
% 3 Axle Vehicles	0	0	0	0	0	0.1	0	0.1	0	0	1.1	0.9	0	0	0	0	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 12:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	6	6	3	204	5	212	3	0	5	8	0	207	8	215	441
01:15 PM	0	0	**7**	**7**	6	227	5	238	1	**1**	10	12	**1**	185	12	198	455
01:30 PM	0	0	7	7	**8**	**270**	**8**	**286**	**5**	0	20	25	0	**217**	**14**	**231**	**549**
01:45 PM	0	0	1	1	6	237	2	245	5	0	**32**	**37**	1	205	2	208	491
Total Volume	0	0	21	21	23	938	20	981	14	1	67	82	2	814	36	852	1936
% App. Total	0	0	100		2.3	95.6	2		17.1	1.2	81.7		0.2	95.5	4.2		
PHF	.000	.000	.750	.750	.719	.869	.625	.858	.700	.250	.523	.554	.500	.938	.643	.922	.882

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:45 PM				01:00 PM				01:00 PM				12:45 PM			
+0 mins.	0	0	**8**	**8**	3	204	5	212	3	0	5	8	**2**	203	12	217
+15 mins.	0	0	6	6	6	227	5	238	1	**1**	10	12	0	207	8	215
+30 mins.	0	0	7	7	**8**	**270**	**8**	**286**	**5**	0	20	25	1	185	12	198
+45 mins.	0	0	7	7	6	237	2	245	5	0	**32**	**37**	0	**217**	**14**	**231**
Total Volume	0	0	28	28	23	938	20	981	14	1	67	82	3	812	46	861
% App. Total	0	0	100		2.3	95.6	2		17.1	1.2	81.7		0.3	94.3	5.3	
PHF	.000	.000	.875	.875	.719	.869	.625	.858	.700	.250	.523	.554	.375	.935	.821	.932

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City of Brea
N/S: Orange Avenue
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Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

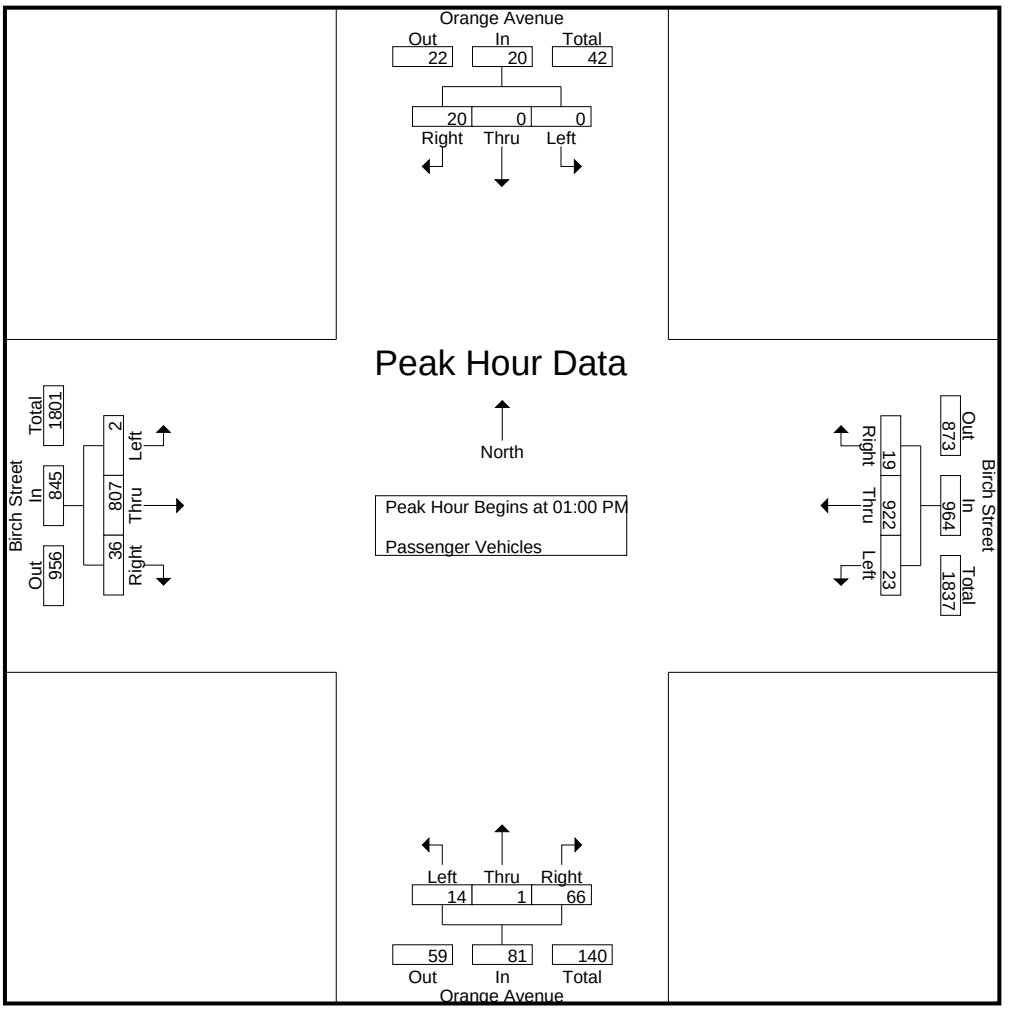
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00 PM	0	0	5	5	5	189	8	202	2	2	5	9	3	192	13	208	424
12:15 PM	0	0	6	6	5	219	4	228	1	0	3	4	1	164	6	171	409
12:30 PM	0	0	6	6	7	228	5	240	1	0	4	5	1	184	9	194	445
12:45 PM	0	0	7	7	4	204	3	211	1	0	7	8	2	199	12	213	439
Total	0	0	24	24	21	840	20	881	5	2	19	26	7	739	40	786	1717
01:00 PM	0	0	5	5	3	203	5	211	3	0	5	8	0	206	8	214	438
01:15 PM	0	0	7	7	6	225	5	236	1	1	10	12	1	185	12	198	453
01:30 PM	0	0	7	7	8	264	8	280	5	0	20	25	0	215	14	229	541
01:45 PM	0	0	1	1	6	230	1	237	5	0	31	36	1	201	2	204	478
Total	0	0	20	20	23	922	19	964	14	1	66	81	2	807	36	845	1910
Grand Total	0	0	44	44	44	1762	39	1845	19	3	85	107	9	1546	76	1631	3627
Apprch %	0	0	100		2.4	95.5	2.1		17.8	2.8	79.4		0.6	94.8	4.7		
Total %	0	0	1.2	1.2	1.2	48.6	1.1	50.9	0.5	0.1	2.3	3	0.2	42.6	2.1	45	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	5	5	3	203	5	211	3	0	5	8	0	206	8	214	438
01:15 PM	0	0	**7**	**7**	6	225	5	236	1	**1**	10	12	**1**	185	12	198	453
01:30 PM	0	0	7	7	**8**	**264**	**8**	**280**	**5**	0	20	25	0	**215**	**14**	**229**	**541**
01:45 PM	0	0	1	1	6	230	1	237	5	0	**31**	**36**	1	201	2	204	478
Total Volume	0	0	20	20	23	922	19	964	14	1	66	81	2	807	36	845	1910
% App. Total	0	0	100		2.4	95.6	2		17.3	1.2	81.5		0.2	95.5	4.3		
PHF	.000	.000	.714	.714	.719	.873	.594	.861	.700	.250	.532	.563	.500	.938	.643	.922	.883

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	5	5	3	203	5	211	3	0	5	8	0	206	8	214
+15 mins.	0	0	**7**	**7**	6	225	5	236	1	**1**	10	12	**1**	185	12	198
+30 mins.	0	0	7	7	**8**	**264**	**8**	**280**	**5**	0	20	25	0	**215**	**14**	**229**
+45 mins.	0	0	1	1	6	230	1	237	5	0	**31**	**36**	1	201	2	204
Total Volume	0	0	20	20	23	922	19	964	14	1	66	81	2	807	36	845
% App. Total	0	0	100		2.4	95.6	2		17.3	1.2	81.5		0.2	95.5	4.3	
PHF	.000	.000	.714	.714	.719	.873	.594	.861	.700	.250	.532	.563	.500	.938	.643	.922

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City of Brea
N/S: Orange Avenue
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Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

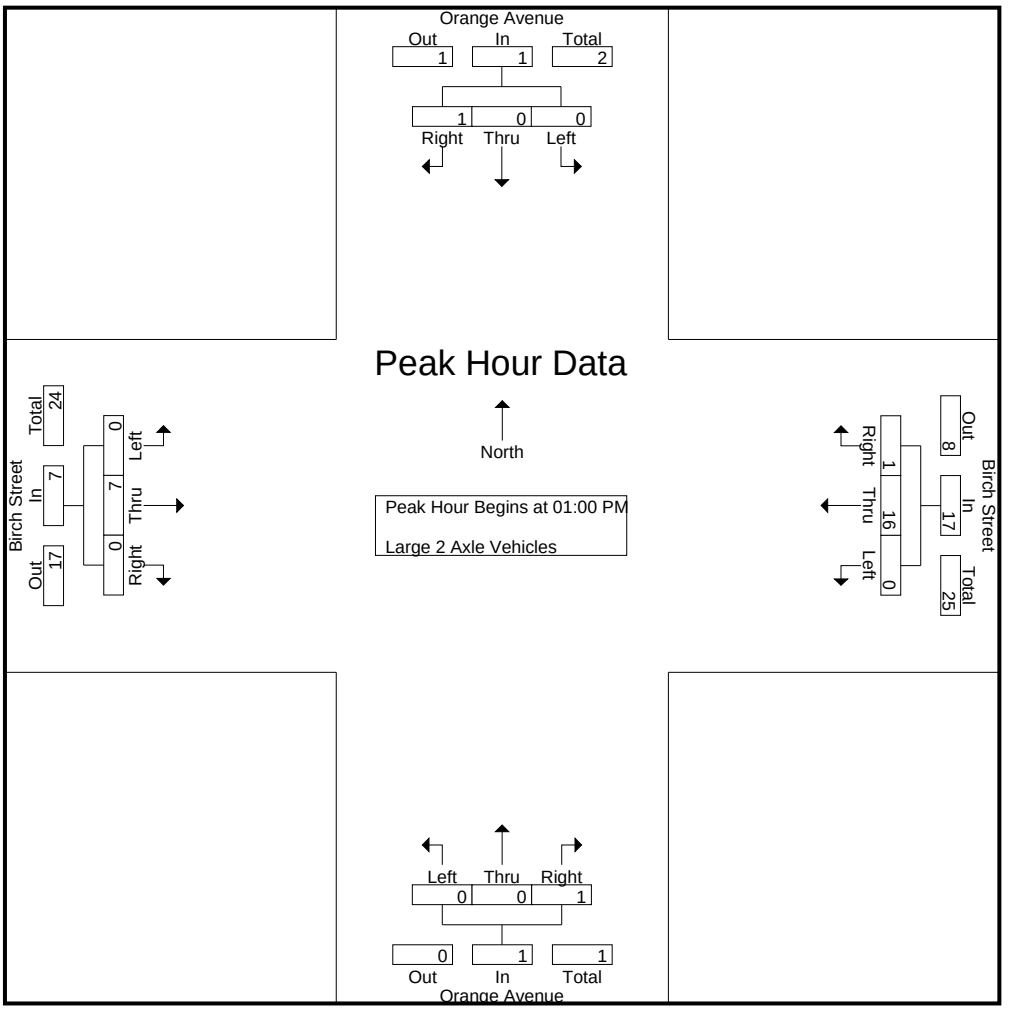
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	3	4
12:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1	5
12:45 PM	0	0	1	1	0	4	0	4	0	0	0	0	0	4	0	4	9
Total	0	0	1	1	0	9	0	9	0	0	1	1	0	10	0	10	21
01:00 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1	3
01:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
01:30 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	2	0	2	8
01:45 PM	0	0	0	0	0	7	1	8	0	0	1	1	0	4	0	4	13
Total	0	0	1	1	0	16	1	17	0	0	1	1	0	7	0	7	26
Grand Total	0	0	2	2	0	25	1	26	0	0	2	2	0	17	0	17	47
Apprch %	0	0	100		0	96.2	3.8		0	0	100		0	100	0		
Total %	0	0	4.3	4.3	0	53.2	2.1	55.3	0	0	4.3	4.3	0	36.2	0	36.2	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	1	0	1	3
01:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
01:30 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	2	0	2	8
01:45 PM	0	0	0	0	0	**7**	**1**	**8**	0	0	**1**	**1**	0	**4**	0	**4**	**13**
Total Volume	0	0	1	1	0	16	1	17	0	0	1	1	0	7	0	7	26
% App. Total	0	0	100		0	94.1	5.9		0	0	100		0	100	0		
PHF	.000	.000	.250	.250	.000	.571	.250	.531	.000	.000	.250	.250	.000	.438	.000	.438	.500

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City of Brea
N/S: Orange Avenue
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Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	6	0	6	0	0	0	0	0	2	0	2
+45 mins.	0	0	0	0	0	**7**	**1**	**8**	0	0	**1**	**1**	0	**4**	0	**4**
Total Volume	0	0	1	1	0	16	1	17	0	0	1	1	0	7	0	7
% App. Total	0	0	100		0	94.1	5.9		0	0	100		0	100	0	
PHF	.000	.000	.250	.250	.000	.571	.250	.531	.000	.000	.250	.250	.000	.438	.000	.438

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

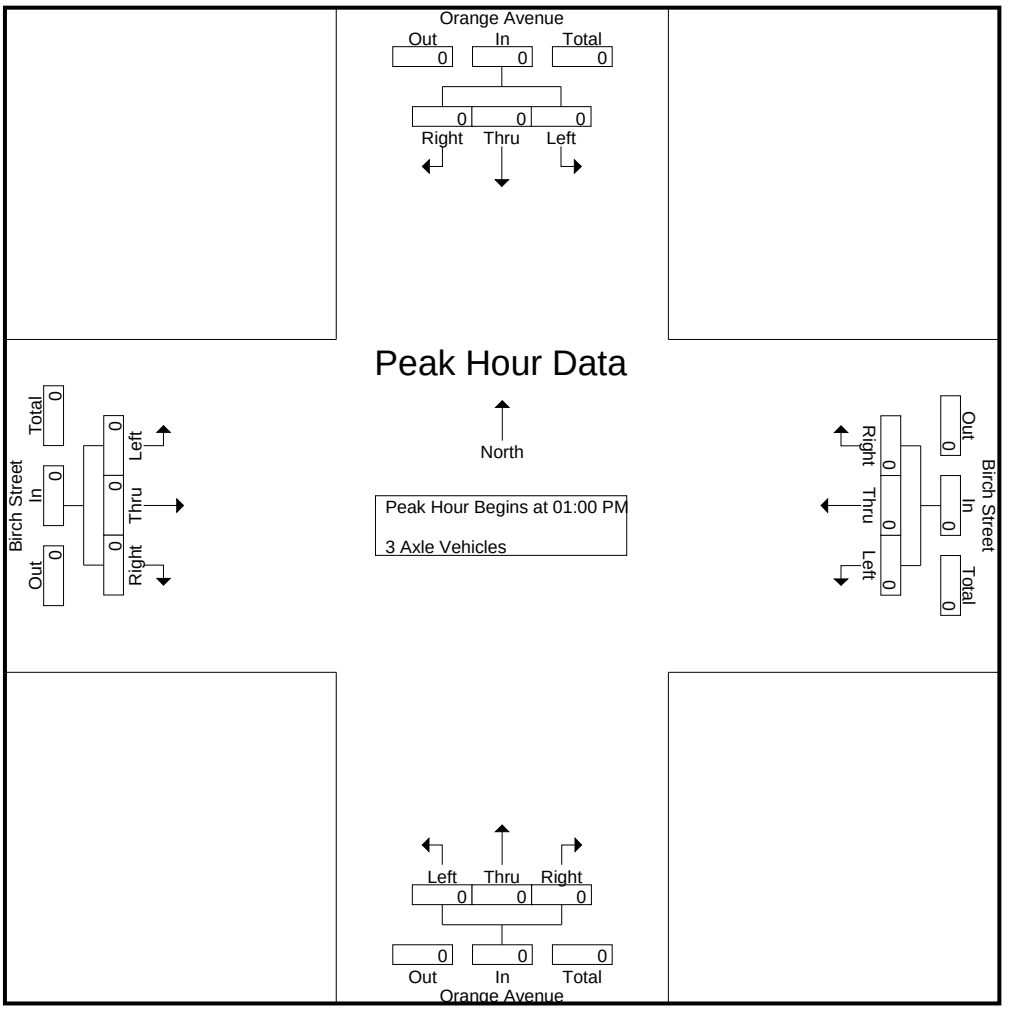
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
Apprch %	0	0	0		0	100	0		0	0	100		0	0	0		
Total %	0	0	0	0	0	50	0	50	0	0	50	50	0	0	0	0	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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(951)268-6268

City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

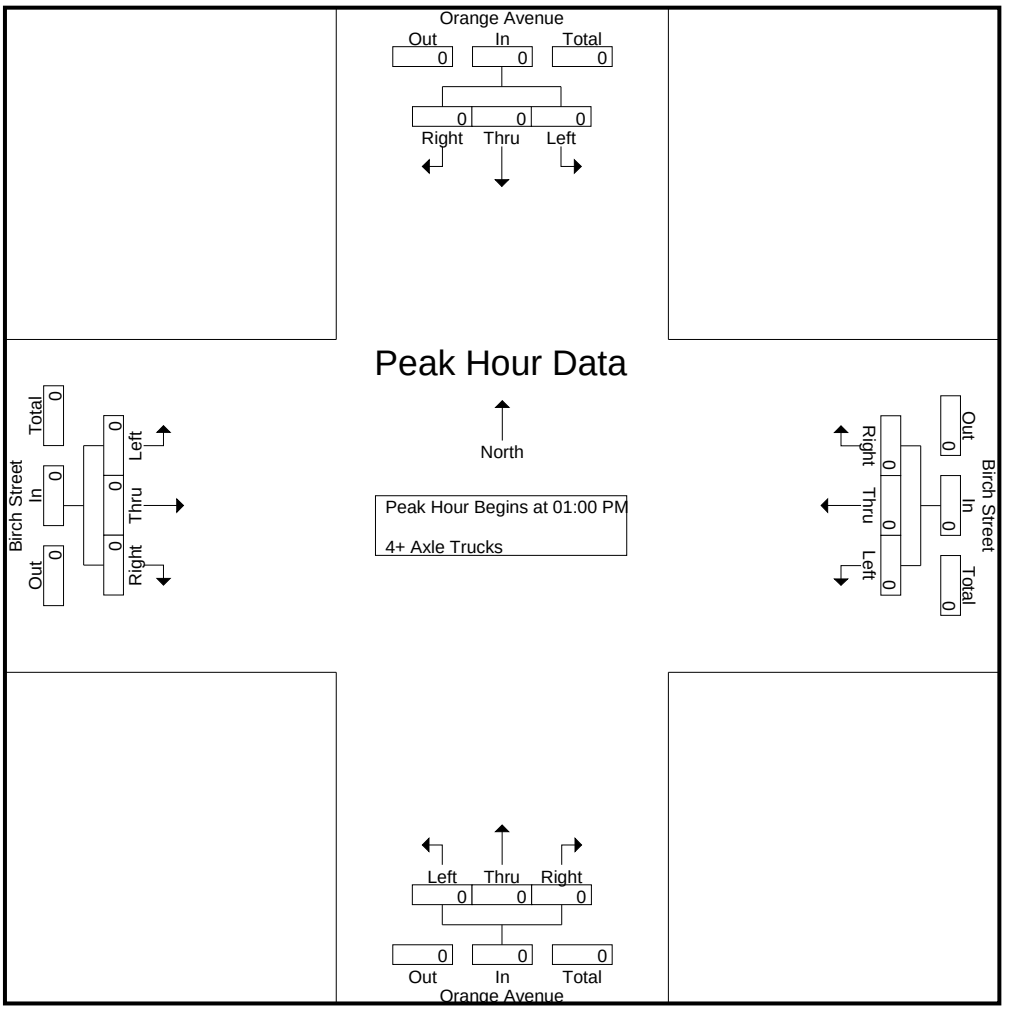
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch MD
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

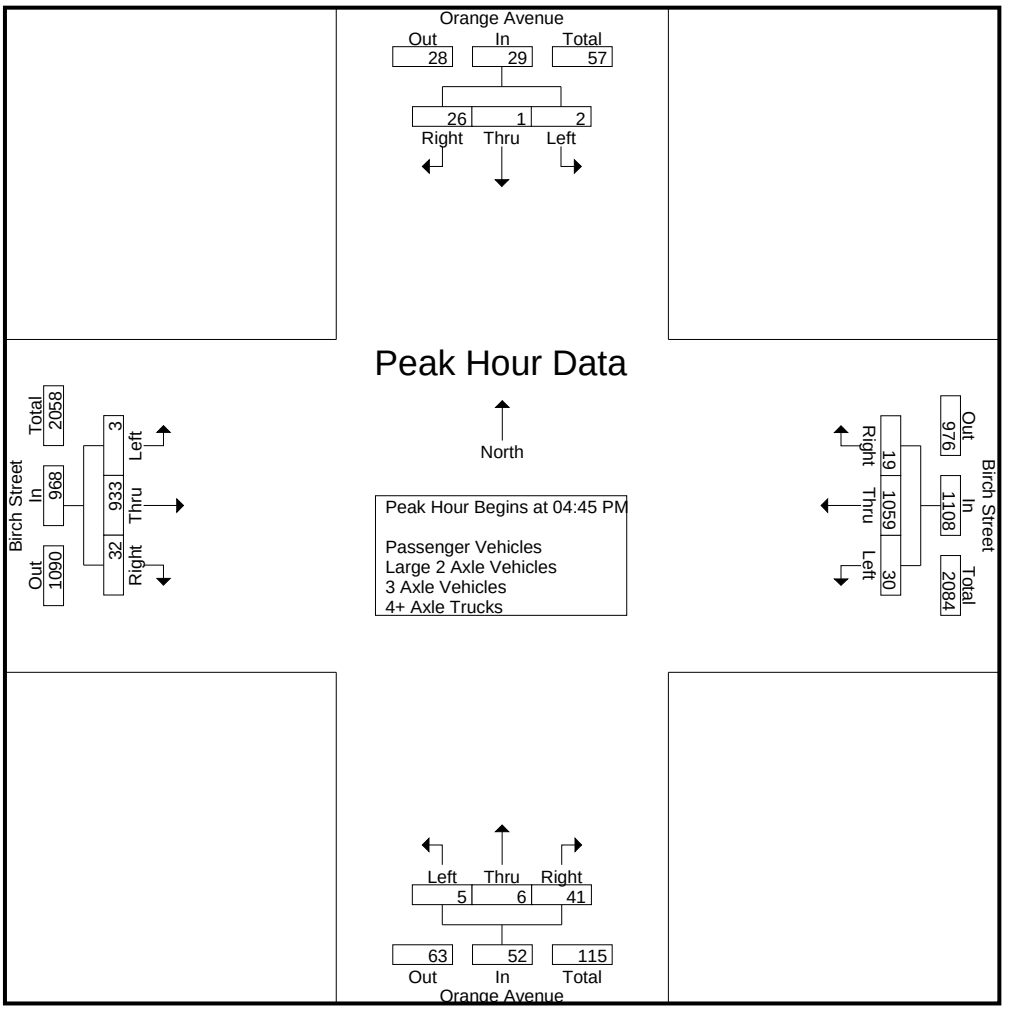
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	7	7	8	257	5	270	0	0	10	10	1	257	7	265	552
04:15 PM	0	0	5	5	8	257	5	270	2	0	12	14	0	241	7	248	537
04:30 PM	0	0	12	12	6	248	4	258	1	0	12	13	1	231	8	240	523
04:45 PM	0	0	4	4	3	263	2	268	2	1	7	10	1	235	8	244	526
Total	0	0	28	28	25	1025	16	1066	5	1	41	47	3	964	30	997	2138
05:00 PM	1	0	8	9	11	252	6	269	2	2	6	10	1	224	6	231	519
05:15 PM	0	0	5	5	4	262	5	271	0	3	14	17	1	220	10	231	524
05:30 PM	1	1	9	11	12	282	6	300	1	0	14	15	0	254	8	262	588
05:45 PM	0	0	6	6	16	242	3	261	4	0	7	11	1	228	9	238	516
Total	2	1	28	31	43	1038	20	1101	7	5	41	53	3	926	33	962	2147
Grand Total	2	1	56	59	68	2063	36	2167	12	6	82	100	6	1890	63	1959	4285
Apprch %	3.4	1.7	94.9		3.1	95.2	1.7		12	6	82		0.3	96.5	3.2		
Total %	0	0	1.3	1.4	1.6	48.1	0.8	50.6	0.3	0.1	1.9	2.3	0.1	44.1	1.5	45.7	
Passenger Vehicles	2	1	56	59	68	2047	34	2149	12	6	82	100	6	1874	63	1943	4251
% Passenger Vehicles	100	100	100	100	100	99.2	94.4	99.2	100	100	100	100	100	99.2	100	99.2	99.2
Large 2 Axle Vehicles	0	0	0	0	0	15	2	17	0	0	0	0	0	15	0	15	32
% Large 2 Axle Vehicles	0	0	0	0	0	0.7	5.6	0.8	0	0	0	0	0	0.8	0	0.8	0.7
3 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 04:45 PM																	
04:45 PM	0	0	4	4	3	263	2	268	**2**	1	7	10	**1**	235	8	244	526
05:00 PM	**1**	0	8	9	11	252	**6**	269	2	2	6	10	1	224	6	231	519
05:15 PM	0	0	5	5	4	262	5	271	0	**3**	**14**	**17**	1	220	**10**	231	524
05:30 PM	1	**1**	**9**	**11**	**12**	**282**	6	**300**	1	0	14	15	0	**254**	8	**262**	**588**
Total Volume	2	1	26	29	30	1059	19	1108	5	6	41	52	3	933	32	968	2157
% App. Total	6.9	3.4	89.7		2.7	95.6	1.7		9.6	11.5	78.8		0.3	96.4	3.3		
PHF	.500	.250	.722	.659	.625	.939	.792	.923	.625	.500	.732	.765	.750	.918	.800	.924	.917

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022



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				04:45 PM				05:00 PM				04:00 PM			
+0 mins.	**1**	0	8	9	3	263	2	268	2	2	6	10	**1**	**257**	7	**265**
+15 mins.	0	0	5	5	11	252	**6**	269	0	**3**	**14**	**17**	0	241	7	248
+30 mins.	1	**1**	**9**	**11**	4	262	5	271	1	0	14	15	1	231	**8**	240
+45 mins.	0	0	6	6	**12**	**282**	6	**300**	**4**	0	7	11	1	235	8	244
Total Volume	2	1	28	31	30	1059	19	1108	7	5	41	53	3	964	30	997
% App. Total	6.5	3.2	90.3		2.7	95.6	1.7		13.2	9.4	77.4		0.3	96.7	3	
PHF	.500	.250	.778	.705	.625	.939	.792	.923	.438	.417	.732	.779	.750	.938	.938	.941

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

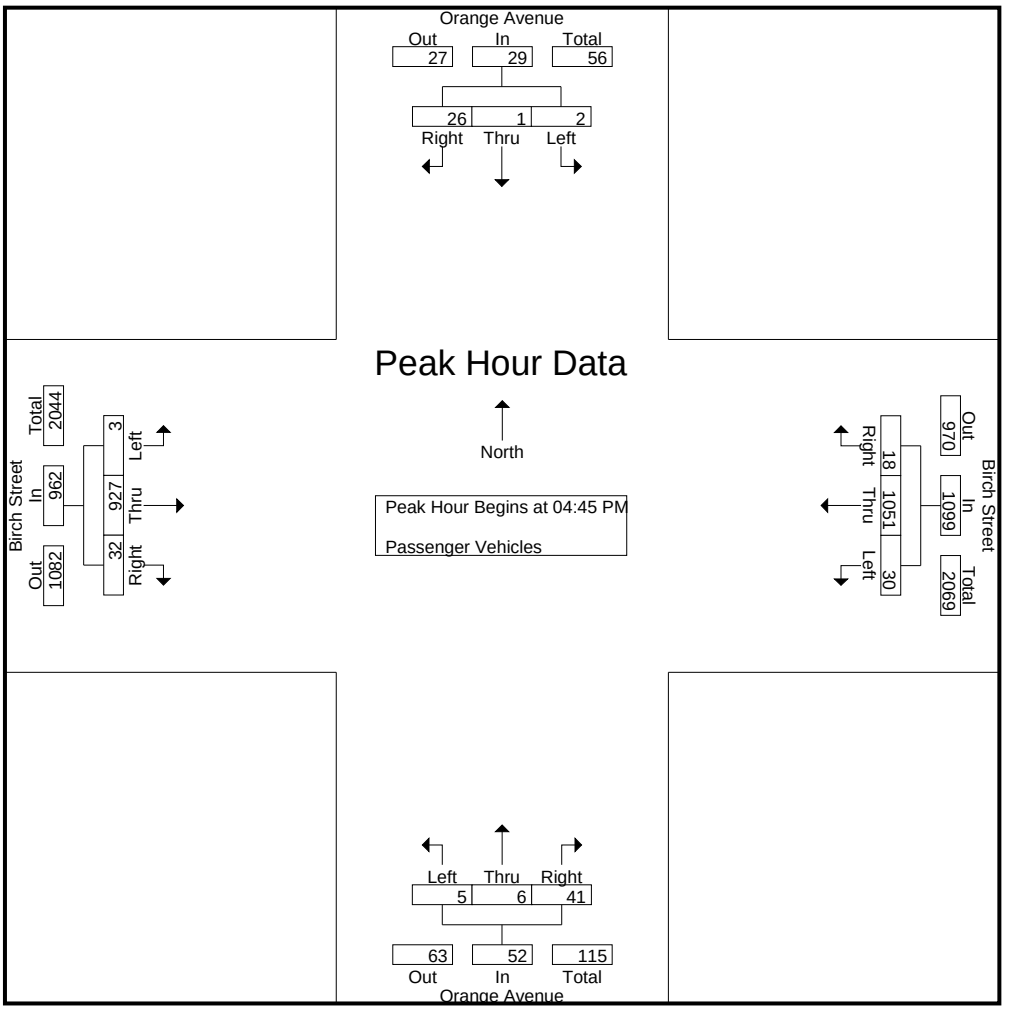
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	7	7	8	254	4	266	0	0	10	10	1	255	7	263	546
04:15 PM	0	0	5	5	8	254	5	267	2	0	12	14	0	239	7	246	532
04:30 PM	0	0	12	12	6	247	4	257	1	0	12	13	1	225	8	234	516
04:45 PM	0	0	4	4	3	262	2	267	2	1	7	10	1	235	8	244	525
Total	0	0	28	28	25	1017	15	1057	5	1	41	47	3	954	30	987	2119
05:00 PM	1	0	8	9	11	250	6	267	2	2	6	10	1	224	6	231	517
05:15 PM	0	0	5	5	4	259	5	268	0	3	14	17	1	217	10	228	518
05:30 PM	1	1	9	11	12	280	5	297	1	0	14	15	0	251	8	259	582
05:45 PM	0	0	6	6	16	241	3	260	4	0	7	11	1	228	9	238	515
Total	2	1	28	31	43	1030	19	1092	7	5	41	53	3	920	33	956	2132
Grand Total	2	1	56	59	68	2047	34	2149	12	6	82	100	6	1874	63	1943	4251
Apprch %	3.4	1.7	94.9		3.2	95.3	1.6		12	6	82		0.3	96.4	3.2		
Total %	0	0	1.3	1.4	1.6	48.2	0.8	50.6	0.3	0.1	1.9	2.4	0.1	44.1	1.5	45.7	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	4	4	3	262	2	267	**2**	1	7	10	**1**	235	8	244	525
05:00 PM	**1**	0	8	9	11	250	**6**	267	2	2	6	10	1	224	6	231	517
05:15 PM	0	0	5	5	4	259	5	268	0	**3**	**14**	**17**	1	217	**10**	228	518
05:30 PM	1	**1**	**9**	**11**	**12**	**280**	5	**297**	1	0	14	15	0	**251**	8	**259**	**582**
Total Volume	2	1	26	29	30	1051	18	1099	5	6	41	52	3	927	32	962	2142
% App. Total	6.9	3.4	89.7		2.7	95.6	1.6		9.6	11.5	78.8		0.3	96.4	3.3		
PHF	.500	.250	.722	.659	.625	.938	.750	.925	.625	.500	.732	.765	.750	.923	.800	.929	.920

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	4	4	3	262	2	267	**2**	1	7	10	**1**	235	8	244
+15 mins.	**1**	0	8	9	11	250	**6**	267	2	2	6	10	1	224	6	231
+30 mins.	0	0	5	5	4	259	5	268	0	**3**	**14**	**17**	1	217	**10**	228
+45 mins.	1	**1**	**9**	**11**	**12**	**280**	5	**297**	1	0	14	15	0	**251**	8	**259**
Total Volume	2	1	26	29	30	1051	18	1099	5	6	41	52	3	927	32	962
% App. Total	6.9	3.4	89.7		2.7	95.6	1.6		9.6	11.5	78.8		0.3	96.4	3.3	
PHF	.500	.250	.722	.659	.625	.938	.750	.925	.625	.500	.732	.765	.750	.923	.800	.929

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City of Brea
N/S: Orange Avenue
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File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

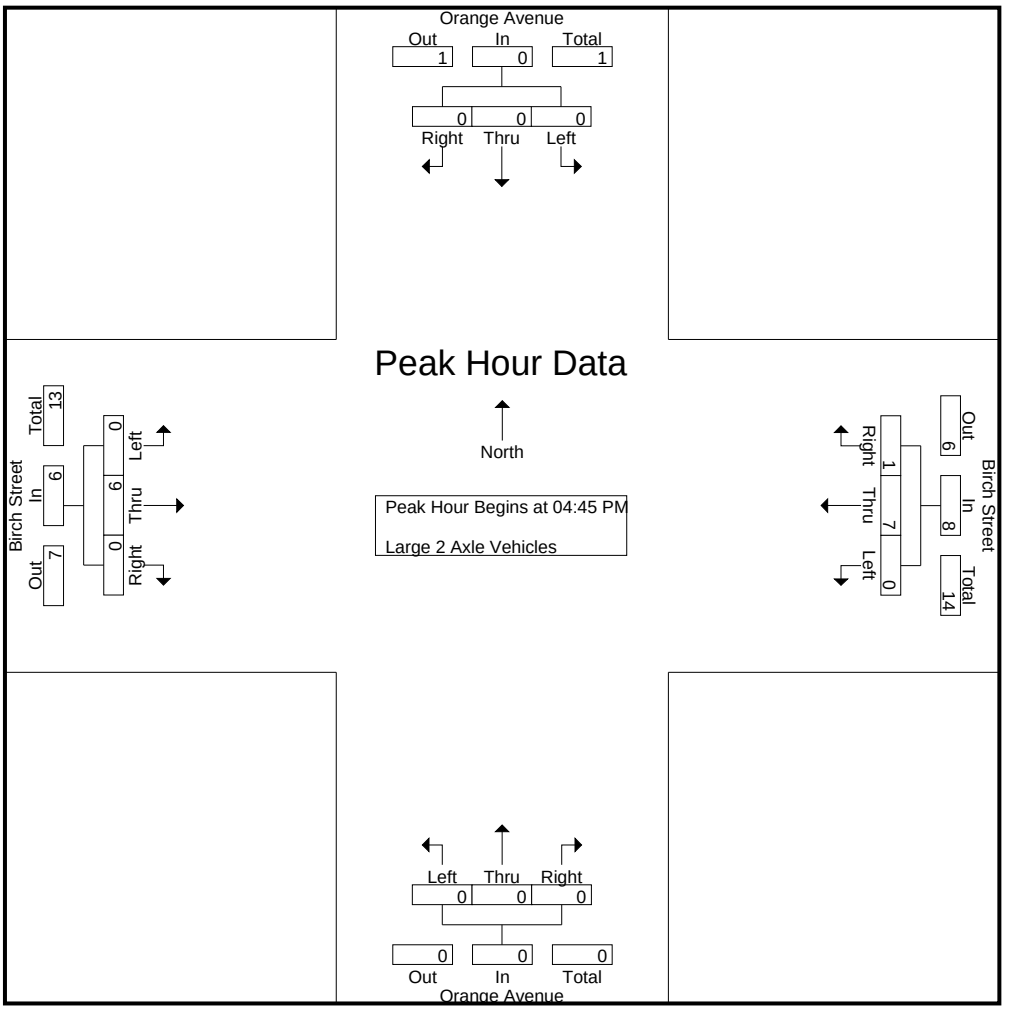
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	3	1	4	0	0	0	0	0	1	0	1	5
04:15 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	6	0	6	7
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	8	1	9	0	0	0	0	0	9	0	9	18
05:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	6
05:30 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	3	0	3	5
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	7	1	8	0	0	0	0	0	6	0	6	14
Grand Total	0	0	0	0	0	15	2	17	0	0	0	0	0	15	0	15	32
Apprch %	0	0	0		0	88.2	11.8		0	0	0		0	100	0		
Total %	0	0	0	0	0	46.9	6.2	53.1	0	0	0	0	0	46.9	0	46.9	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	**3**	0	**3**	**6**
05:30 PM	0	0	0	0	0	1	**1**	2	0	0	0	0	0	3	0	3	5
Total Volume	0	0	0	0	0	7	1	8	0	0	0	0	0	6	0	6	14
% App. Total	0	0	0		0	87.5	12.5		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.583	.250	.667	.000	.000	.000	.000	.000	.500	.000	.500	.583

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	**3**	0	**3**
+45 mins.	0	0	0	0	0	1	**1**	2	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	7	1	8	0	0	0	0	0	6	0	6
% App. Total	0	0	0		0	87.5	12.5		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.583	.250	.667	.000	.000	.000	.000	.000	.500	.000	.500

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

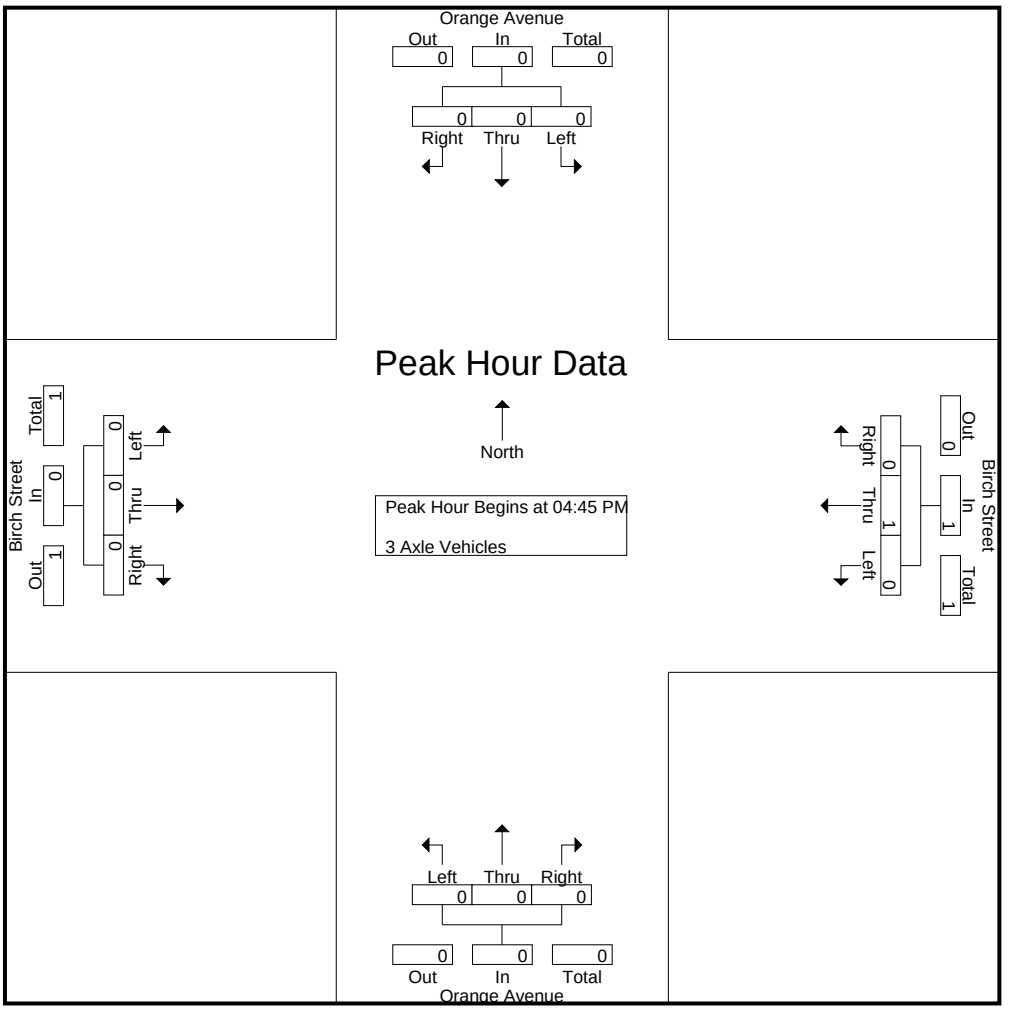
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0		0	100	0		0	0	0		0	0	0		
Total %	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

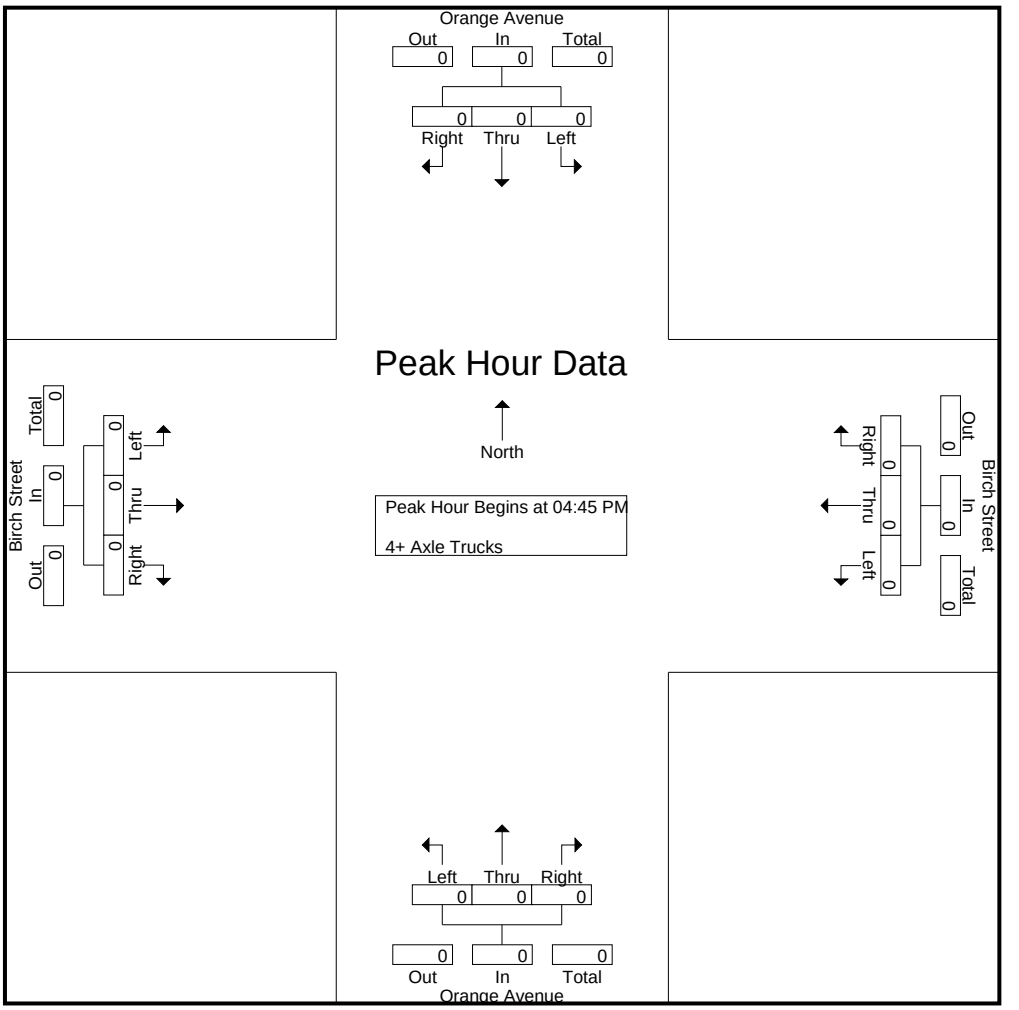
	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Apprch %	0	0	0		0	0	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	

	Orange Avenue Southbound				Birch Street Westbound				Orange Avenue Northbound				Birch 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 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Orange Avenue
E/W: Birch Street
Weather: Clear

File Name : 02A_BRE_Ora_Birch PM
Site Code : 221110
Start Date : 12/21/2022



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Brea
N/S: Orange Avenue
E/W: Birch Street

Date: 12/21/2022
Day: Wednesday

PEDESTRIANS

	North Leg Orange Avenue	East Leg Birch Street	South Leg Orange Avenue	West Leg Birch Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	1	0	0	0	1
7:45 AM	1	0	2	0	3
8:00 AM	1	0	0	0	1
8:15 AM	0	0	0	0	0
8:30 AM	2	0	1	0	3
8:45 AM	2	0	0	0	2
TOTAL VOLUMES:	7	0	3	0	10

	North Leg Orange Avenue	East Leg Birch Street	South Leg Orange Avenue	West Leg Birch Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
12:00 PM	1	0	1	0	2
12:15 PM	2	0	0	0	2
12:30 PM	2	0	1	0	3
12:45 PM	1	0	0	0	1
1:00 PM	0	0	1	0	1
1:15 PM	0	0	2	0	2
1:30 PM	1	0	3	0	4
1:45 PM	2	0	3	0	5
TOTAL VOLUMES:	9	0	11	0	20

	North Leg Orange Avenue	East Leg Birch Street	South Leg Orange Avenue	West Leg Birch Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	4	0	5
4:15 PM	3	0	1	0	4
4:30 PM	1	0	2	0	3
4:45 PM	3	0	1	1	5
5:00 PM	2	0	1	0	3
5:15 PM	1	0	0	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1
TOTAL VOLUMES:	11	0	10	1	22

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Location: Brea
N/S: Orange Avenue
E/W: Birch Street

Date: 12/21/2022
Day: Wednesday

BICYCLES

	Southbound Orange Avenue			Westbound Birch Street			Northbound Orange Avenue			Eastbound Birch 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	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	2	0	0	1	0	0	2	0	6

	Southbound Orange Avenue			Westbound Birch Street			Northbound Orange Avenue			Eastbound Birch Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	2	0	0	0	1	0	0	0	3

	Southbound Orange Avenue			Westbound Birch Street			Northbound Orange Avenue			Eastbound Birch Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	0	0	3

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

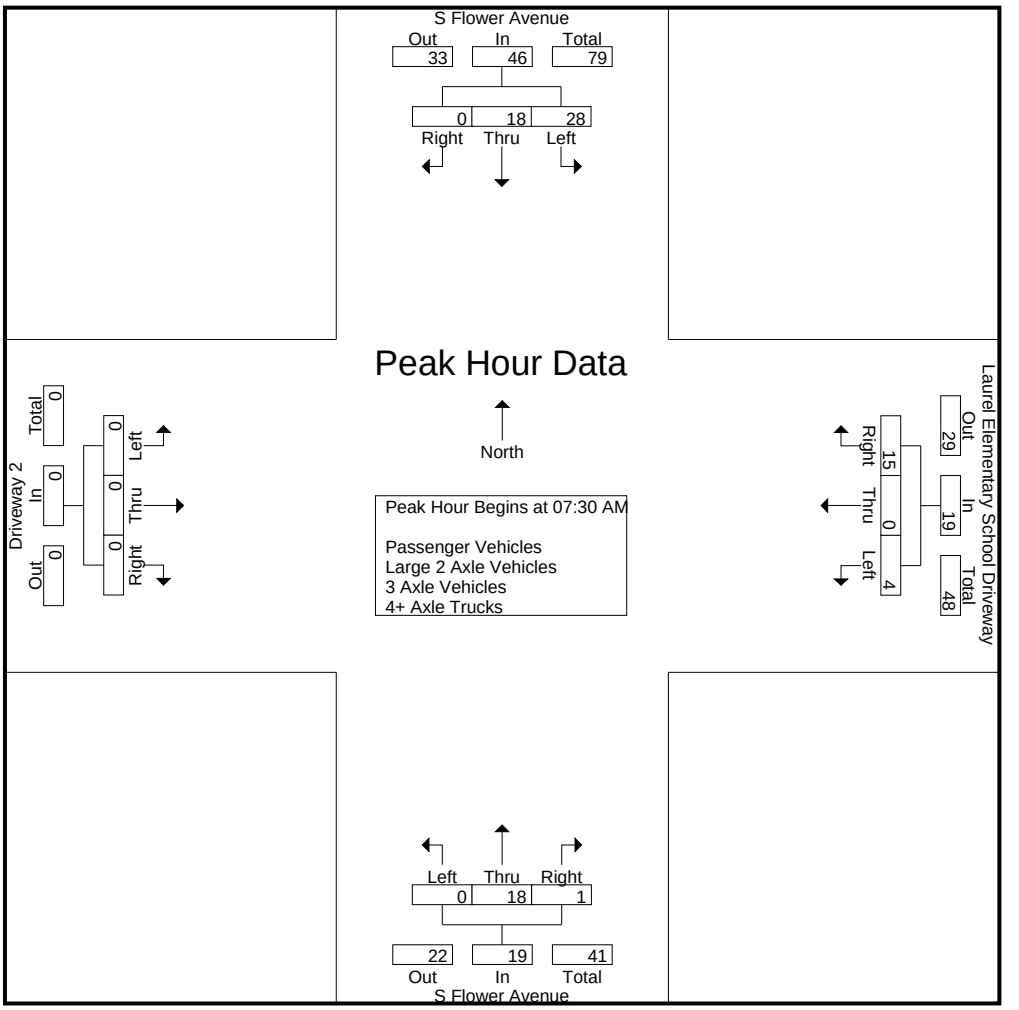
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	1	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6
07:15 AM	1	6	0	7	0	0	0	0	0	1	0	1	0	0	0	0	8
07:30 AM	7	3	0	10	0	0	1	1	0	1	1	2	0	0	0	0	13
07:45 AM	16	6	0	22	1	0	6	7	0	8	0	8	0	0	0	0	37
Total	26	16	0	42	1	0	7	8	0	13	1	14	0	0	0	0	64
08:00 AM	3	2	0	5	3	0	6	9	0	5	0	5	0	0	0	0	19
08:15 AM	2	7	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
08:30 AM	1	1	0	2	0	0	1	1	0	4	0	4	0	0	0	0	7
08:45 AM	4	2	0	6	0	0	2	2	0	1	0	1	0	0	0	0	9
Total	10	12	0	22	3	0	11	14	0	14	0	14	0	0	0	0	50
Grand Total	36	28	0	64	4	0	18	22	0	27	1	28	0	0	0	0	114
Apprch %	56.2	43.8	0		18.2	0	81.8		0	96.4	3.6		0	0	0		
Total %	31.6	24.6	0	56.1	3.5	0	15.8	19.3	0	23.7	0.9	24.6	0	0	0	0	
Passenger Vehicles	36	28	0	64	4	0	18	22	0	27	1	28	0	0	0	0	114
% Passenger Vehicles	100	100	0	100	100	0	100	100	0	100	100	100	0	0	0	0	100
Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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	7	3	0	10	0	0	1	1	0	1	**1**	2	0	0	0	0	13
07:45 AM	**16**	6	0	**22**	1	0	**6**	7	0	**8**	0	**8**	0	0	0	0	**37**
08:00 AM	3	2	0	5	**3**	0	6	**9**	0	5	0	5	0	0	0	0	19
08:15 AM	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
Total Volume	28	18	0	46	4	0	15	19	0	18	1	19	0	0	0	0	84
% App. Total	60.9	39.1	0		21.1	0	78.9		0	94.7	5.3		0	0	0		
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.563	.250	.594	.000	.000	.000	.000	.568

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
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				07:45 AM				07:00 AM			
+0 mins.	7	3	0	10	0	0	1	1	0	**8**	0	**8**	0	0	0	0
+15 mins.	**16**	6	0	**22**	1	0	**6**	7	0	5	0	5	0	0	0	0
+30 mins.	3	2	0	5	**3**	0	6	**9**	0	4	0	4	0	0	0	0
+45 mins.	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0
Total Volume	28	18	0	46	4	0	15	19	0	21	0	21	0	0	0	0
% App. Total	60.9	39.1	0		21.1	0	78.9		0	100	0		0	0	0	
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.656	.000	.656	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

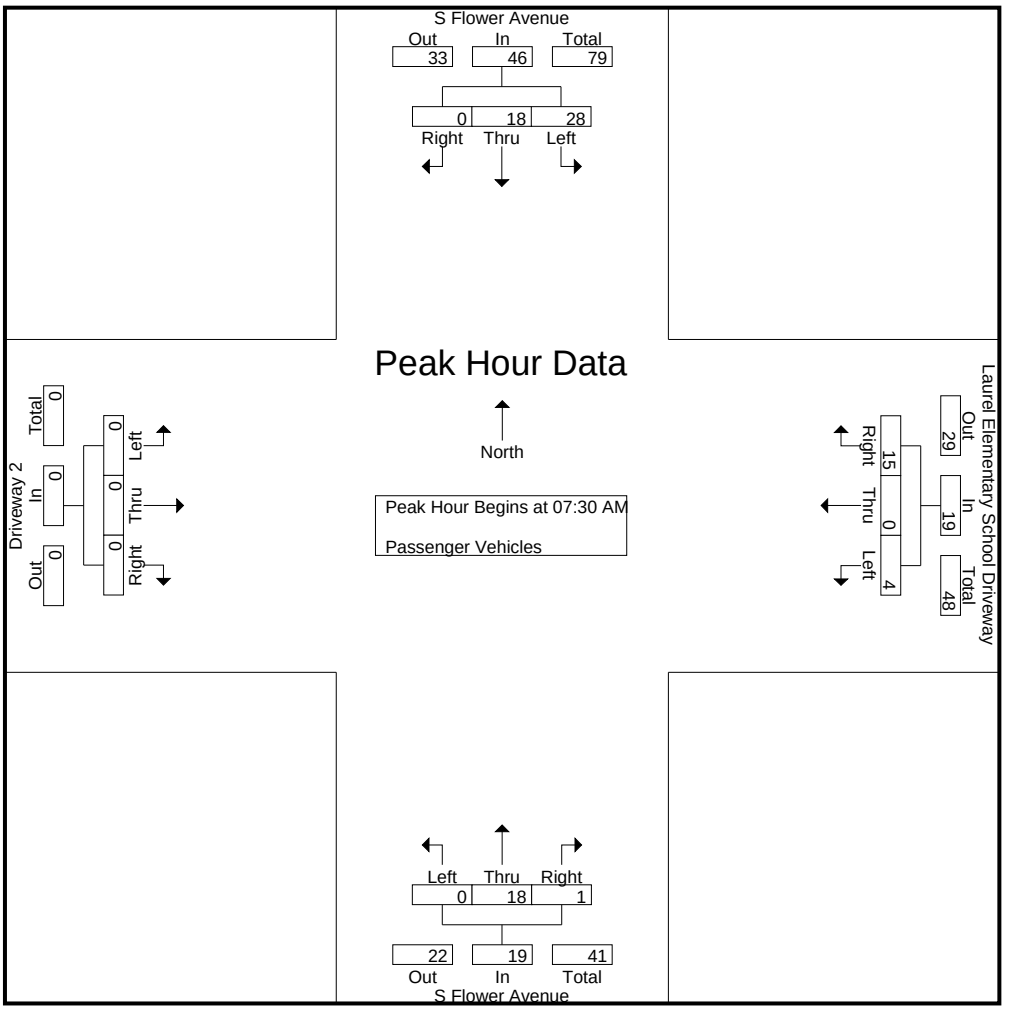
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	1	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6
07:15 AM	1	6	0	7	0	0	0	0	0	1	0	1	0	0	0	0	8
07:30 AM	7	3	0	10	0	0	1	1	0	1	1	2	0	0	0	0	13
07:45 AM	16	6	0	22	1	0	6	7	0	8	0	8	0	0	0	0	37
Total	26	16	0	42	1	0	7	8	0	13	1	14	0	0	0	0	64
08:00 AM	3	2	0	5	3	0	6	9	0	5	0	5	0	0	0	0	19
08:15 AM	2	7	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
08:30 AM	1	1	0	2	0	0	1	1	0	4	0	4	0	0	0	0	7
08:45 AM	4	2	0	6	0	0	2	2	0	1	0	1	0	0	0	0	9
Total	10	12	0	22	3	0	11	14	0	14	0	14	0	0	0	0	50
Grand Total	36	28	0	64	4	0	18	22	0	27	1	28	0	0	0	0	114
Apprch %	56.2	43.8	0		18.2	0	81.8		0	96.4	3.6		0	0	0		
Total %	31.6	24.6	0	56.1	3.5	0	15.8	19.3	0	23.7	0.9	24.6	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	3	0	10	0	0	1	1	0	1	**1**	2	0	0	0	0	13
07:45 AM	**16**	6	0	**22**	1	0	**6**	7	0	**8**	0	**8**	0	0	0	0	**37**
08:00 AM	3	2	0	5	**3**	0	6	**9**	0	5	0	5	0	0	0	0	19
08:15 AM	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
Total Volume	28	18	0	46	4	0	15	19	0	18	1	19	0	0	0	0	84
% App. Total	60.9	39.1	0		21.1	0	78.9		0	94.7	5.3		0	0	0		
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.563	.250	.594	.000	.000	.000	.000	.568

Counts Unlimited, Inc.
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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	7	3	0	10	0	0	1	1	0	1	**1**	2	0	0	0	0
+15 mins.	**16**	6	0	**22**	1	0	**6**	7	0	**8**	0	**8**	0	0	0	0
+30 mins.	3	2	0	5	**3**	0	6	**9**	0	5	0	5	0	0	0	0
+45 mins.	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0
Total Volume	28	18	0	46	4	0	15	19	0	18	1	19	0	0	0	0
% App. Total	60.9	39.1	0		21.1	0	78.9		0	94.7	5.3		0	0	0	
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.563	.250	.594	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

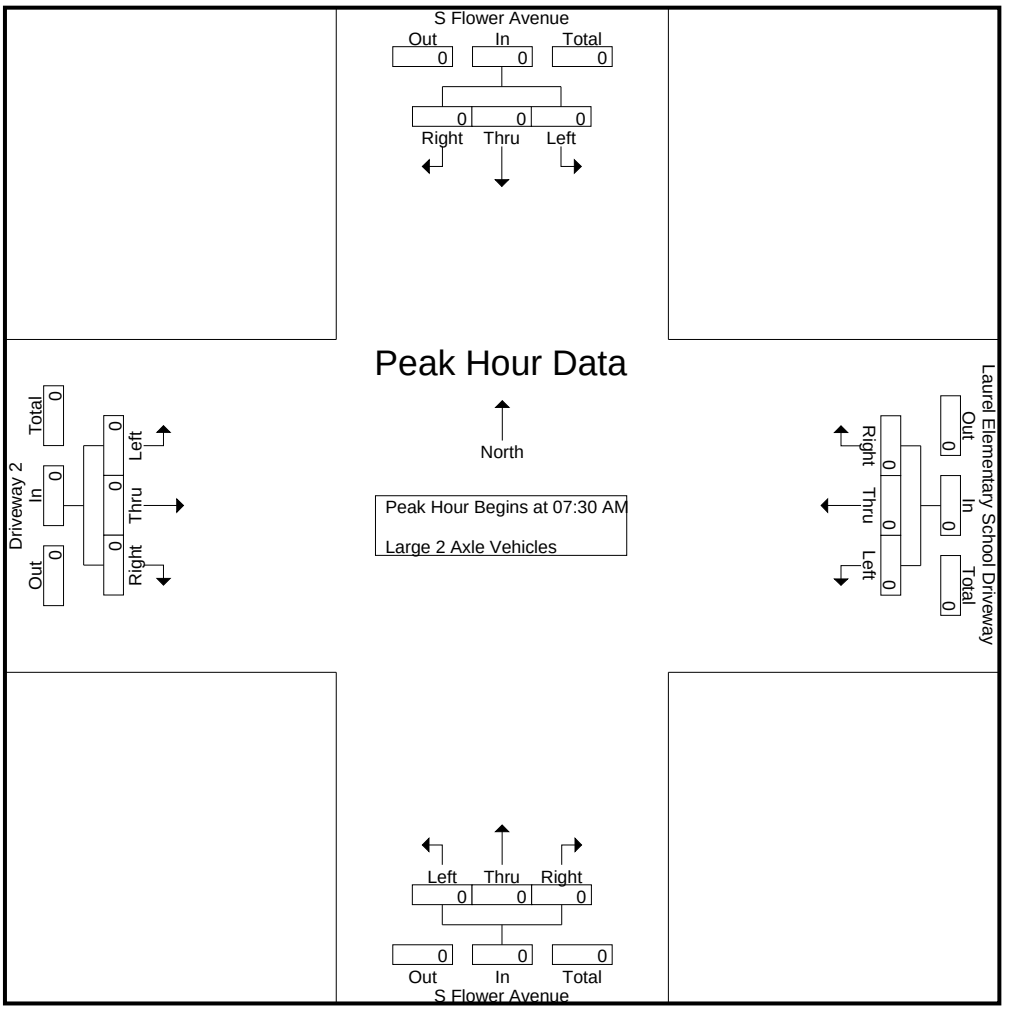
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

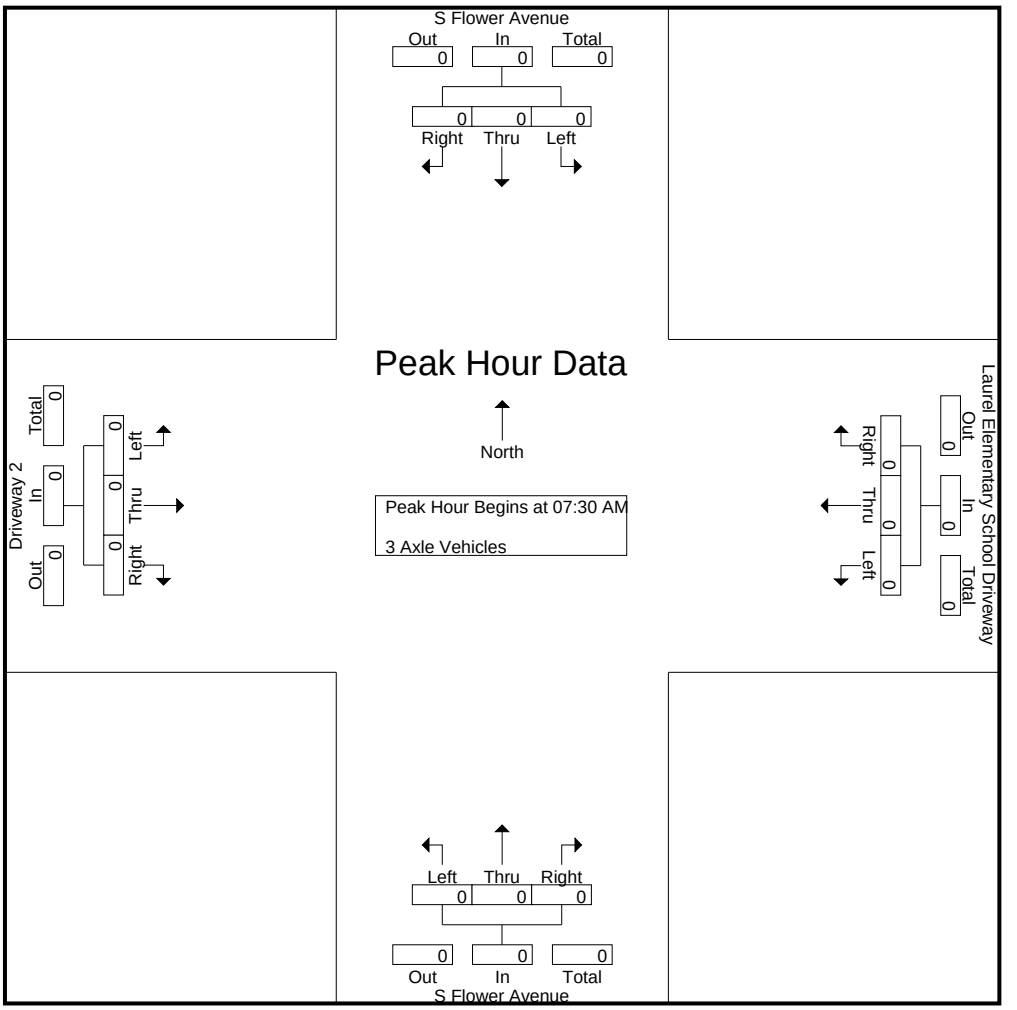
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

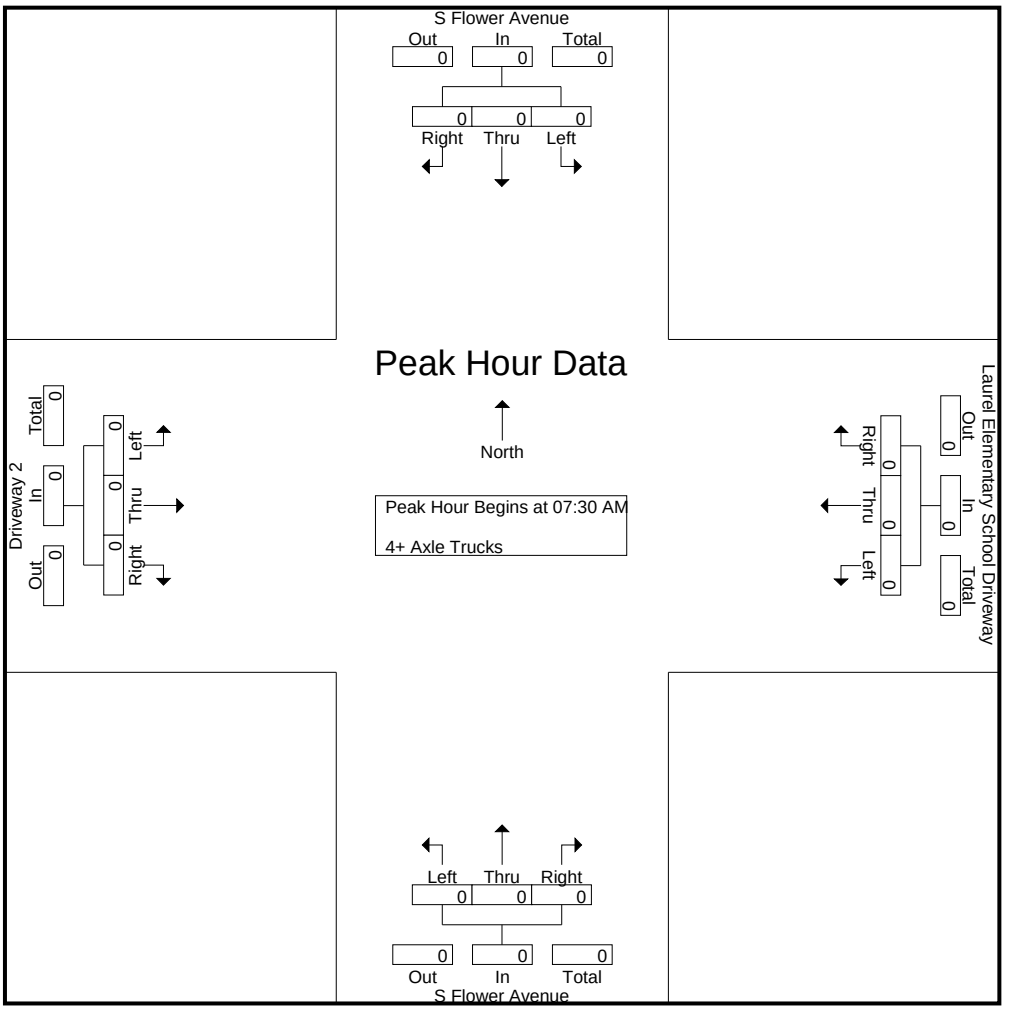
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

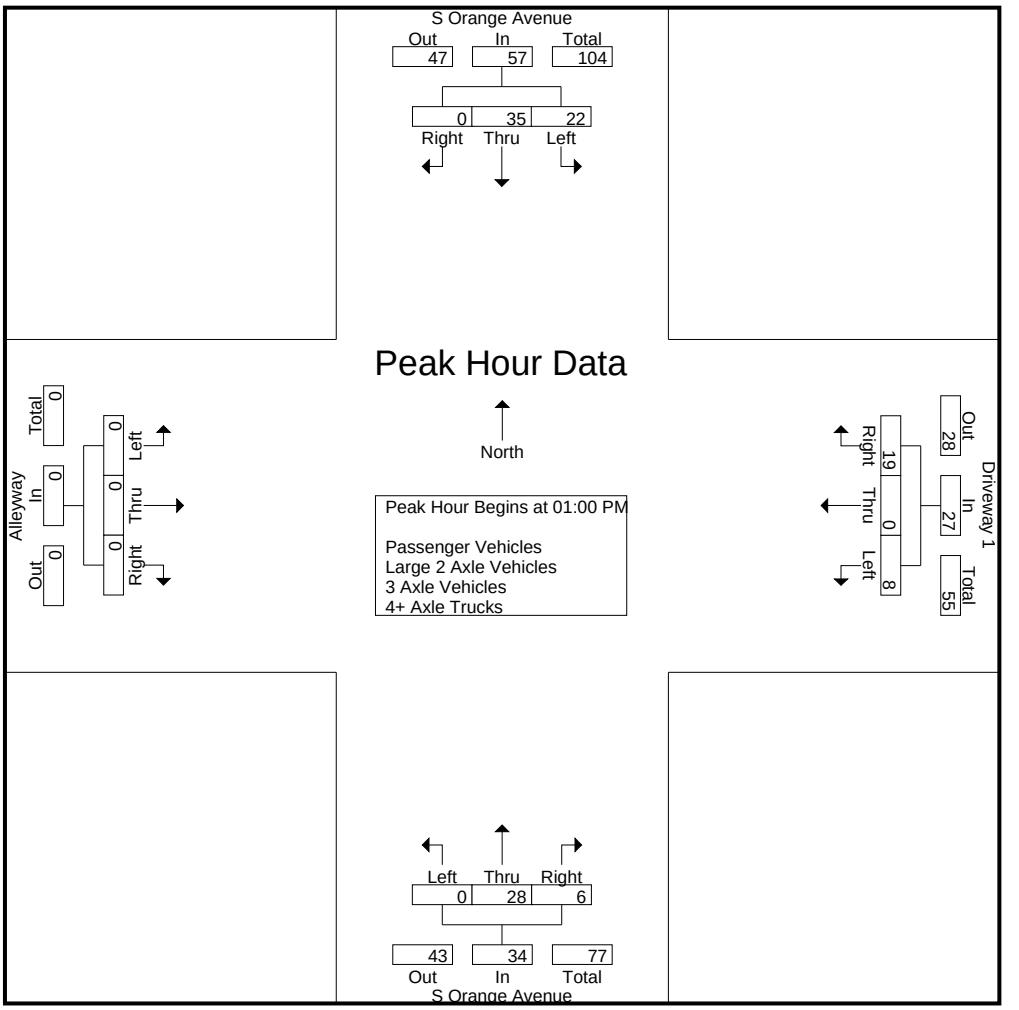
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	4	7	0	11	0	0	1	1	0	7	2	9	0	0	0	0	21
01:15 PM	13	11	0	24	1	0	2	3	0	4	2	6	0	0	0	0	33
01:30 PM	0	12	0	12	6	0	15	21	0	10	2	12	0	0	0	0	45
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total	22	35	0	57	8	0	19	27	0	28	6	34	0	0	0	0	118
02:00 PM	2	6	0	8	1	0	1	2	0	2	1	3	0	0	0	0	13
02:15 PM	1	5	0	6	0	0	4	4	0	5	0	5	0	0	0	0	15
02:30 PM	0	7	0	7	3	0	2	5	0	1	0	1	0	0	0	0	13
02:45 PM	1	3	0	4	0	0	2	2	0	2	0	2	0	0	0	0	8
Total	4	21	0	25	4	0	9	13	0	10	1	11	0	0	0	0	49
Grand Total	26	56	0	82	12	0	28	40	0	38	7	45	0	0	0	0	167
Apprch %	31.7	68.3	0		30	0	70		0	84.4	15.6		0	0	0		
Total %	15.6	33.5	0	49.1	7.2	0	16.8	24	0	22.8	4.2	26.9	0	0	0	0	
Passenger Vehicles	26	56	0	82	12	0	28	40	0	35	7	42	0	0	0	0	164
% Passenger Vehicles	100	100	0	100	100	0	100	100	0	92.1	100	93.3	0	0	0	0	98.2
Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
% Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	7.9	0	6.7	0	0	0	0	1.8
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	4	7	0	11	0	0	1	1	0	7	**2**	9	0	0	0	0	21
01:15 PM	**13**	11	0	**24**	1	0	2	3	0	4	2	6	0	0	0	0	33
01:30 PM	0	**12**	0	12	**6**	0	**15**	**21**	0	**10**	2	**12**	0	0	0	0	**45**
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total Volume	22	35	0	57	8	0	19	27	0	28	6	34	0	0	0	0	118
% App. Total	38.6	61.4	0		29.6	0	70.4		0	82.4	17.6		0	0	0		
PHF	.423	.729	.000	.594	.333	.000	.317	.321	.000	.700	.750	.708	.000	.000	.000	.000	.656

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:30 PM				01:00 PM				01:00 PM			
+0 mins.	4	7	0	11	**6**	0	**15**	**21**	0	7	**2**	9	0	0	0	0
+15 mins.	**13**	11	0	**24**	1	0	1	2	0	4	2	6	0	0	0	0
+30 mins.	0	**12**	0	12	1	0	1	2	0	**10**	2	**12**	0	0	0	0
+45 mins.	5	5	0	10	0	0	4	4	0	7	0	7	0	0	0	0
Total Volume	22	35	0	57	8	0	21	29	0	28	6	34	0	0	0	0
% App. Total	38.6	61.4	0		27.6	0	72.4		0	82.4	17.6		0	0	0	
PHF	.423	.729	.000	.594	.333	.000	.350	.345	.000	.700	.750	.708	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

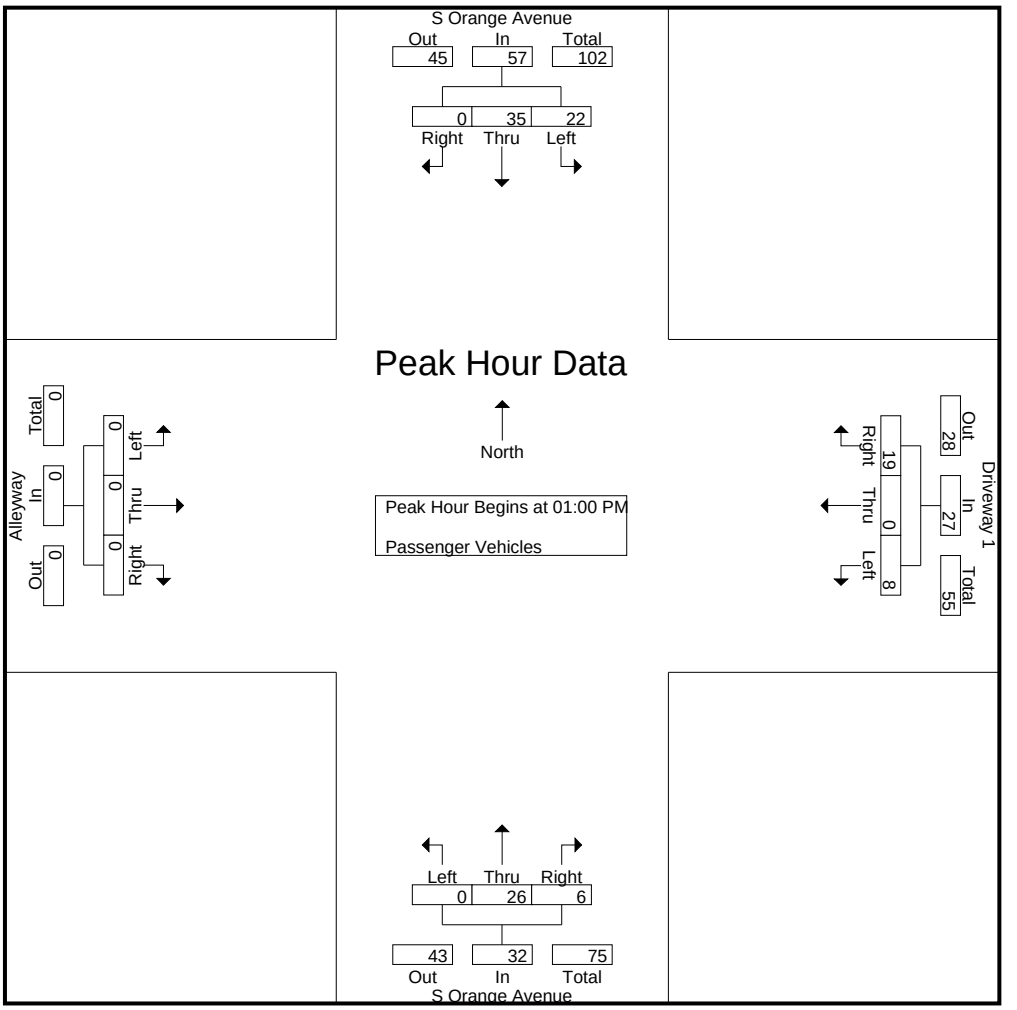
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	4	7	0	11	0	0	1	1	0	7	2	9	0	0	0	0	21
01:15 PM	13	11	0	24	1	0	2	3	0	3	2	5	0	0	0	0	32
01:30 PM	0	12	0	12	6	0	15	21	0	9	2	11	0	0	0	0	44
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total	22	35	0	57	8	0	19	27	0	26	6	32	0	0	0	0	116
02:00 PM	2	6	0	8	1	0	1	2	0	2	1	3	0	0	0	0	13
02:15 PM	1	5	0	6	0	0	4	4	0	4	0	4	0	0	0	0	14
02:30 PM	0	7	0	7	3	0	2	5	0	1	0	1	0	0	0	0	13
02:45 PM	1	3	0	4	0	0	2	2	0	2	0	2	0	0	0	0	8
Total	4	21	0	25	4	0	9	13	0	9	1	10	0	0	0	0	48
Grand Total	26	56	0	82	12	0	28	40	0	35	7	42	0	0	0	0	164
Apprch %	31.7	68.3	0		30	0	70		0	83.3	16.7		0	0	0		
Total %	15.9	34.1	0	50	7.3	0	17.1	24.4	0	21.3	4.3	25.6	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	4	7	0	11	0	0	1	1	0	7	**2**	9	0	0	0	0	21
01:15 PM	**13**	11	0	**24**	1	0	2	3	0	3	2	5	0	0	0	0	32
01:30 PM	0	**12**	0	12	**6**	0	**15**	**21**	0	**9**	2	**11**	0	0	0	0	**44**
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total Volume	22	35	0	57	8	0	19	27	0	26	6	32	0	0	0	0	116
% App. Total	38.6	61.4	0		29.6	0	70.4		0	81.2	18.8		0	0	0		
PHF	.423	.729	.000	.594	.333	.000	.317	.321	.000	.722	.750	.727	.000	.000	.000	.000	.659

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	4	7	0	11	0	0	1	1	0	7	**2**	9	0	0	0	0
+15 mins.	**13**	11	0	**24**	1	0	2	3	0	3	2	5	0	0	0	0
+30 mins.	0	**12**	0	12	**6**	0	**15**	**21**	0	**9**	2	**11**	0	0	0	0
+45 mins.	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0
Total Volume	22	35	0	57	8	0	19	27	0	26	6	32	0	0	0	0
% App. Total	38.6	61.4	0		29.6	0	70.4		0	81.2	18.8		0	0	0	
PHF	.423	.729	.000	.594	.333	.000	.317	.321	.000	.722	.750	.727	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

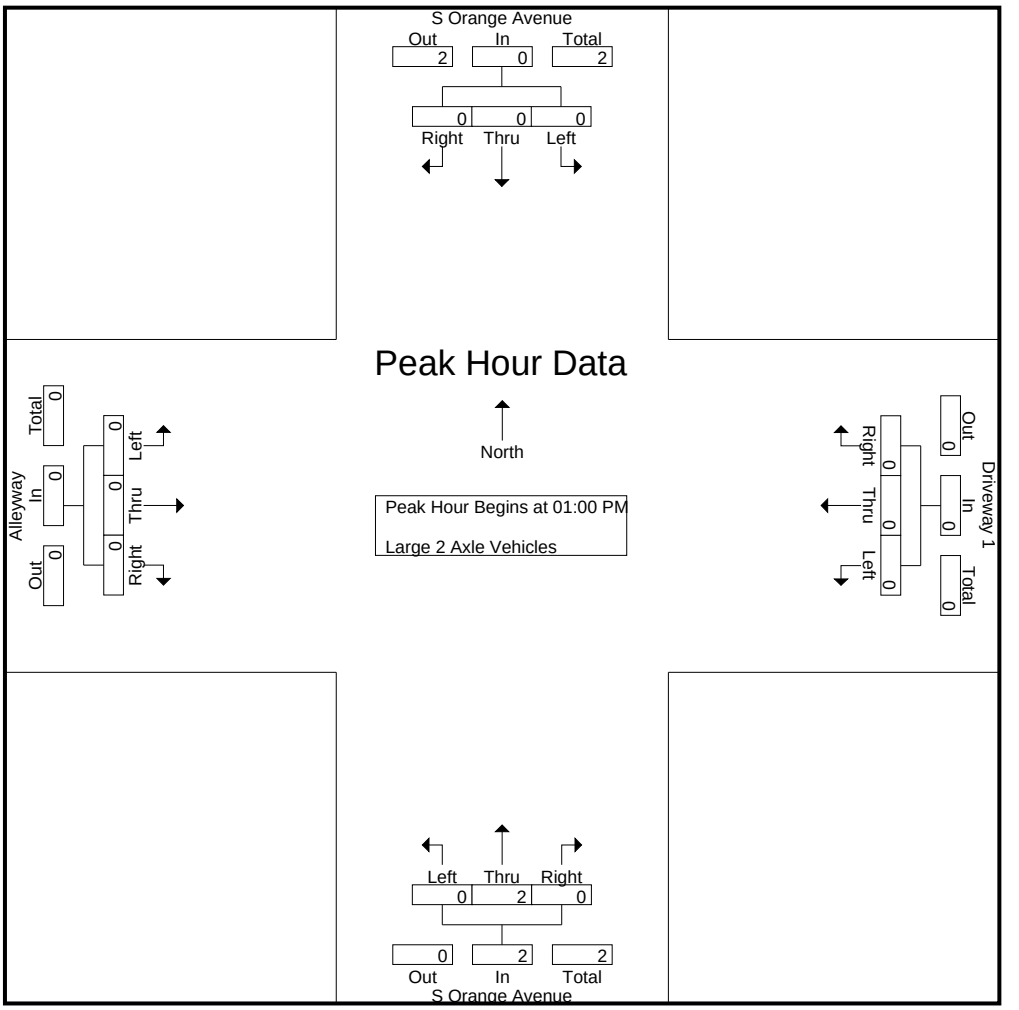
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
01:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.500

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022

Groups Printed- 3 Axle Vehicles

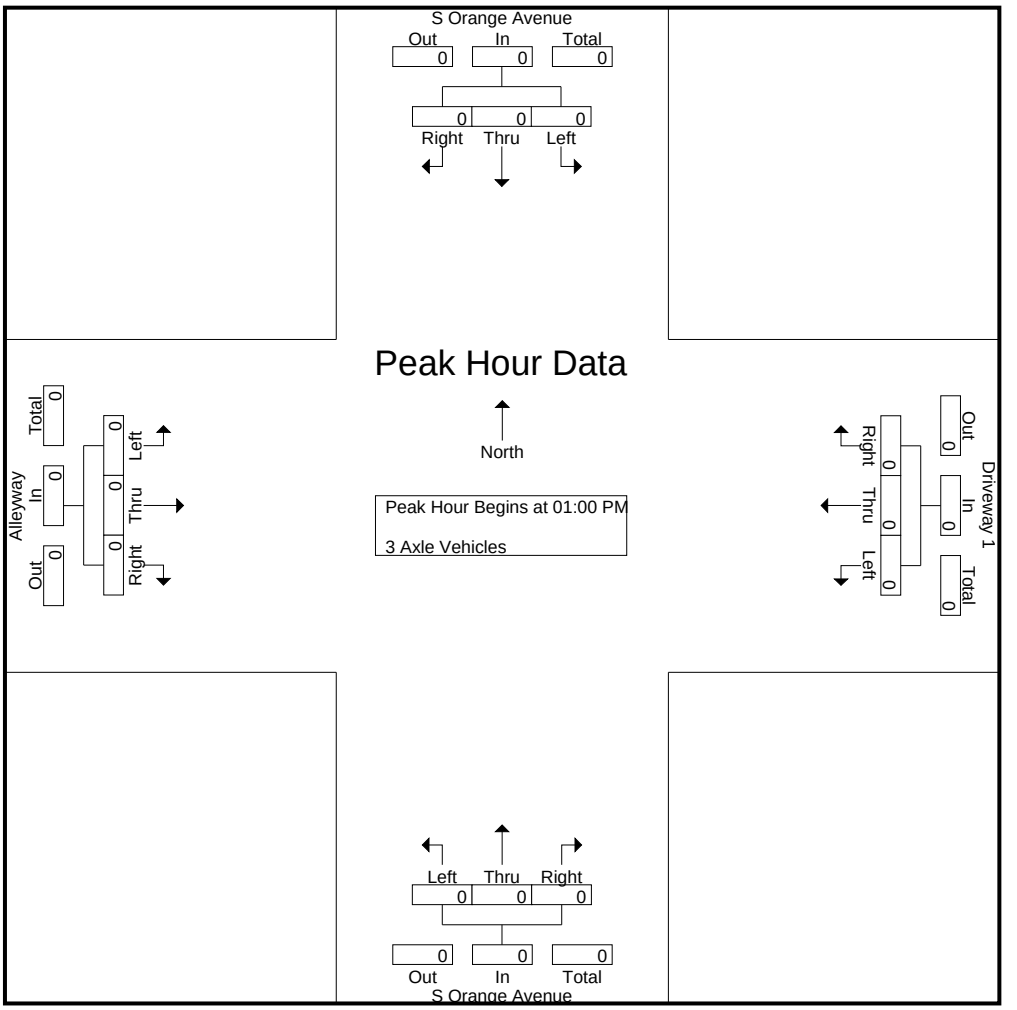
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022

Groups Printed- 4+ Axle Trucks

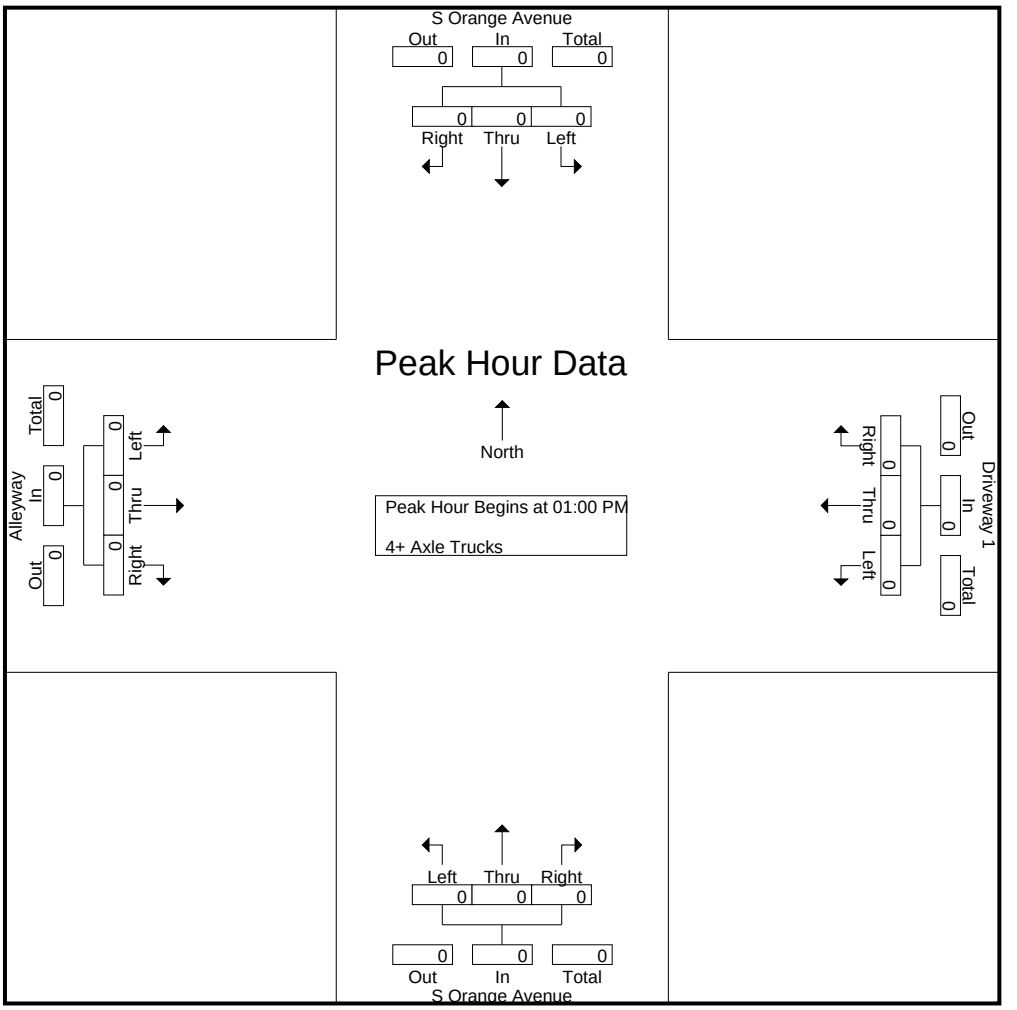
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

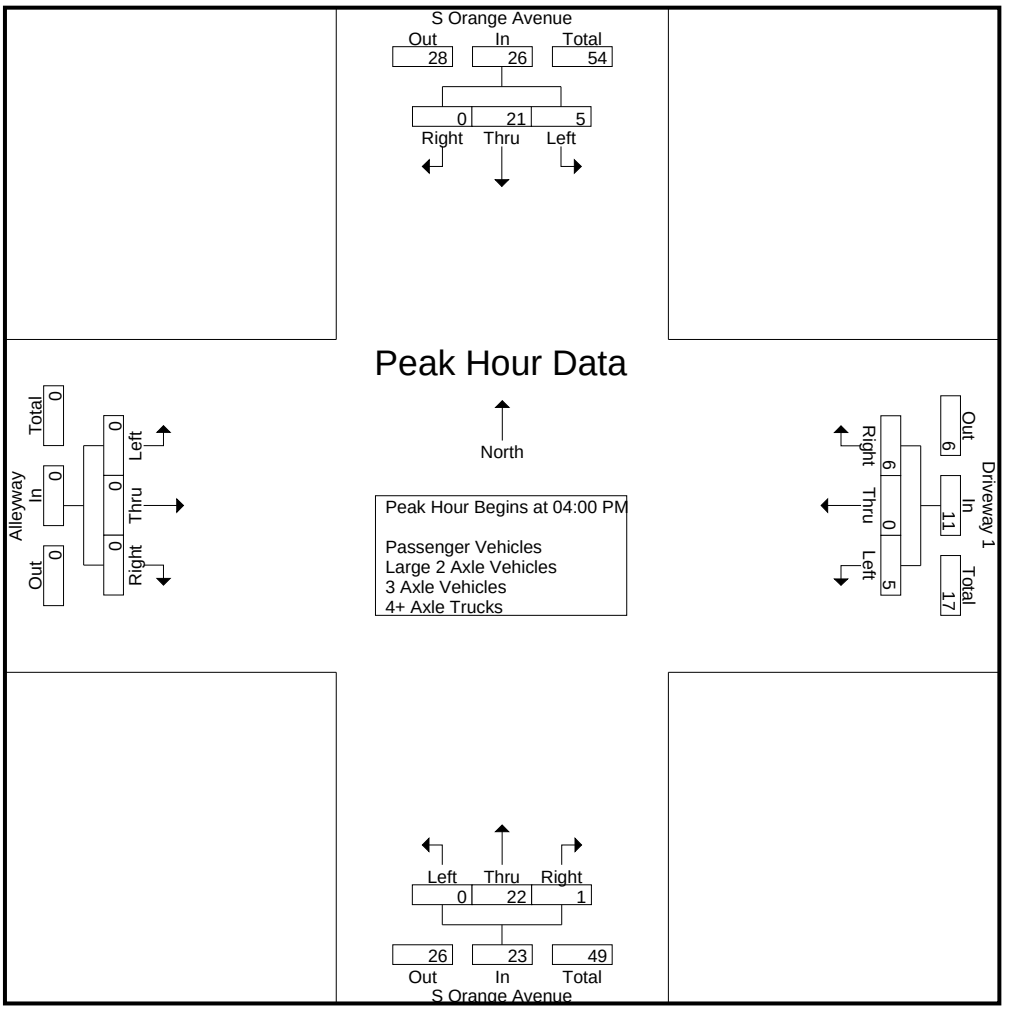
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	4	0	5	1	0	2	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	2	0	2	4	0	5	0	5	0	0	0	0	14
04:30 PM	2	7	0	9	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	11	1	12	0	0	0	0	21
Total	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
05:00 PM	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	5
05:15 PM	1	7	0	8	0	0	0	0	0	3	0	3	0	0	0	0	11
05:30 PM	1	5	0	6	0	0	2	2	0	6	0	6	0	0	0	0	14
05:45 PM	1	6	0	7	1	0	2	3	0	5	0	5	0	0	0	0	15
Total	3	19	0	22	1	0	4	5	0	18	0	18	0	0	0	0	45
Grand Total	8	40	0	48	6	0	10	16	0	40	1	41	0	0	0	0	105
Apprch %	16.7	83.3	0		37.5	0	62.5		0	97.6	2.4		0	0	0		
Total %	7.6	38.1	0	45.7	5.7	0	9.5	15.2	0	38.1	1	39	0	0	0	0	
Passenger Vehicles	8	40	0	48	6	0	10	16	0	40	1	41	0	0	0	0	105
% Passenger Vehicles	100	100	0	100	100	0	100	100	0	100	100	100	0	0	0	0	100
Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	4	0	5	1	0	**2**	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	**2**	0	2	**4**	0	5	0	5	0	0	0	0	14
04:30 PM	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	**11**	**1**	**12**	0	0	0	0	**21**
Total Volume	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
% App. Total	19.2	80.8	0		45.5	0	54.5		0	95.7	4.3		0	0	0		
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.500	.250	.479	.000	.000	.000	.000	.714

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
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:

	04:00 PM				04:00 PM				04:45 PM				04:00 PM			
+0 mins.	1	4	0	5	1	0	**2**	3	0	**11**	**1**	**12**	0	0	0	0
+15 mins.	1	4	0	5	**2**	0	2	**4**	0	4	0	4	0	0	0	0
+30 mins.	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0
+45 mins.	1	6	0	7	1	0	1	2	0	6	0	6	0	0	0	0
Total Volume	5	21	0	26	5	0	6	11	0	24	1	25	0	0	0	0
% App. Total	19.2	80.8	0		45.5	0	54.5		0	96	4		0	0	0	
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.545	.250	.521	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

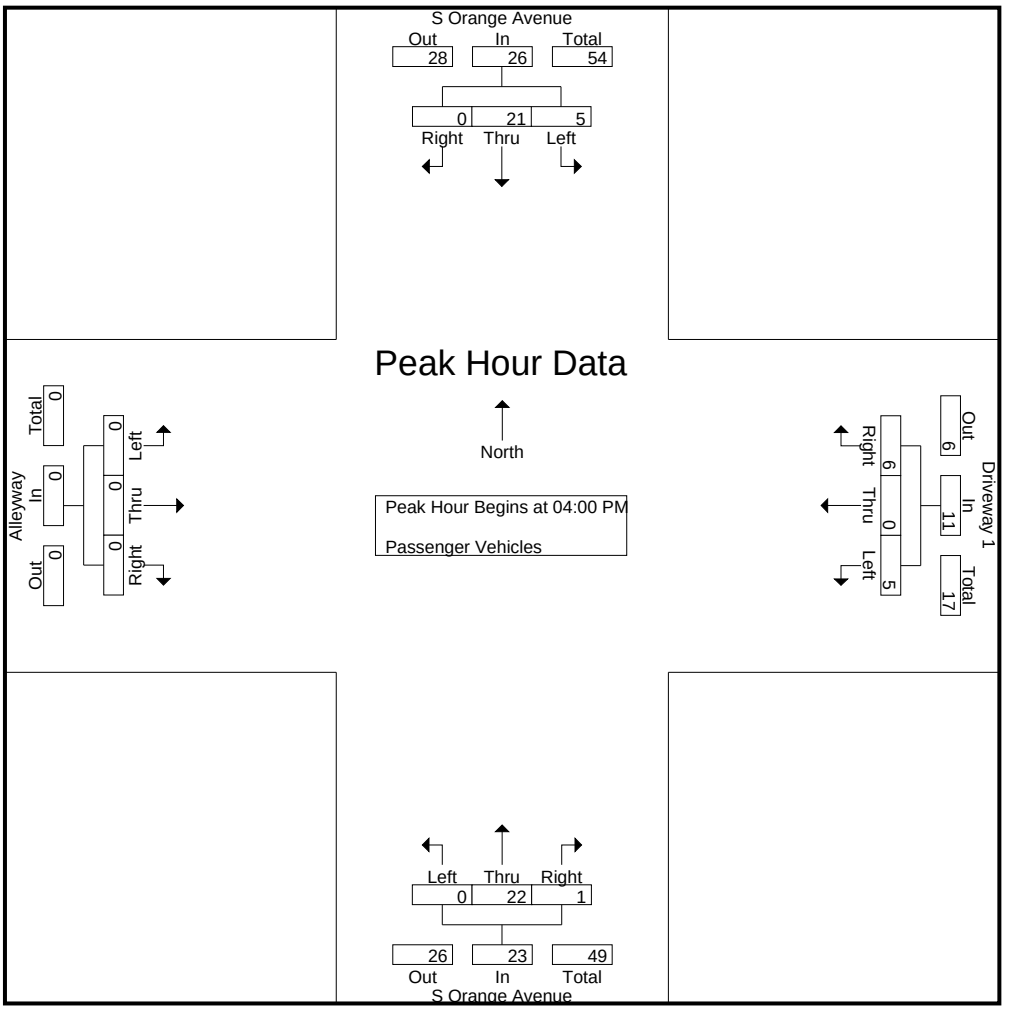
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	4	0	5	1	0	2	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	2	0	2	4	0	5	0	5	0	0	0	0	14
04:30 PM	2	7	0	9	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	11	1	12	0	0	0	0	21
Total	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
05:00 PM	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	5
05:15 PM	1	7	0	8	0	0	0	0	0	3	0	3	0	0	0	0	11
05:30 PM	1	5	0	6	0	0	2	2	0	6	0	6	0	0	0	0	14
05:45 PM	1	6	0	7	1	0	2	3	0	5	0	5	0	0	0	0	15
Total	3	19	0	22	1	0	4	5	0	18	0	18	0	0	0	0	45
Grand Total	8	40	0	48	6	0	10	16	0	40	1	41	0	0	0	0	105
Apprch %	16.7	83.3	0		37.5	0	62.5		0	97.6	2.4		0	0	0		
Total %	7.6	38.1	0	45.7	5.7	0	9.5	15.2	0	38.1	1	39	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	4	0	5	1	0	**2**	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	**2**	0	2	**4**	0	5	0	5	0	0	0	0	14
04:30 PM	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	**11**	**1**	**12**	0	0	0	0	**21**
Total Volume	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
% App. Total	19.2	80.8	0		45.5	0	54.5		0	95.7	4.3		0	0	0		
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.500	.250	.479	.000	.000	.000	.000	.714

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	1	4	0	5	1	0	**2**	3	0	3	0	3	0	0	0	0
+15 mins.	1	4	0	5	**2**	0	2	**4**	0	5	0	5	0	0	0	0
+30 mins.	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0
+45 mins.	1	6	0	7	1	0	1	2	0	**11**	**1**	**12**	0	0	0	0
Total Volume	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0
% App. Total	19.2	80.8	0		45.5	0	54.5		0	95.7	4.3		0	0	0	
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.500	.250	.479	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

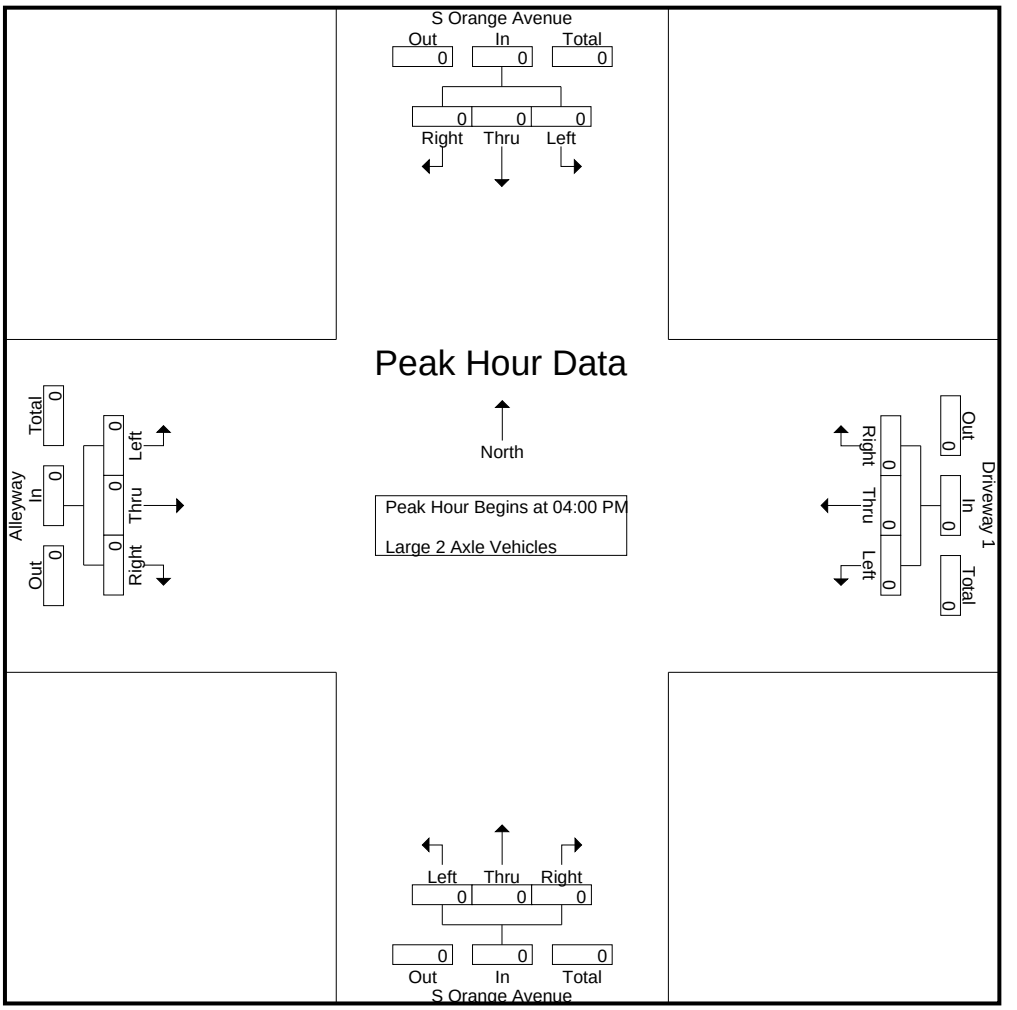
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

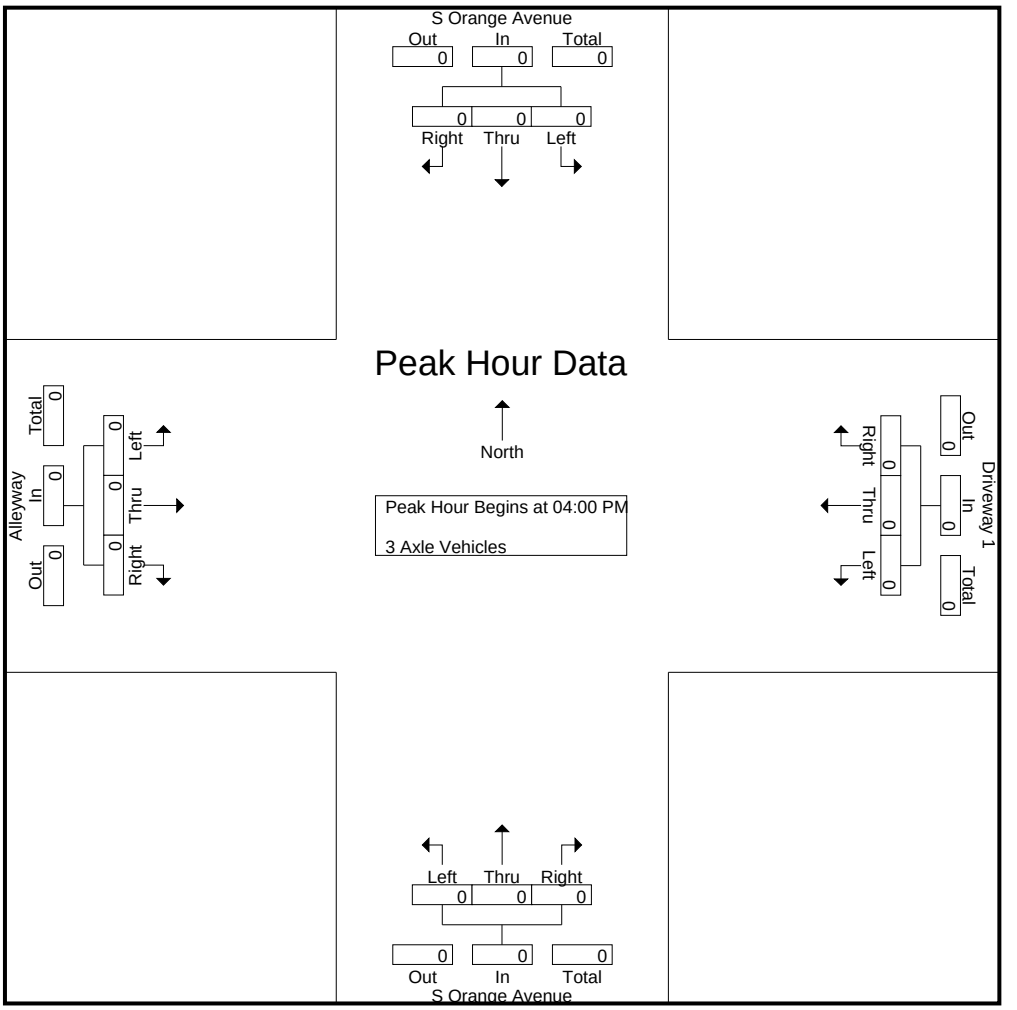
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

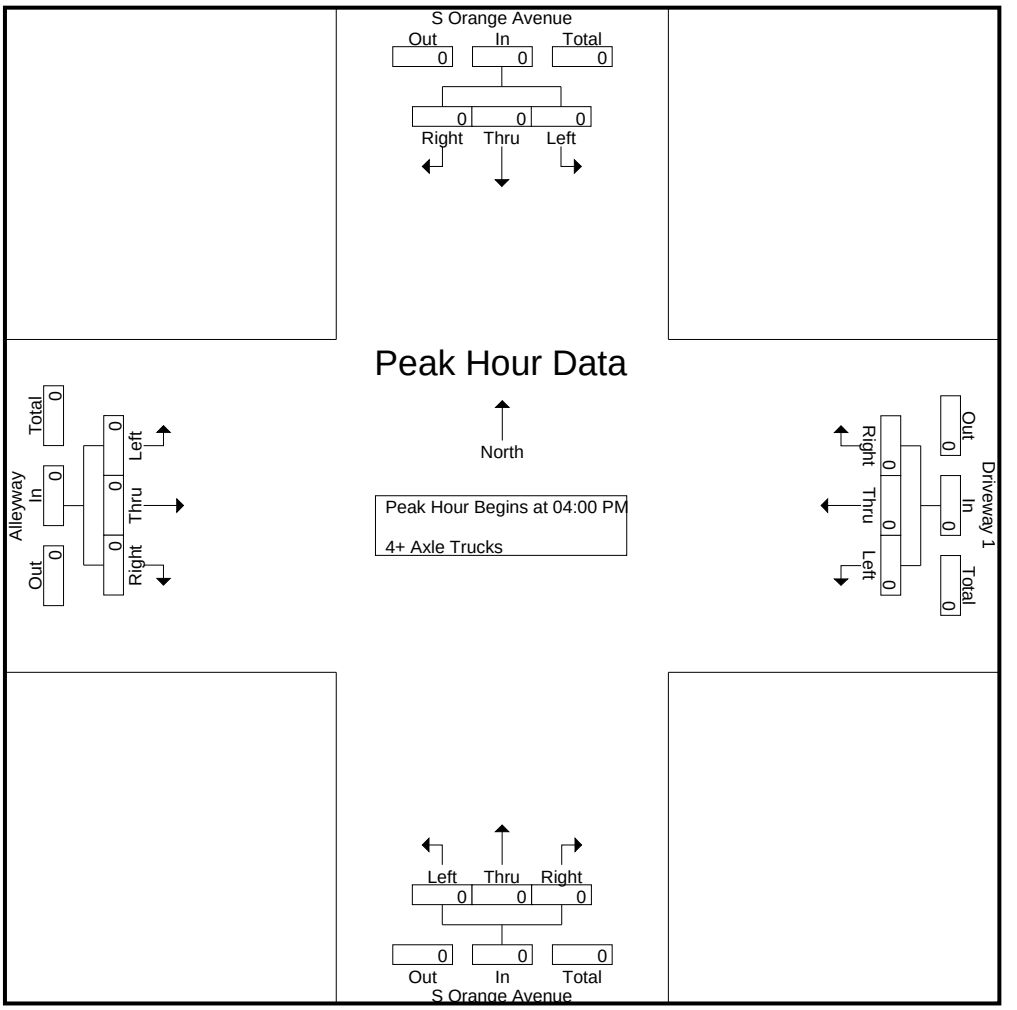
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Brea
N/S: S Orange Avenue
E/W: Driveway 1

Date: 9/21/2022
Day: Wednesday

PEDESTRIANS

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	1	0	2	0	3
7:45 AM	1	1	4	0	6
8:00 AM	4	2	1	0	7
8:15 AM	1	1	1	0	3
8:30 AM	0	1	0	0	1
8:45 AM	1	1	0	0	2
TOTAL VOLUMES:	8	7	8	0	23

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway Pedestrians	
1:00 PM	0	0	1	0	1
1:15 PM	3	1	0	0	4
1:30 PM	0	0	6	0	6
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	1	0	0	0	1
2:30 PM	1	1	0	0	2
2:45 PM	0	0	0	0	0
TOTAL VOLUMES:	5	2	7	0	14

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Brea
N/S: S Orange Avenue
E/W: Driveway 1

Date: 9/21/2022
Day: Wednesday

BICYCLES

	Southbound S Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	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 Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	1	0	0	0	1

	Southbound S Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

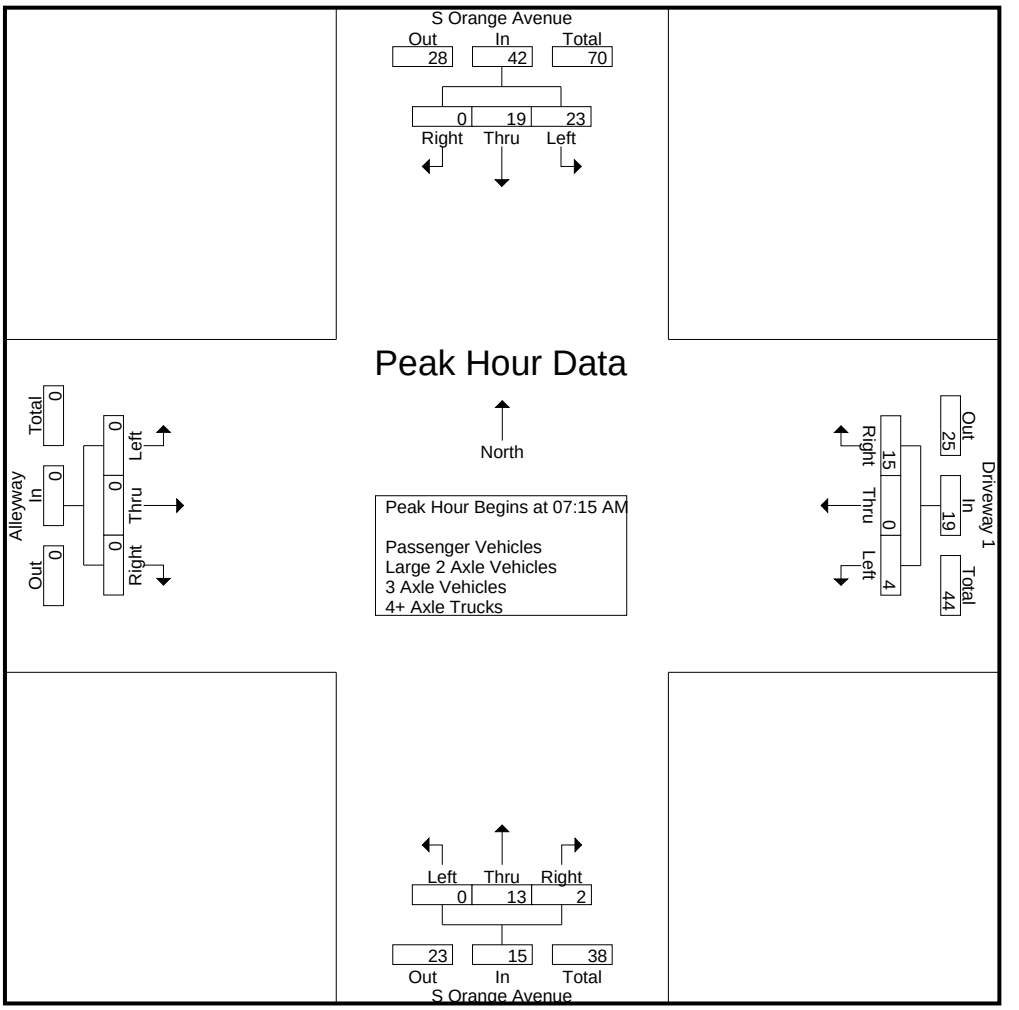
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
07:15 AM	0	6	0	6	0	0	0	0	0	3	0	3	0	0	0	0	9
07:30 AM	3	7	0	10	1	0	1	2	0	2	1	3	0	0	0	0	15
07:45 AM	18	4	0	22	1	0	7	8	0	4	1	5	0	0	0	0	35
Total	21	21	0	42	2	0	8	10	0	11	2	13	0	0	0	0	65
08:00 AM	2	2	0	4	2	0	7	9	0	4	0	4	0	0	0	0	17
08:15 AM	2	4	0	6	0	0	0	0	0	1	0	1	0	0	0	0	7
08:30 AM	1	0	0	1	0	0	0	0	0	5	0	5	0	0	0	0	6
08:45 AM	5	0	0	5	0	0	0	0	0	1	0	1	0	0	0	0	6
Total	10	6	0	16	2	0	7	9	0	11	0	11	0	0	0	0	36
Grand Total	31	27	0	58	4	0	15	19	0	22	2	24	0	0	0	0	101
Apprch %	53.4	46.6	0		21.1	0	78.9		0	91.7	8.3		0	0	0		
Total %	30.7	26.7	0	57.4	4	0	14.9	18.8	0	21.8	2	23.8	0	0	0	0	
Passenger Vehicles	31	25	0	56	3	0	15	18	0	22	2	24	0	0	0	0	98
% Passenger Vehicles	100	92.6	0	96.6	75	0	100	94.7	0	100	100	100	0	0	0	0	97
Large 2 Axle Vehicles	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
% Large 2 Axle Vehicles	0	7.4	0	3.4	25	0	0	5.3	0	0	0	0	0	0	0	0	3
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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	0	6	0	6	0	0	0	0	0	3	0	3	0	0	0	0	9
07:30 AM	3	**7**	0	10	1	0	1	2	0	2	**1**	3	0	0	0	0	15
07:45 AM	**18**	4	0	**22**	1	0	**7**	8	0	**4**	1	**5**	0	0	0	0	**35**
08:00 AM	2	2	0	4	**2**	0	7	**9**	0	4	0	4	0	0	0	0	17
Total Volume	23	19	0	42	4	0	15	19	0	13	2	15	0	0	0	0	76
% App. Total	54.8	45.2	0		21.1	0	78.9		0	86.7	13.3		0	0	0		
PHF	.319	.679	.000	.477	.500	.000	.536	.528	.000	.813	.500	.750	.000	.000	.000	.000	.543

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
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:

	07:00 AM				07:15 AM				07:15 AM				07:00 AM			
+0 mins.	0	4	0	4	0	0	0	0	0	3	0	3	0	0	0	0
+15 mins.	0	6	0	6	1	0	1	2	0	2	**1**	3	0	0	0	0
+30 mins.	3	**7**	0	10	1	0	**7**	8	0	**4**	1	**5**	0	0	0	0
+45 mins.	**18**	4	0	**22**	**2**	0	7	**9**	0	4	0	4	0	0	0	0
Total Volume	21	21	0	42	4	0	15	19	0	13	2	15	0	0	0	0
% App. Total	50	50	0		21.1	0	78.9		0	86.7	13.3		0	0	0	
PHF	.292	.750	.000	.477	.500	.000	.536	.528	.000	.813	.500	.750	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles

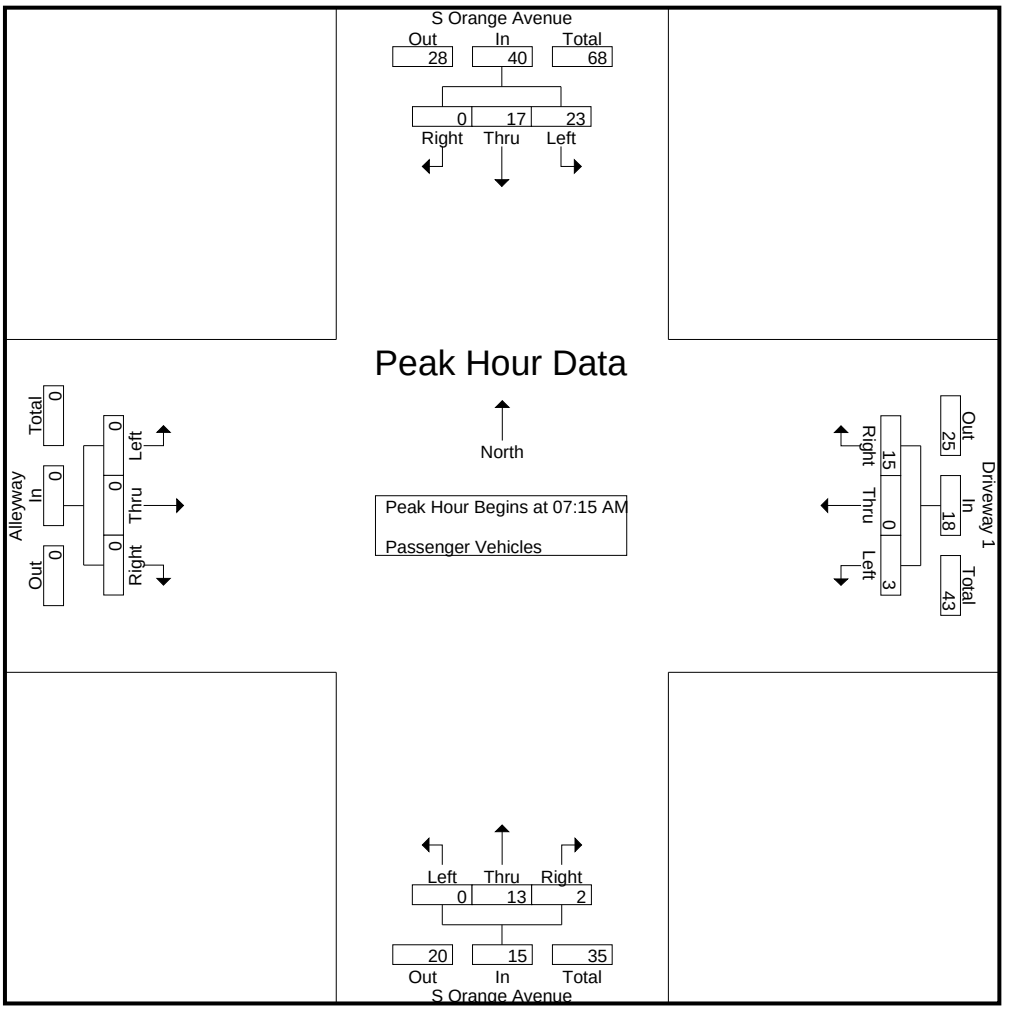
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
07:15 AM	0	5	0	5	0	0	0	0	0	3	0	3	0	0	0	0	8
07:30 AM	3	6	0	9	0	0	1	1	0	2	1	3	0	0	0	0	13
07:45 AM	18	4	0	22	1	0	7	8	0	4	1	5	0	0	0	0	35
Total	21	19	0	40	1	0	8	9	0	11	2	13	0	0	0	0	62
08:00 AM	2	2	0	4	2	0	7	9	0	4	0	4	0	0	0	0	17
08:15 AM	2	4	0	6	0	0	0	0	0	1	0	1	0	0	0	0	7
08:30 AM	1	0	0	1	0	0	0	0	0	5	0	5	0	0	0	0	6
08:45 AM	5	0	0	5	0	0	0	0	0	1	0	1	0	0	0	0	6
Total	10	6	0	16	2	0	7	9	0	11	0	11	0	0	0	0	36
Grand Total	31	25	0	56	3	0	15	18	0	22	2	24	0	0	0	0	98
Apprch %	55.4	44.6	0		16.7	0	83.3		0	91.7	8.3		0	0	0		
Total %	31.6	25.5	0	57.1	3.1	0	15.3	18.4	0	22.4	2	24.5	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	5	0	5	0	0	0	0	0	3	0	3	0	0	0	0	8
07:30 AM	3	**6**	0	9	0	0	1	1	0	2	**1**	3	0	0	0	0	13
07:45 AM	**18**	4	0	**22**	1	0	**7**	8	0	**4**	1	**5**	0	0	0	0	**35**
08:00 AM	2	2	0	4	**2**	0	7	**9**	0	4	0	4	0	0	0	0	17
Total Volume	23	17	0	40	3	0	15	18	0	13	2	15	0	0	0	0	73
% App. Total	57.5	42.5	0		16.7	0	83.3		0	86.7	13.3		0	0	0		
PHF	.319	.708	.000	.455	.375	.000	.536	.500	.000	.813	.500	.750	.000	.000	.000	.000	.521

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	5	0	5	0	0	0	0	0	3	0	3	0	0	0	0
+15 mins.	3	**6**	0	9	0	0	1	1	0	2	**1**	3	0	0	0	0
+30 mins.	**18**	4	0	**22**	1	0	**7**	8	0	**4**	1	**5**	0	0	0	0
+45 mins.	2	2	0	4	**2**	0	7	**9**	0	4	0	4	0	0	0	0
Total Volume	23	17	0	40	3	0	15	18	0	13	2	15	0	0	0	0
% App. Total	57.5	42.5	0		16.7	0	83.3		0	86.7	13.3		0	0	0	
PHF	.319	.708	.000	.455	.375	.000	.536	.500	.000	.813	.500	.750	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

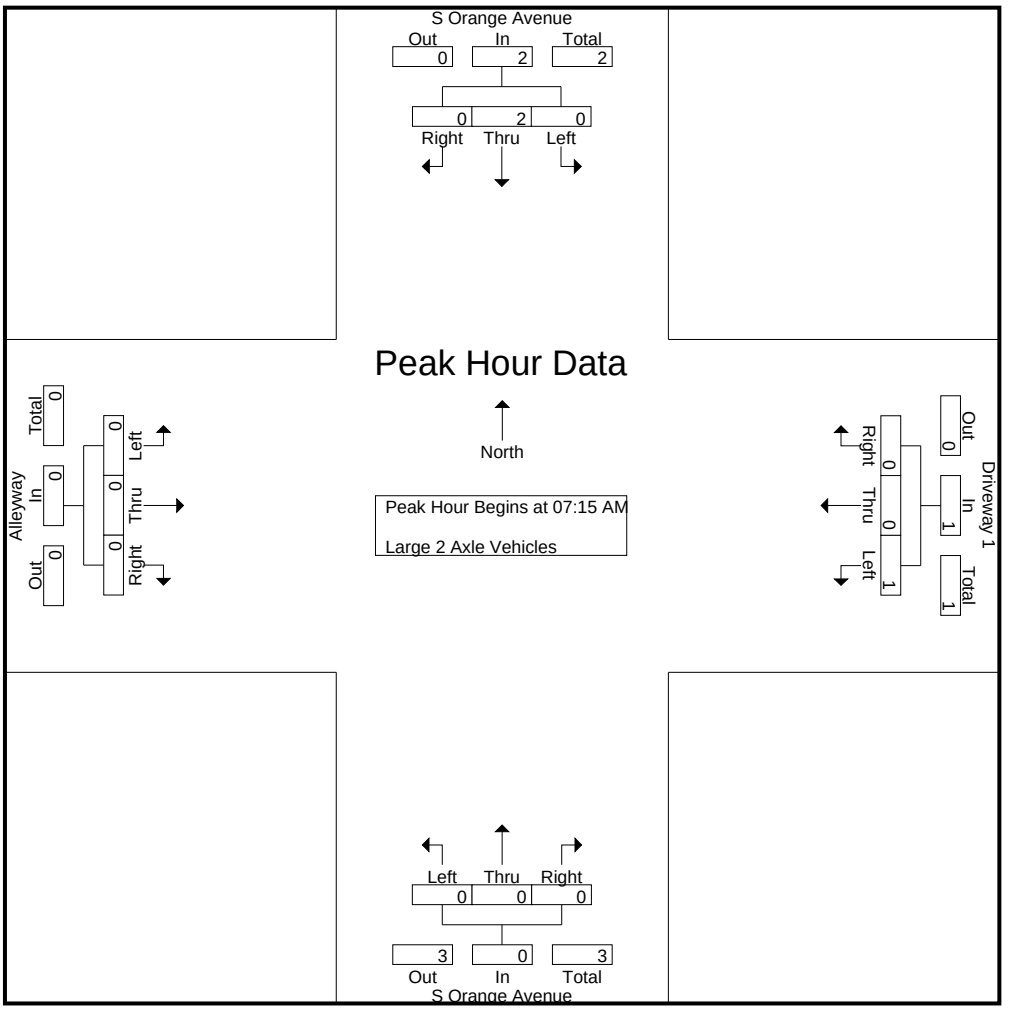
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
Apprch %	0	100	0		100	0	0		0	0	0		0	0	0		
Total %	0	66.7	0	66.7	33.3	0	0	33.3	0	0	0	0	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	1	0	1	**1**	0	0	**1**	0	0	0	0	0	0	0	0	**2**
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
% App. Total	0	100	0		100	0	0		0	0	0		0	0	0		
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.375

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	1	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0
% App. Total	0	100	0		100	0	0		0	0	0		0	0	0	
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

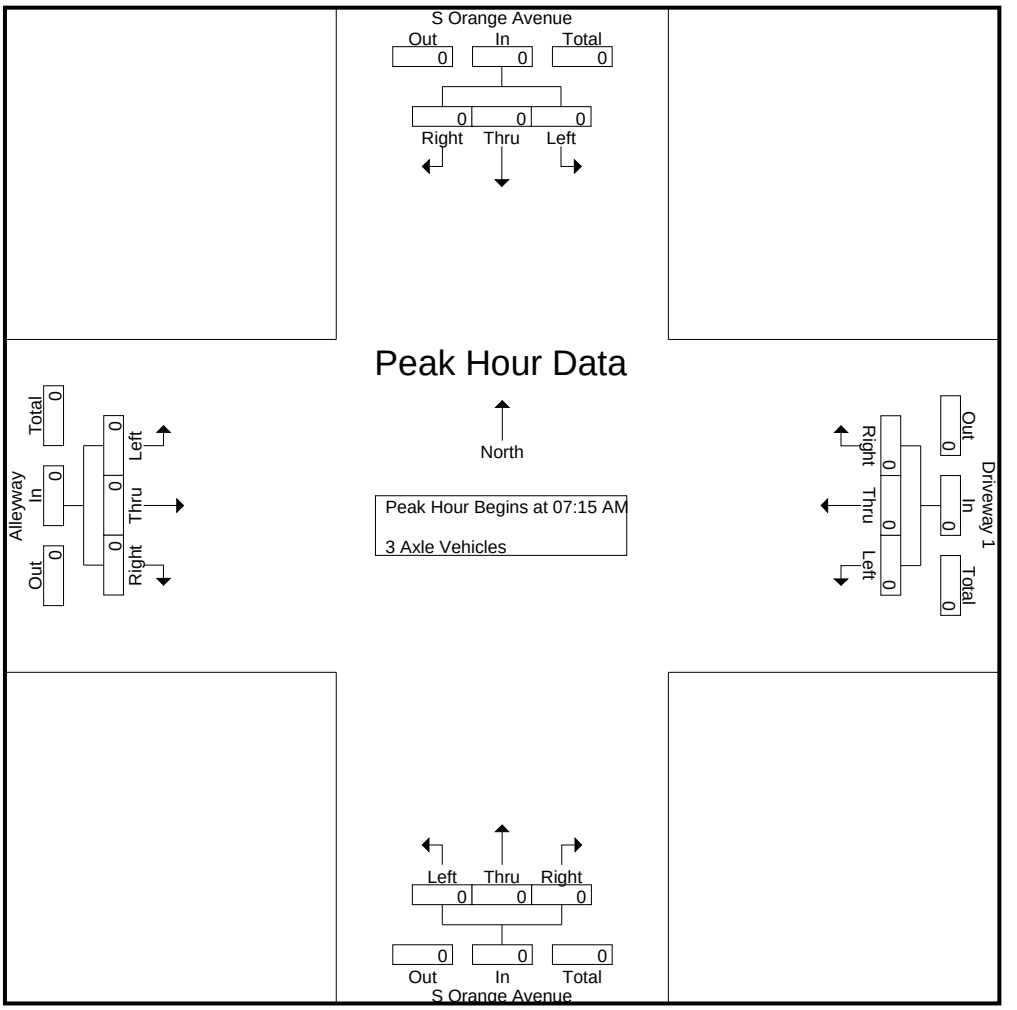
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

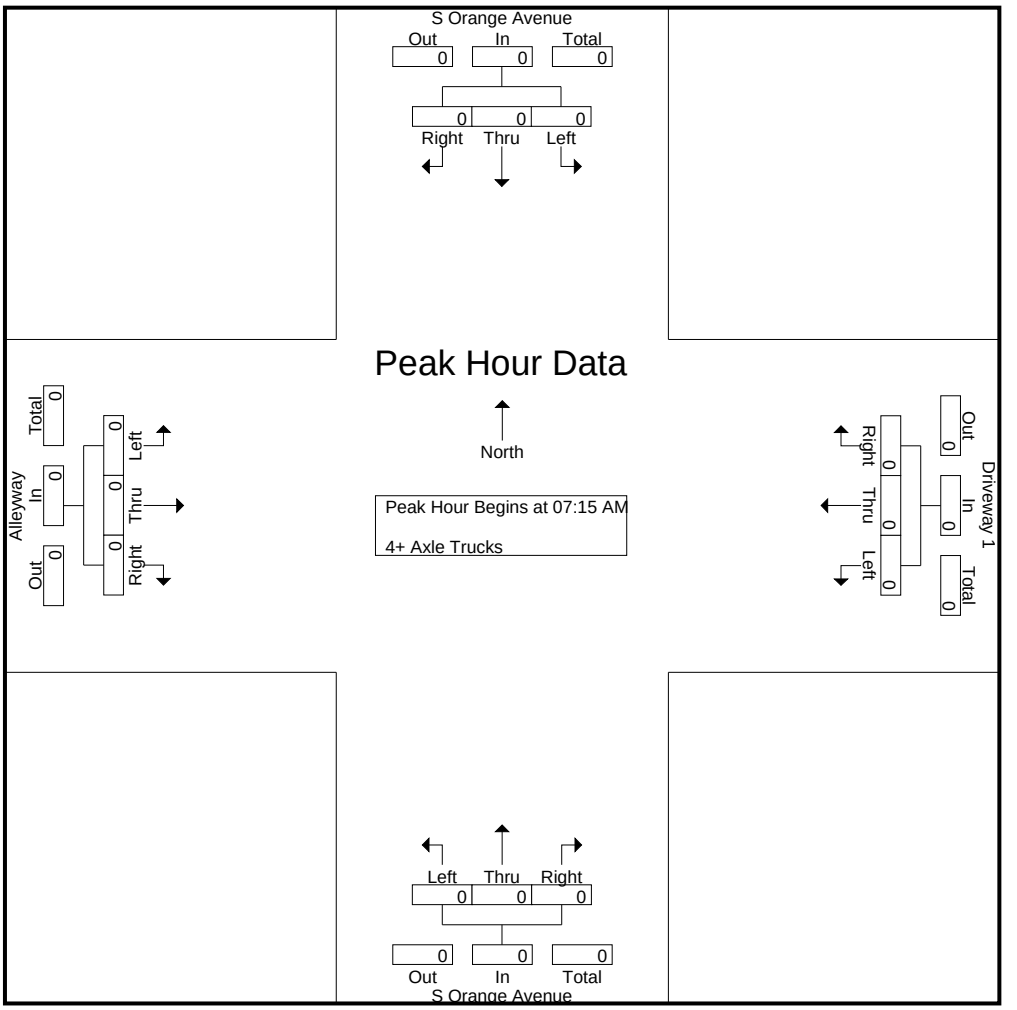
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
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File Name : 03_BRE_Org_DW1 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
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File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

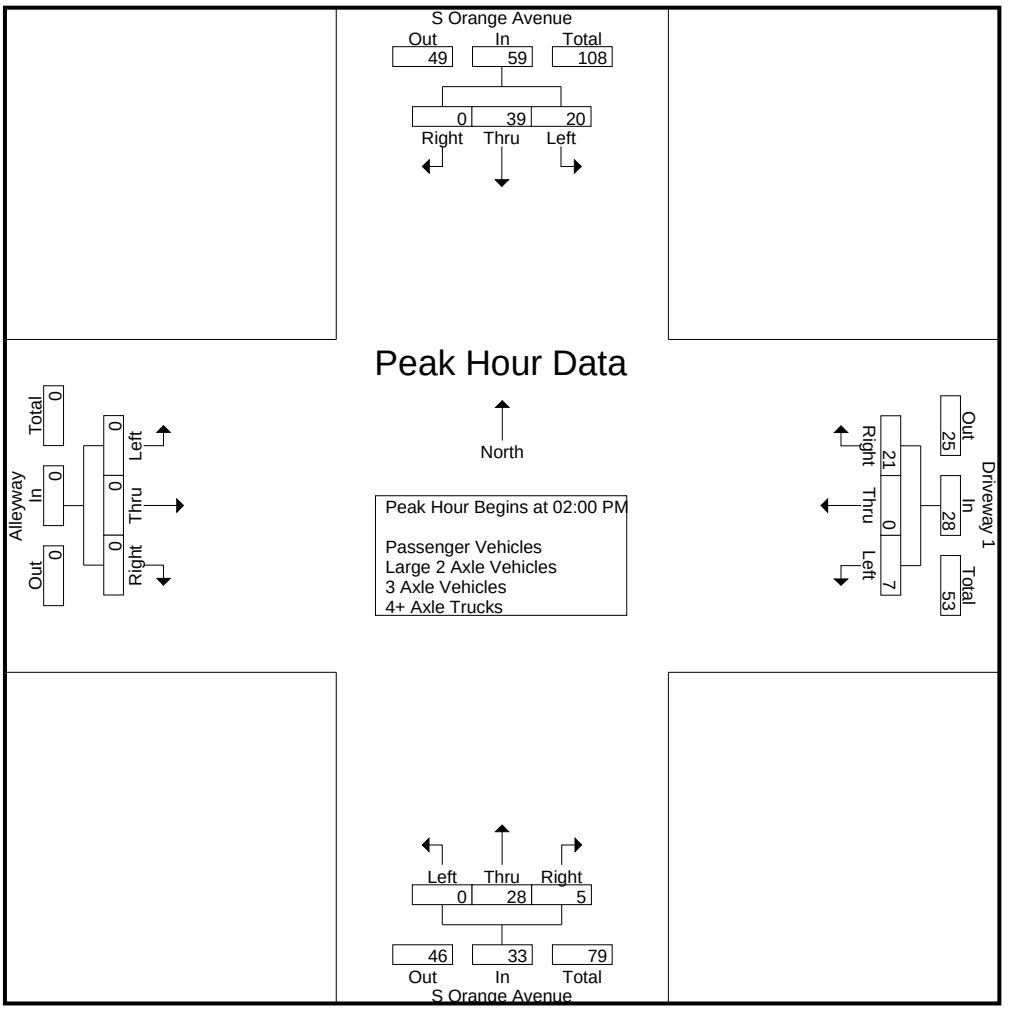
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	2	12	0	14	1	0	1	2	0	5	1	6	0	0	0	0	22
01:15 PM	2	11	0	13	0	0	0	0	0	6	0	6	0	0	0	0	19
01:30 PM	1	10	0	11	1	0	1	2	0	7	0	7	0	0	0	0	20
01:45 PM	3	7	0	10	0	0	0	0	0	1	1	2	0	0	0	0	12
Total	8	40	0	48	2	0	2	4	0	19	2	21	0	0	0	0	73
02:00 PM	10	9	0	19	0	0	5	5	0	9	3	12	0	0	0	0	36
02:15 PM	5	13	0	18	5	0	11	16	0	10	0	10	0	0	0	0	44
02:30 PM	1	8	0	9	1	0	2	3	0	6	0	6	0	0	0	0	18
02:45 PM	4	9	0	13	1	0	3	4	0	3	2	5	0	0	0	0	22
Total	20	39	0	59	7	0	21	28	0	28	5	33	0	0	0	0	120
Grand Total	28	79	0	107	9	0	23	32	0	47	7	54	0	0	0	0	193
Apprch %	26.2	73.8	0		28.1	0	71.9		0	87	13		0	0	0		
Total %	14.5	40.9	0	55.4	4.7	0	11.9	16.6	0	24.4	3.6	28	0	0	0	0	
Passenger Vehicles	28	78	0	106	9	0	22	31	0	46	7	53	0	0	0	0	190
% Passenger Vehicles	100	98.7	0	99.1	100	0	95.7	96.9	0	97.9	100	98.1	0	0	0	0	98.4
Large 2 Axle Vehicles	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% Large 2 Axle Vehicles	0	1.3	0	0.9	0	0	0	0	0	2.1	0	1.9	0	0	0	0	1
3 Axle Vehicles	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0	4.3	3.1	0	0	0	0	0	0	0	0	0.5
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	**10**	9	0	**19**	0	0	5	5	0	9	**3**	**12**	0	0	0	0	36
02:15 PM	5	**13**	0	18	**5**	0	**11**	**16**	0	**10**	0	10	0	0	0	0	**44**
02:30 PM	1	8	0	9	1	0	2	3	0	6	0	6	0	0	0	0	18
02:45 PM	4	9	0	13	1	0	3	4	0	3	2	5	0	0	0	0	22
Total Volume	20	39	0	59	7	0	21	28	0	28	5	33	0	0	0	0	120
% App. Total	33.9	66.1	0		25	0	75		0	84.8	15.2		0	0	0		
PHF	.500	.750	.000	.776	.350	.000	.477	.438	.000	.700	.417	.688	.000	.000	.000	.000	.682

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				01:00 PM			
+0 mins.	**10**	9	0	**19**	0	0	5	5	0	9	**3**	**12**	0	0	0	0
+15 mins.	5	**13**	0	18	**5**	0	**11**	**16**	0	**10**	0	10	0	0	0	0
+30 mins.	1	8	0	9	1	0	2	3	0	6	0	6	0	0	0	0
+45 mins.	4	9	0	13	1	0	3	4	0	3	2	5	0	0	0	0
Total Volume	20	39	0	59	7	0	21	28	0	28	5	33	0	0	0	0
% App. Total	33.9	66.1	0		25	0	75		0	84.8	15.2		0	0	0	
PHF	.500	.750	.000	.776	.350	.000	.477	.438	.000	.700	.417	.688	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
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Weather: Clear

File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles

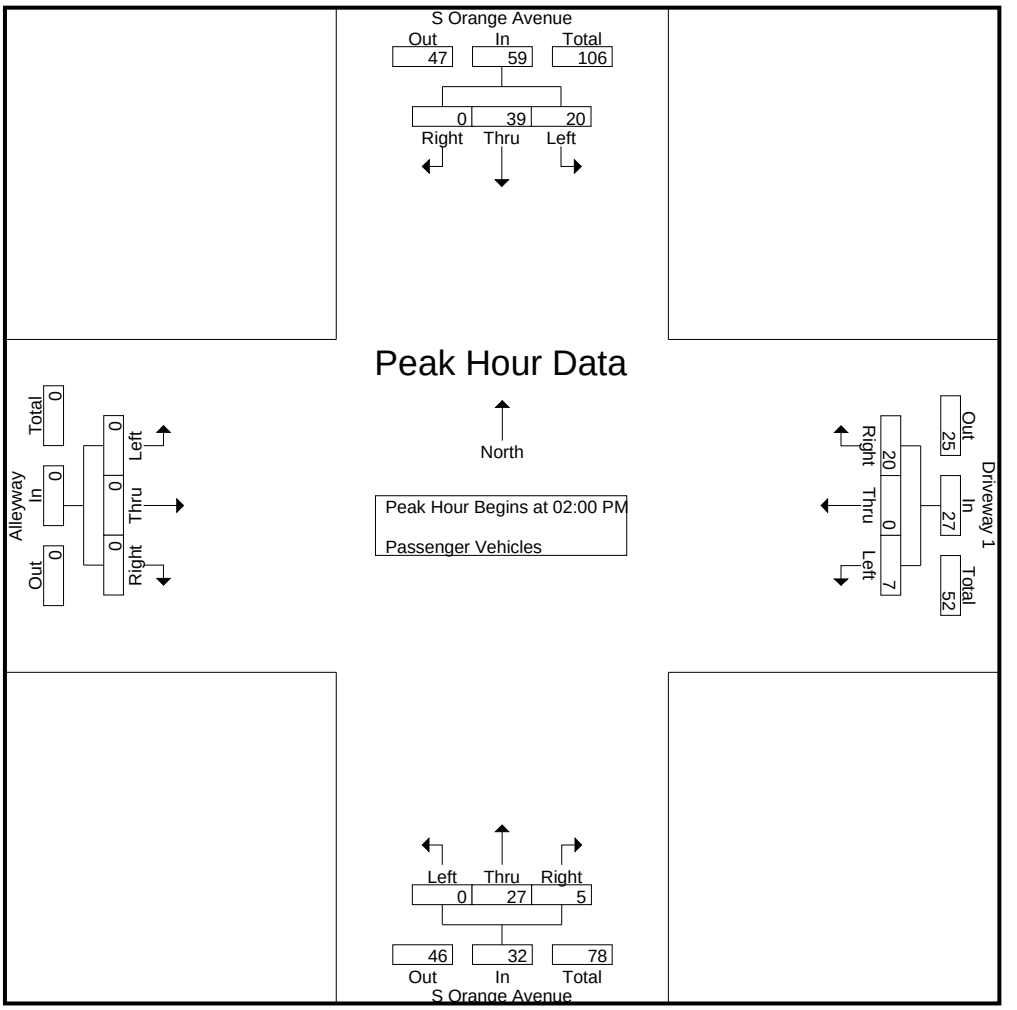
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	2	12	0	14	1	0	1	2	0	5	1	6	0	0	0	0	22
01:15 PM	2	11	0	13	0	0	0	0	0	6	0	6	0	0	0	0	19
01:30 PM	1	9	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
01:45 PM	3	7	0	10	0	0	0	0	0	1	1	2	0	0	0	0	12
Total	8	39	0	47	2	0	2	4	0	19	2	21	0	0	0	0	72
02:00 PM	10	9	0	19	0	0	5	5	0	9	3	12	0	0	0	0	36
02:15 PM	5	13	0	18	5	0	11	16	0	9	0	9	0	0	0	0	43
02:30 PM	1	8	0	9	1	0	2	3	0	6	0	6	0	0	0	0	18
02:45 PM	4	9	0	13	1	0	2	3	0	3	2	5	0	0	0	0	21
Total	20	39	0	59	7	0	20	27	0	27	5	32	0	0	0	0	118
Grand Total	28	78	0	106	9	0	22	31	0	46	7	53	0	0	0	0	190
Apprch %	26.4	73.6	0		29	0	71		0	86.8	13.2		0	0	0		
Total %	14.7	41.1	0	55.8	4.7	0	11.6	16.3	0	24.2	3.7	27.9	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	**10**	9	0	**19**	0	0	5	5	0	**9**	**3**	**12**	0	0	0	0	36
02:15 PM	5	**13**	0	18	**5**	0	**11**	**16**	0	9	0	9	0	0	0	0	**43**
02:30 PM	1	8	0	9	1	0	2	3	0	6	0	6	0	0	0	0	18
02:45 PM	4	9	0	13	1	0	2	3	0	3	2	5	0	0	0	0	21
Total Volume	20	39	0	59	7	0	20	27	0	27	5	32	0	0	0	0	118
% App. Total	33.9	66.1	0		25.9	0	74.1		0	84.4	15.6		0	0	0		
PHF	.500	.750	.000	.776	.350	.000	.455	.422	.000	.750	.417	.667	.000	.000	.000	.000	.686

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City of Brea
N/S: S Orange Avenue
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File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	**10**	9	0	**19**	0	0	5	5	0	**9**	**3**	**12**	0	0	0	0
+15 mins.	5	**13**	0	18	**5**	0	**11**	**16**	0	9	0	9	0	0	0	0
+30 mins.	1	8	0	9	1	0	2	3	0	6	0	6	0	0	0	0
+45 mins.	4	9	0	13	1	0	2	3	0	3	2	5	0	0	0	0
Total Volume	20	39	0	59	7	0	20	27	0	27	5	32	0	0	0	0
% App. Total	33.9	66.1	0		25.9	0	74.1		0	84.4	15.6		0	0	0	
PHF	.500	.750	.000	.776	.350	.000	.455	.422	.000	.750	.417	.667	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
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File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

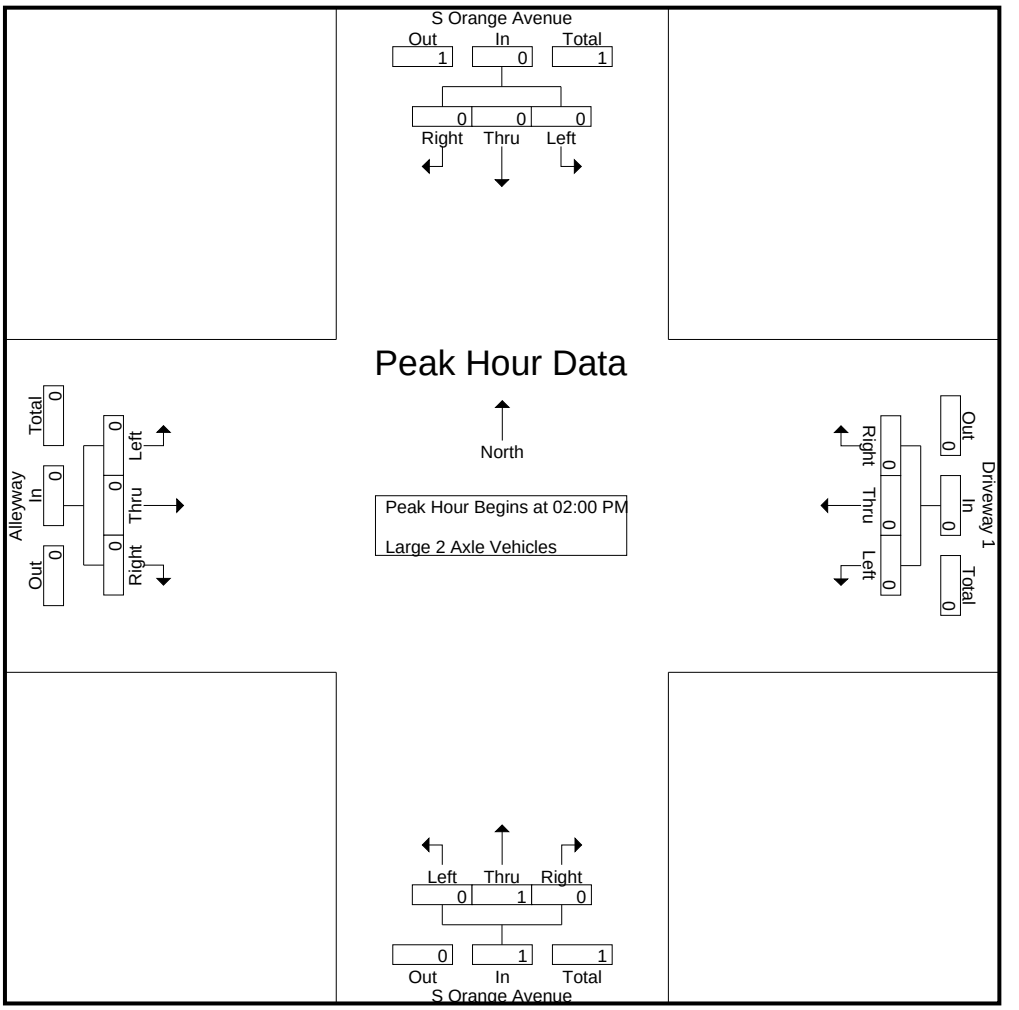
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	50	0	50	0	0	0	0	0	50	0	50	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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City of Brea
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E/W: Driveway 1
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File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

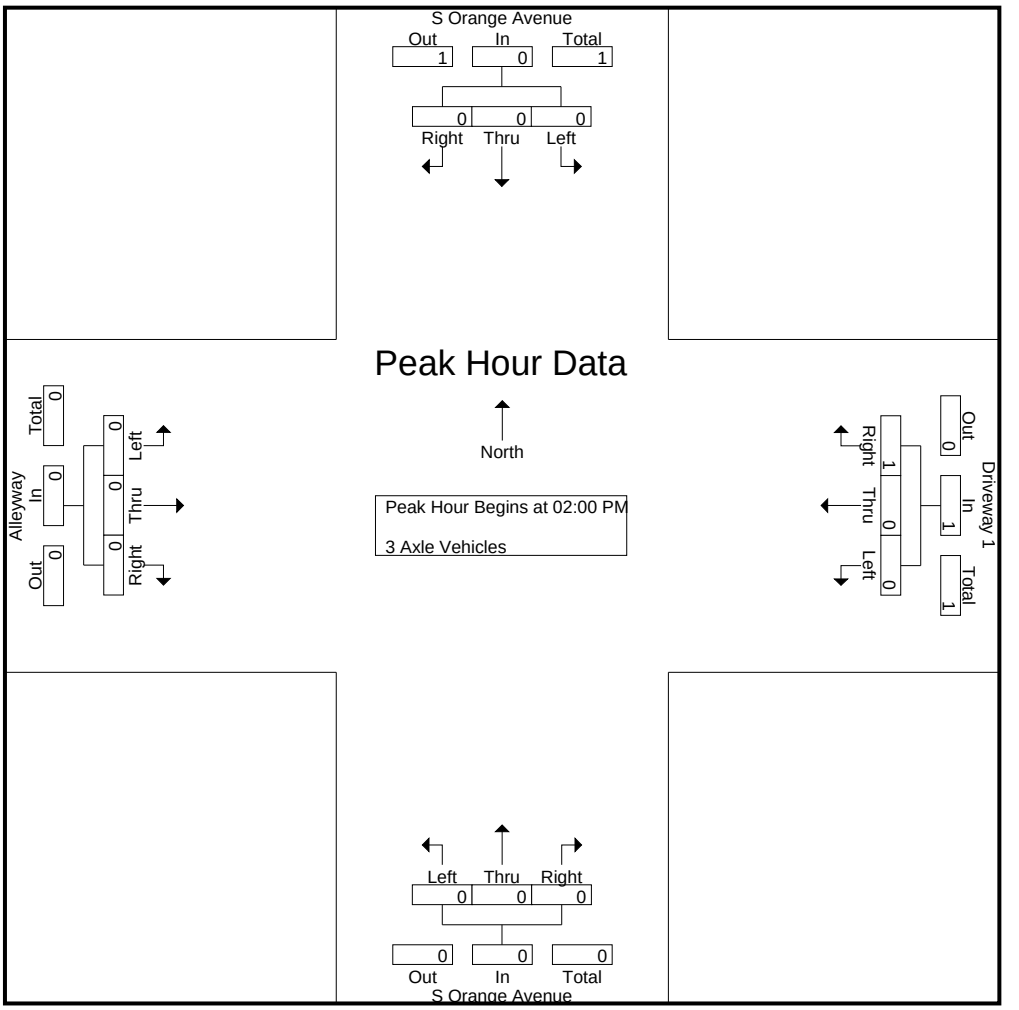
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0		0	0	100		0	0	0		0	0	0		
Total %	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	**1**
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0		0	0	100		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Brea
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Weather: Clear

File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	100		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

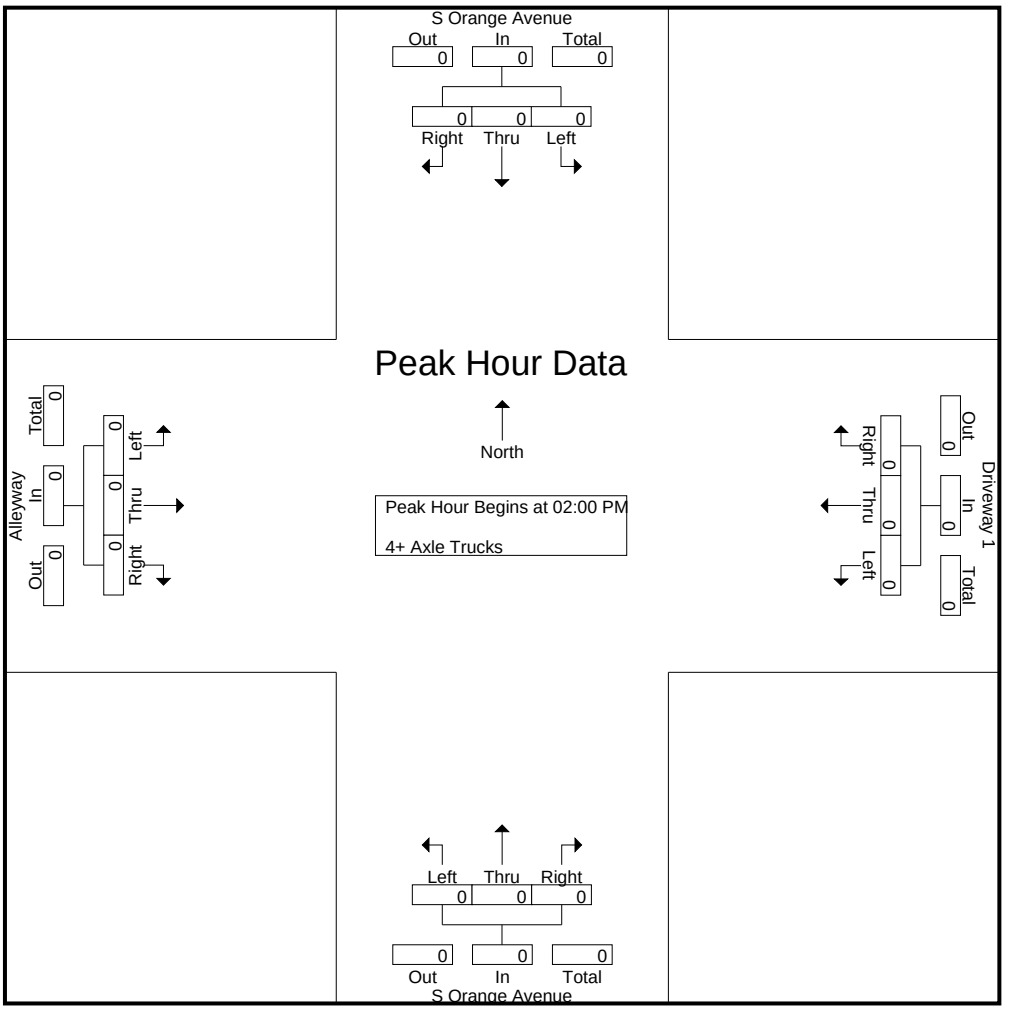
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Weather: Clear

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Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
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File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

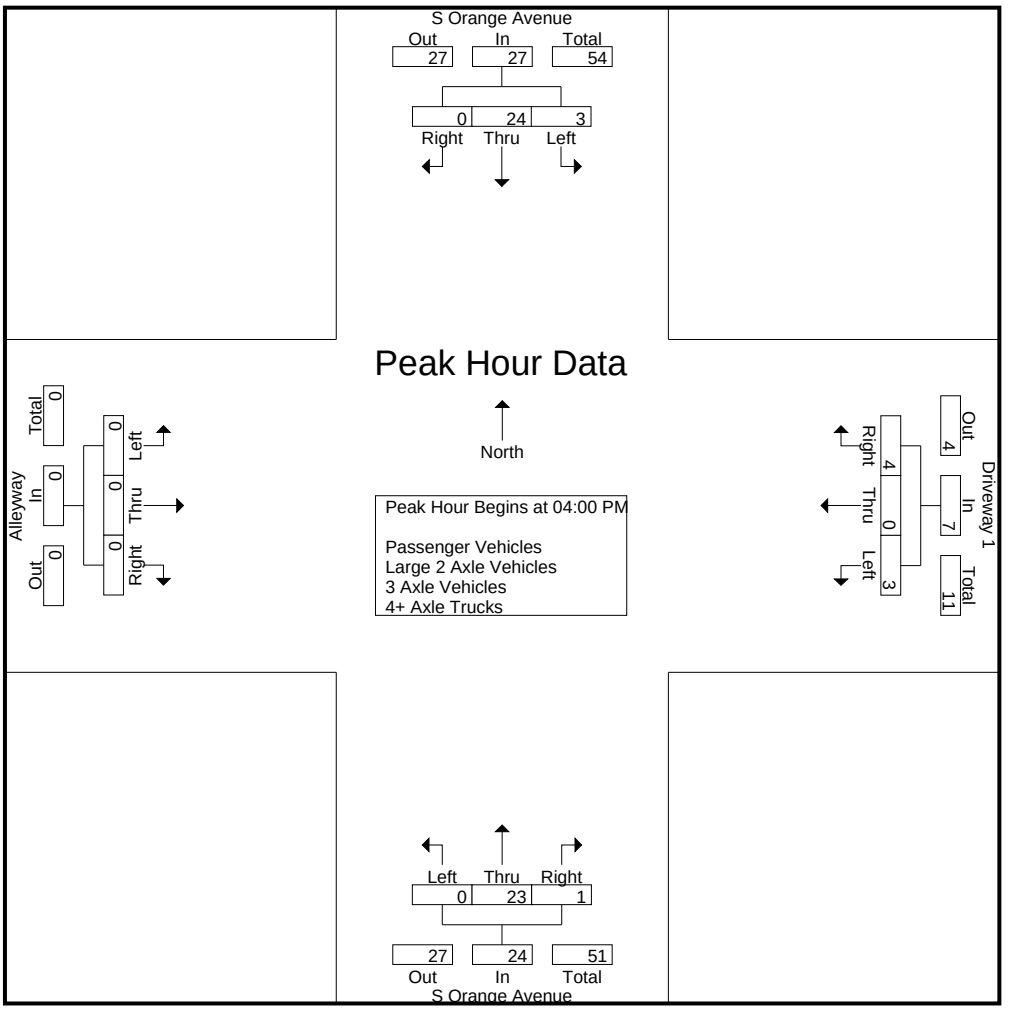
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	4	0	5	0	0	1	1	0	8	1	9	0	0	0	0	15
04:15 PM	0	5	0	5	0	0	1	1	0	5	0	5	0	0	0	0	11
04:30 PM	2	10	0	12	1	0	2	3	0	5	0	5	0	0	0	0	20
04:45 PM	0	5	0	5	2	0	0	2	0	5	0	5	0	0	0	0	12
Total	3	24	0	27	3	0	4	7	0	23	1	24	0	0	0	0	58
05:00 PM	2	3	0	5	1	0	3	4	0	4	0	4	0	0	0	0	13
05:15 PM	0	1	0	1	2	0	2	4	0	2	1	3	0	0	0	0	8
05:30 PM	2	2	0	4	0	0	2	2	0	3	0	3	0	0	0	0	9
05:45 PM	0	4	0	4	0	0	2	2	0	5	0	5	0	0	0	0	11
Total	4	10	0	14	3	0	9	12	0	14	1	15	0	0	0	0	41
Grand Total	7	34	0	41	6	0	13	19	0	37	2	39	0	0	0	0	99
Apprch %	17.1	82.9	0		31.6	0	68.4		0	94.9	5.1		0	0	0		
Total %	7.1	34.3	0	41.4	6.1	0	13.1	19.2	0	37.4	2	39.4	0	0	0	0	
Passenger Vehicles	7	33	0	40	6	0	13	19	0	36	2	38	0	0	0	0	97
% Passenger Vehicles	100	97.1	0	97.6	100	0	100	100	0	97.3	100	97.4	0	0	0	0	98
Large 2 Axle Vehicles	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% Large 2 Axle Vehicles	0	2.9	0	2.4	0	0	0	0	0	2.7	0	2.6	0	0	0	0	2
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	4	0	5	0	0	1	1	0	**8**	**1**	**9**	0	0	0	0	15
04:15 PM	0	5	0	5	0	0	1	1	0	5	0	5	0	0	0	0	11
04:30 PM	**2**	**10**	0	**12**	1	0	**2**	**3**	0	5	0	5	0	0	0	0	**20**
04:45 PM	0	5	0	5	**2**	0	0	2	0	5	0	5	0	0	0	0	12
Total Volume	3	24	0	27	3	0	4	7	0	23	1	24	0	0	0	0	58
% App. Total	11.1	88.9	0		42.9	0	57.1		0	95.8	4.2		0	0	0		
PHF	.375	.600	.000	.563	.375	.000	.500	.583	.000	.719	.250	.667	.000	.000	.000	.000	.725

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Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
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:

	04:00 PM				04:30 PM				04:00 PM				04:00 PM			
+0 mins.	1	4	0	5	1	0	2	3	0	**8**	**1**	**9**	0	0	0	0
+15 mins.	0	5	0	5	**2**	0	0	2	0	5	0	5	0	0	0	0
+30 mins.	**2**	**10**	0	**12**	1	0	**3**	**4**	0	5	0	5	0	0	0	0
+45 mins.	0	5	0	5	2	0	2	4	0	5	0	5	0	0	0	0
Total Volume	3	24	0	27	6	0	7	13	0	23	1	24	0	0	0	0
% App. Total	11.1	88.9	0		46.2	0	53.8		0	95.8	4.2		0	0	0	
PHF	.375	.600	.000	.563	.750	.000	.583	.813	.000	.719	.250	.667	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles

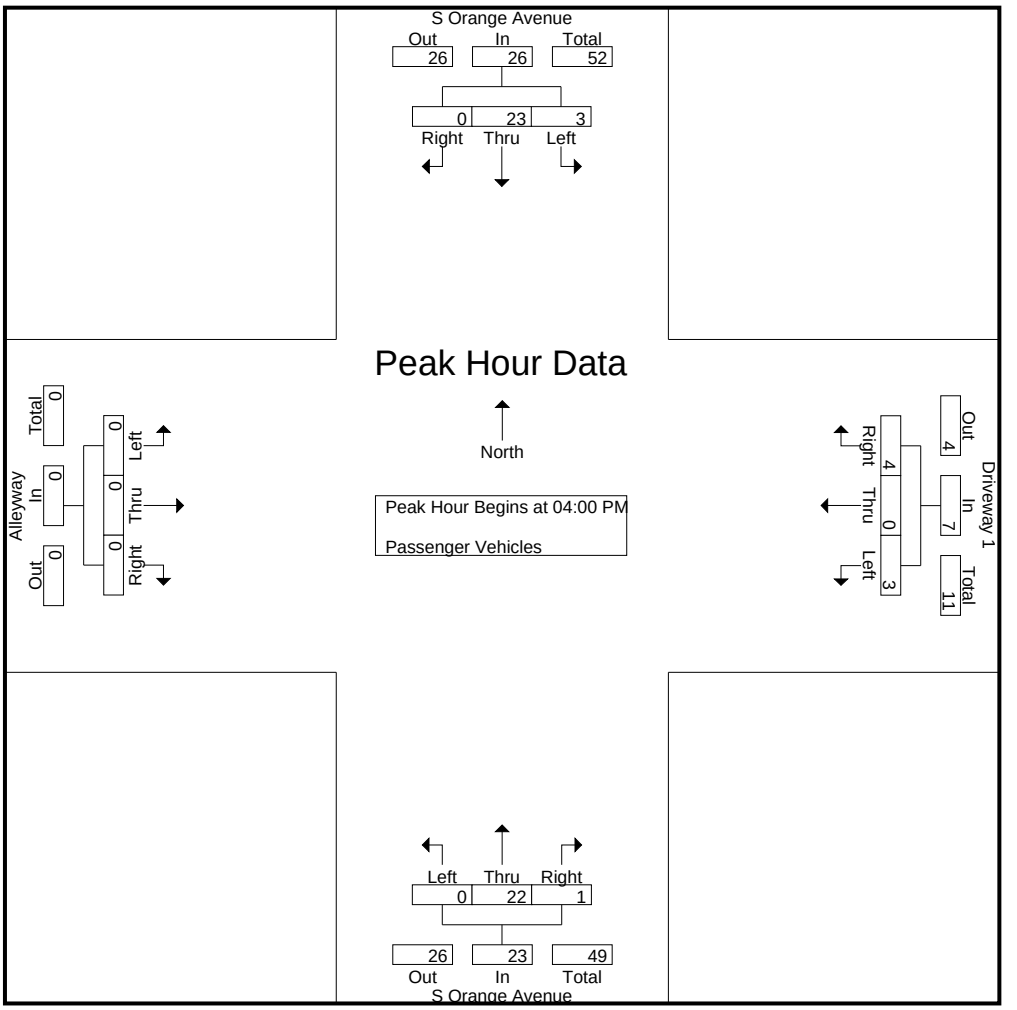
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	4	0	5	0	0	1	1	0	8	1	9	0	0	0	0	15
04:15 PM	0	5	0	5	0	0	1	1	0	5	0	5	0	0	0	0	11
04:30 PM	2	9	0	11	1	0	2	3	0	4	0	4	0	0	0	0	18
04:45 PM	0	5	0	5	2	0	0	2	0	5	0	5	0	0	0	0	12
Total	3	23	0	26	3	0	4	7	0	22	1	23	0	0	0	0	56
05:00 PM	2	3	0	5	1	0	3	4	0	4	0	4	0	0	0	0	13
05:15 PM	0	1	0	1	2	0	2	4	0	2	1	3	0	0	0	0	8
05:30 PM	2	2	0	4	0	0	2	2	0	3	0	3	0	0	0	0	9
05:45 PM	0	4	0	4	0	0	2	2	0	5	0	5	0	0	0	0	11
Total	4	10	0	14	3	0	9	12	0	14	1	15	0	0	0	0	41
Grand Total	7	33	0	40	6	0	13	19	0	36	2	38	0	0	0	0	97
Apprch %	17.5	82.5	0		31.6	0	68.4		0	94.7	5.3		0	0	0		
Total %	7.2	34	0	41.2	6.2	0	13.4	19.6	0	37.1	2.1	39.2	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	4	0	5	0	0	1	1	0	**8**	**1**	**9**	0	0	0	0	15
04:15 PM	0	5	0	5	0	0	1	1	0	5	0	5	0	0	0	0	11
04:30 PM	**2**	**9**	0	**11**	1	0	**2**	**3**	0	4	0	4	0	0	0	0	**18**
04:45 PM	0	5	0	5	**2**	0	0	2	0	5	0	5	0	0	0	0	12
Total Volume	3	23	0	26	3	0	4	7	0	22	1	23	0	0	0	0	56
% App. Total	11.5	88.5	0		42.9	0	57.1		0	95.7	4.3		0	0	0		
PHF	.375	.639	.000	.591	.375	.000	.500	.583	.000	.688	.250	.639	.000	.000	.000	.000	.778

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Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	1	4	0	5	0	0	1	1	0	**8**	**1**	**9**	0	0	0	0
+15 mins.	0	5	0	5	0	0	1	1	0	5	0	5	0	0	0	0
+30 mins.	**2**	**9**	0	**11**	1	0	**2**	**3**	0	4	0	4	0	0	0	0
+45 mins.	0	5	0	5	**2**	0	0	2	0	5	0	5	0	0	0	0
Total Volume	3	23	0	26	3	0	4	7	0	22	1	23	0	0	0	0
% App. Total	11.5	88.5	0		42.9	0	57.1		0	95.7	4.3		0	0	0	
PHF	.375	.639	.000	.591	.375	.000	.500	.583	.000	.688	.250	.639	.000	.000	.000	.000

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City of Brea
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Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

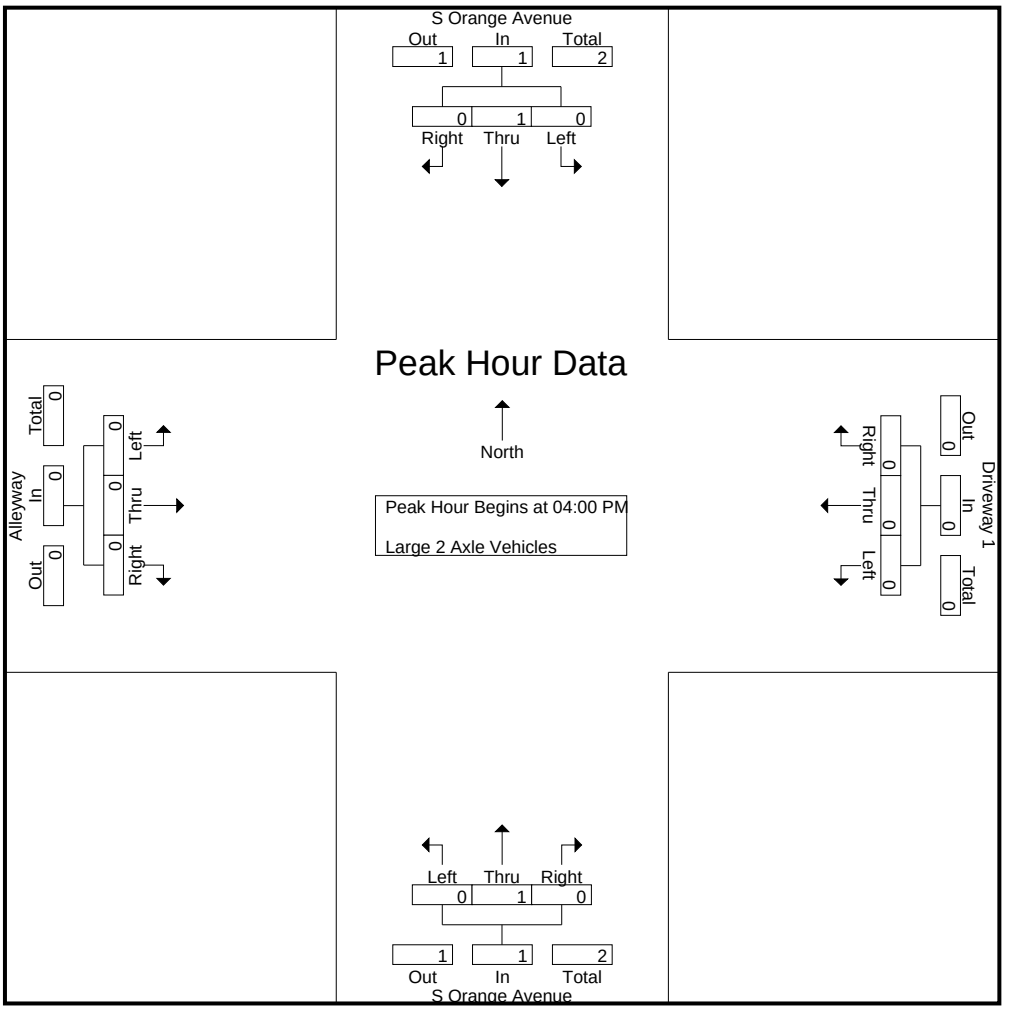
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	50	0	50	0	0	0	0	0	50	0	50	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

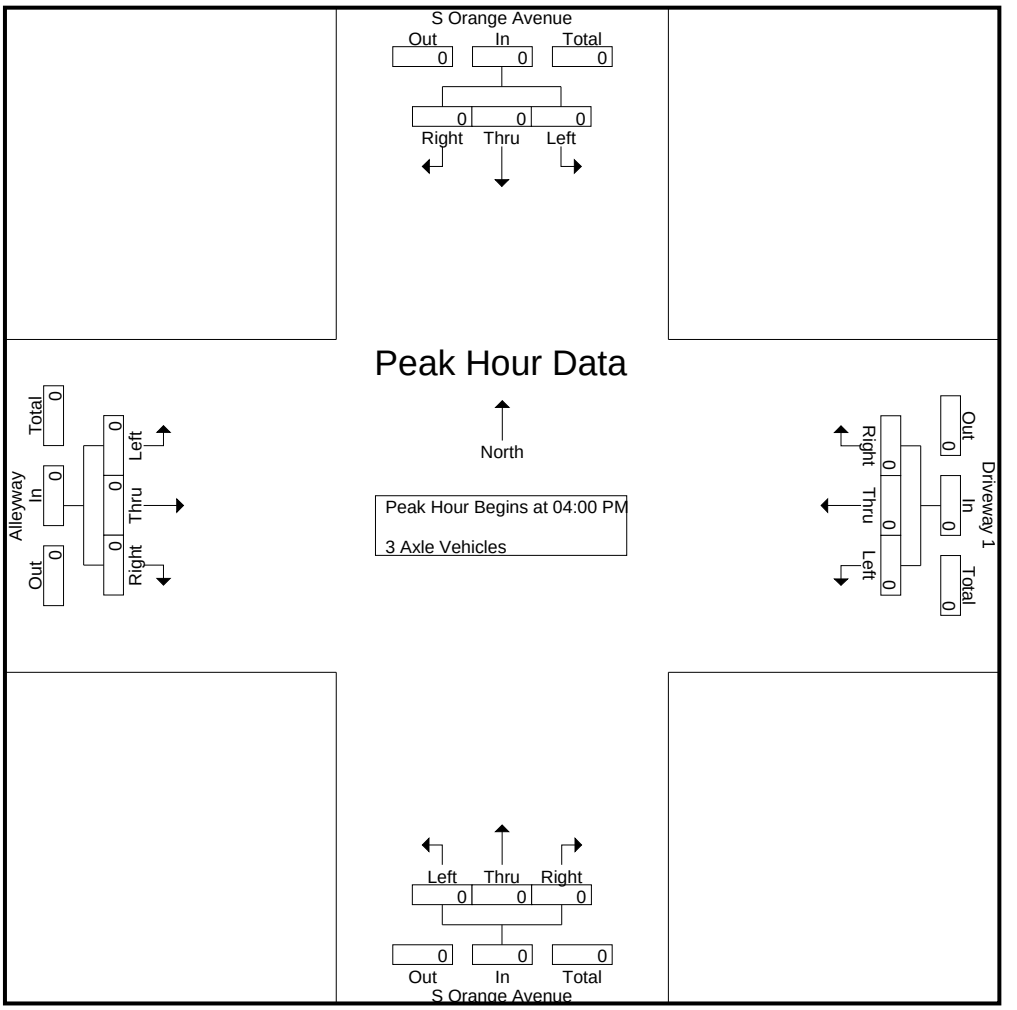
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

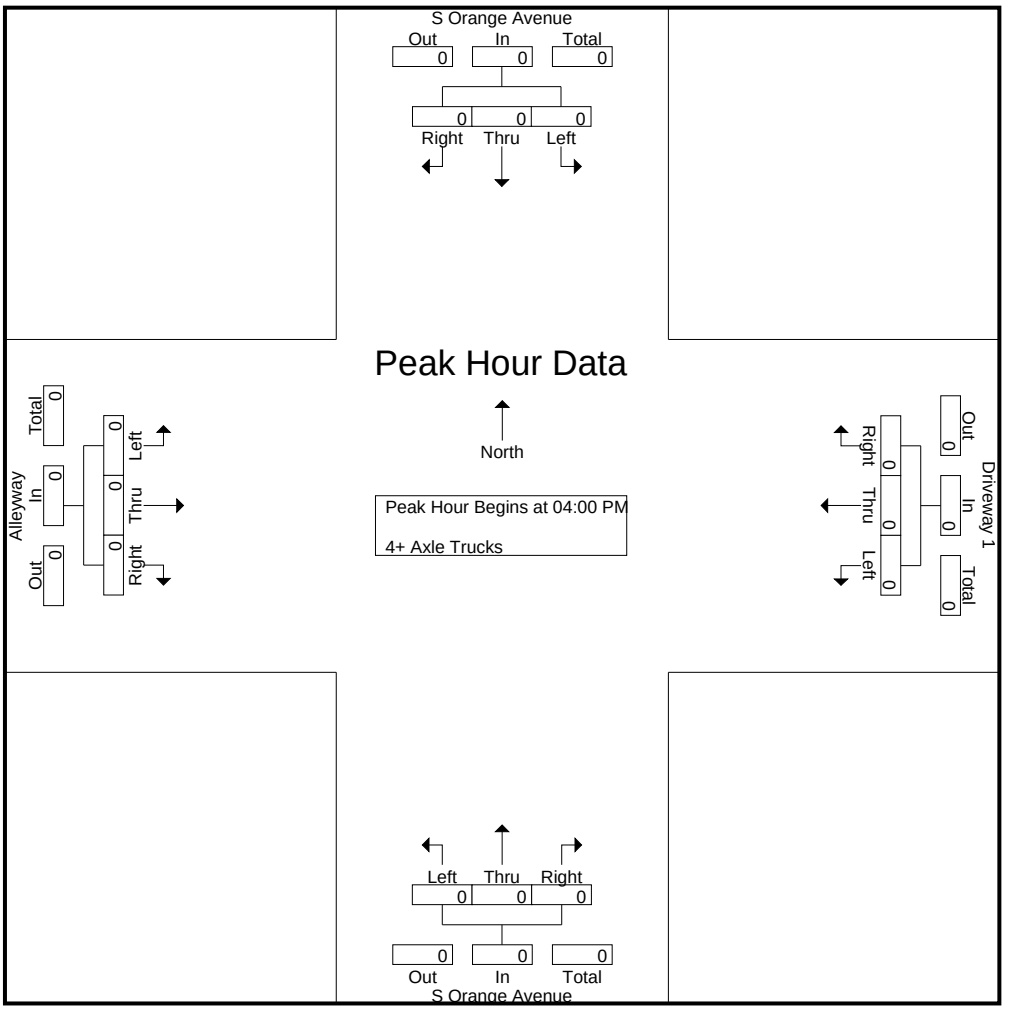
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

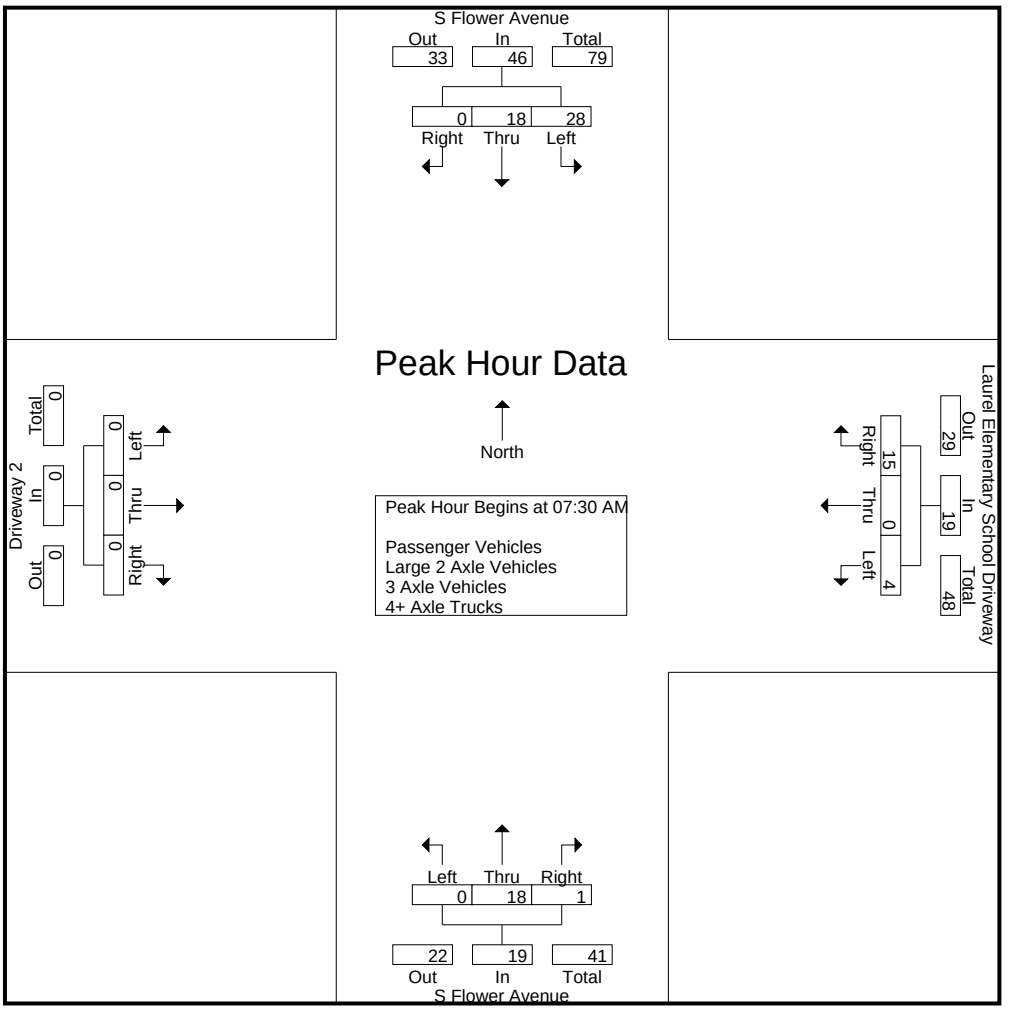
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	1	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6
07:15 AM	1	6	0	7	0	0	0	0	0	1	0	1	0	0	0	0	8
07:30 AM	7	3	0	10	0	0	1	1	0	1	1	2	0	0	0	0	13
07:45 AM	16	6	0	22	1	0	6	7	0	8	0	8	0	0	0	0	37
Total	26	16	0	42	1	0	7	8	0	13	1	14	0	0	0	0	64
08:00 AM	3	2	0	5	3	0	6	9	0	5	0	5	0	0	0	0	19
08:15 AM	2	7	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
08:30 AM	1	1	0	2	0	0	1	1	0	4	0	4	0	0	0	0	7
08:45 AM	4	2	0	6	0	0	2	2	0	1	0	1	0	0	0	0	9
Total	10	12	0	22	3	0	11	14	0	14	0	14	0	0	0	0	50
Grand Total	36	28	0	64	4	0	18	22	0	27	1	28	0	0	0	0	114
Apprch %	56.2	43.8	0		18.2	0	81.8		0	96.4	3.6		0	0	0		
Total %	31.6	24.6	0	56.1	3.5	0	15.8	19.3	0	23.7	0.9	24.6	0	0	0	0	
Passenger Vehicles	36	28	0	64	4	0	18	22	0	27	1	28	0	0	0	0	114
% Passenger Vehicles	100	100	0	100	100	0	100	100	0	100	100	100	0	0	0	0	100
Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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	7	3	0	10	0	0	1	1	0	1	**1**	2	0	0	0	0	13
07:45 AM	**16**	6	0	**22**	1	0	**6**	7	0	**8**	0	**8**	0	0	0	0	**37**
08:00 AM	3	2	0	5	**3**	0	6	**9**	0	5	0	5	0	0	0	0	19
08:15 AM	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
Total Volume	28	18	0	46	4	0	15	19	0	18	1	19	0	0	0	0	84
% App. Total	60.9	39.1	0		21.1	0	78.9		0	94.7	5.3		0	0	0		
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.563	.250	.594	.000	.000	.000	.000	.568

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
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				07:45 AM				07:00 AM			
+0 mins.	7	3	0	10	0	0	1	1	0	**8**	0	**8**	0	0	0	0
+15 mins.	**16**	6	0	**22**	1	0	**6**	7	0	5	0	5	0	0	0	0
+30 mins.	3	2	0	5	**3**	0	6	**9**	0	4	0	4	0	0	0	0
+45 mins.	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0
Total Volume	28	18	0	46	4	0	15	19	0	21	0	21	0	0	0	0
% App. Total	60.9	39.1	0		21.1	0	78.9		0	100	0		0	0	0	
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.656	.000	.656	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

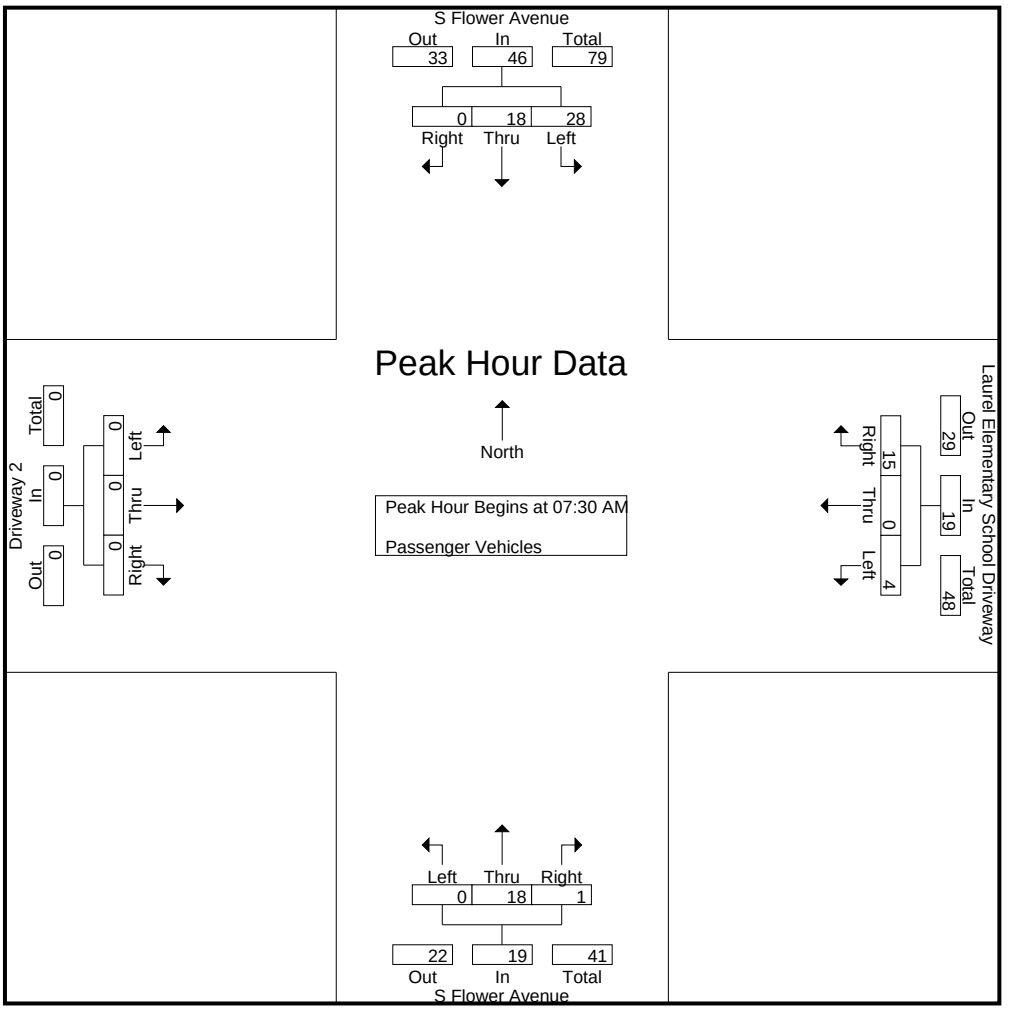
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	1	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6
07:15 AM	1	6	0	7	0	0	0	0	0	1	0	1	0	0	0	0	8
07:30 AM	7	3	0	10	0	0	1	1	0	1	1	2	0	0	0	0	13
07:45 AM	16	6	0	22	1	0	6	7	0	8	0	8	0	0	0	0	37
Total	26	16	0	42	1	0	7	8	0	13	1	14	0	0	0	0	64
08:00 AM	3	2	0	5	3	0	6	9	0	5	0	5	0	0	0	0	19
08:15 AM	2	7	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
08:30 AM	1	1	0	2	0	0	1	1	0	4	0	4	0	0	0	0	7
08:45 AM	4	2	0	6	0	0	2	2	0	1	0	1	0	0	0	0	9
Total	10	12	0	22	3	0	11	14	0	14	0	14	0	0	0	0	50
Grand Total	36	28	0	64	4	0	18	22	0	27	1	28	0	0	0	0	114
Apprch %	56.2	43.8	0		18.2	0	81.8		0	96.4	3.6		0	0	0		
Total %	31.6	24.6	0	56.1	3.5	0	15.8	19.3	0	23.7	0.9	24.6	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	3	0	10	0	0	1	1	0	1	**1**	2	0	0	0	0	13
07:45 AM	**16**	6	0	**22**	1	0	**6**	7	0	**8**	0	**8**	0	0	0	0	**37**
08:00 AM	3	2	0	5	**3**	0	6	**9**	0	5	0	5	0	0	0	0	19
08:15 AM	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0	15
Total Volume	28	18	0	46	4	0	15	19	0	18	1	19	0	0	0	0	84
% App. Total	60.9	39.1	0		21.1	0	78.9		0	94.7	5.3		0	0	0		
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.563	.250	.594	.000	.000	.000	.000	.568

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	7	3	0	10	0	0	1	1	0	1	**1**	2	0	0	0	0
+15 mins.	**16**	6	0	**22**	1	0	**6**	7	0	**8**	0	**8**	0	0	0	0
+30 mins.	3	2	0	5	**3**	0	6	**9**	0	5	0	5	0	0	0	0
+45 mins.	2	**7**	0	9	0	0	2	2	0	4	0	4	0	0	0	0
Total Volume	28	18	0	46	4	0	15	19	0	18	1	19	0	0	0	0
% App. Total	60.9	39.1	0		21.1	0	78.9		0	94.7	5.3		0	0	0	
PHF	.438	.643	.000	.523	.333	.000	.625	.528	.000	.563	.250	.594	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

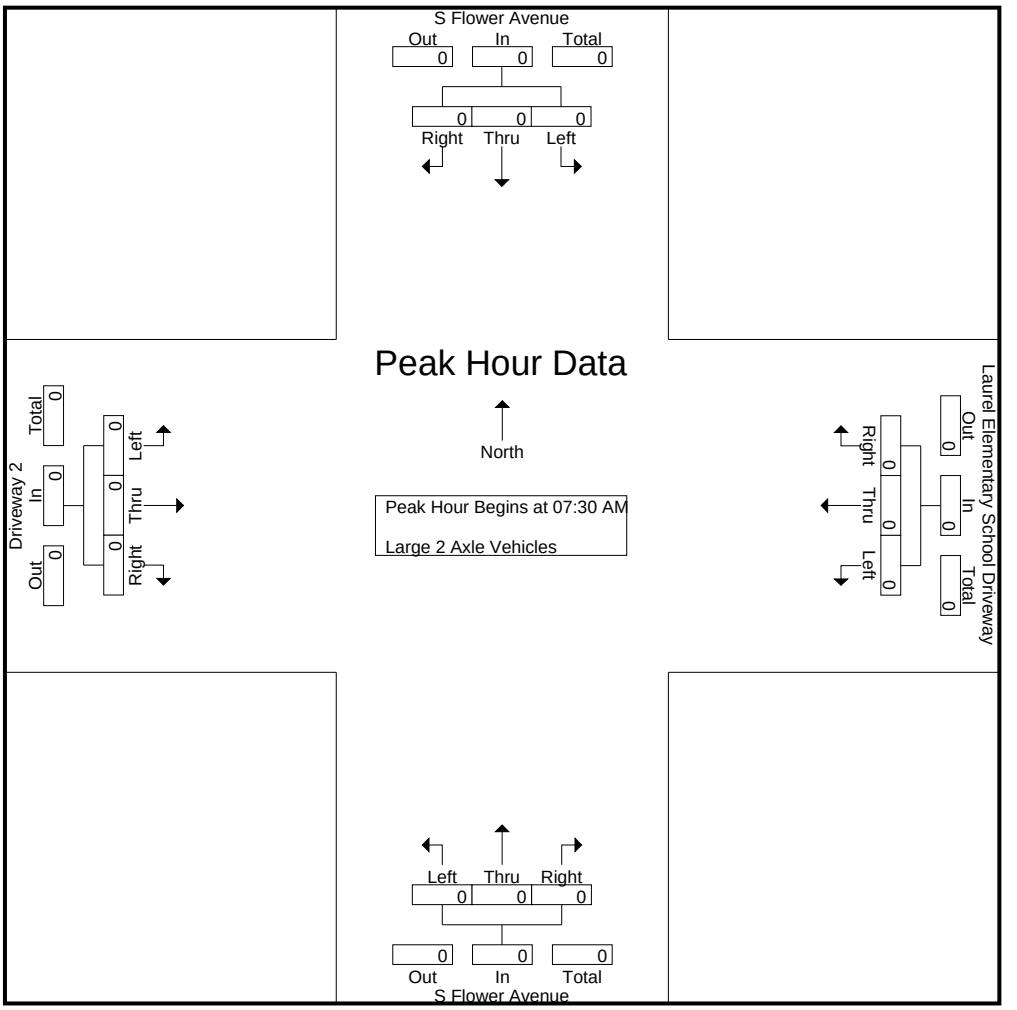
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

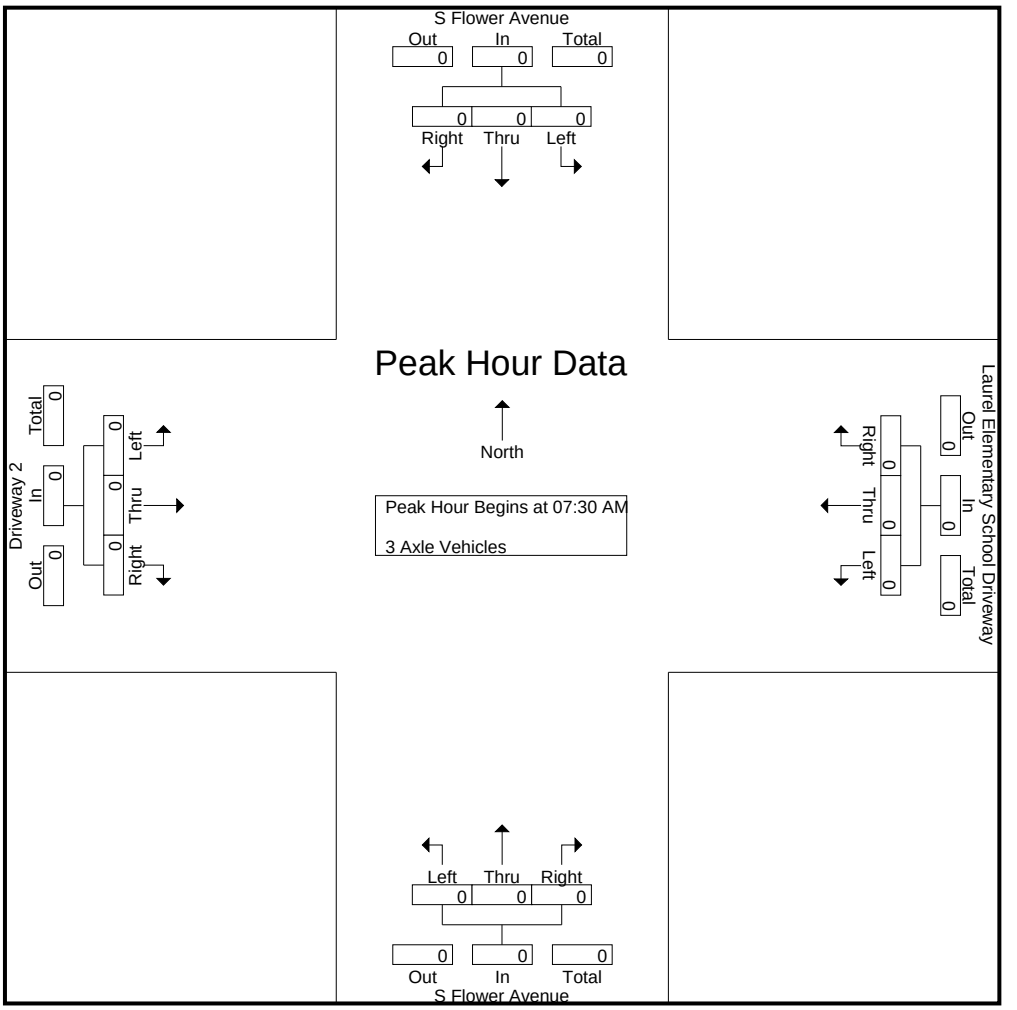
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

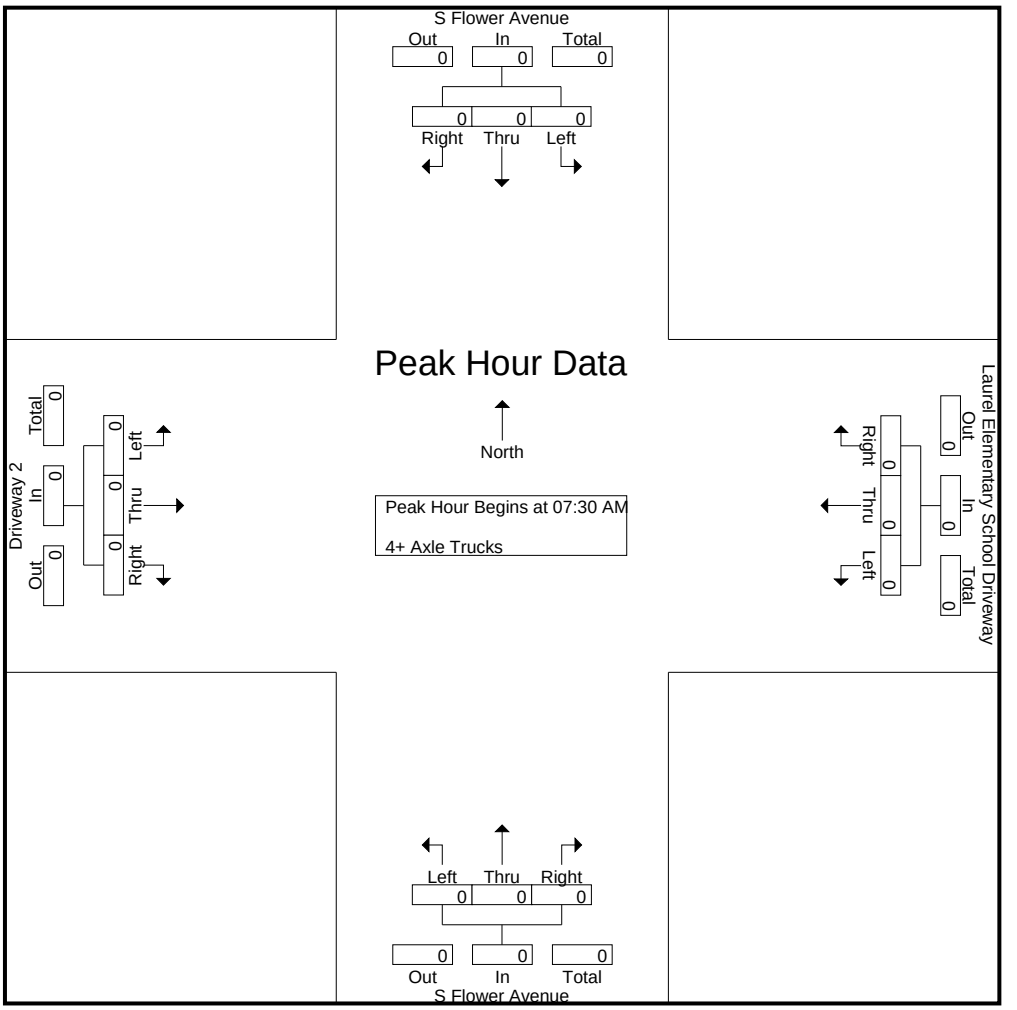
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 03_BRE_Org_DW1 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

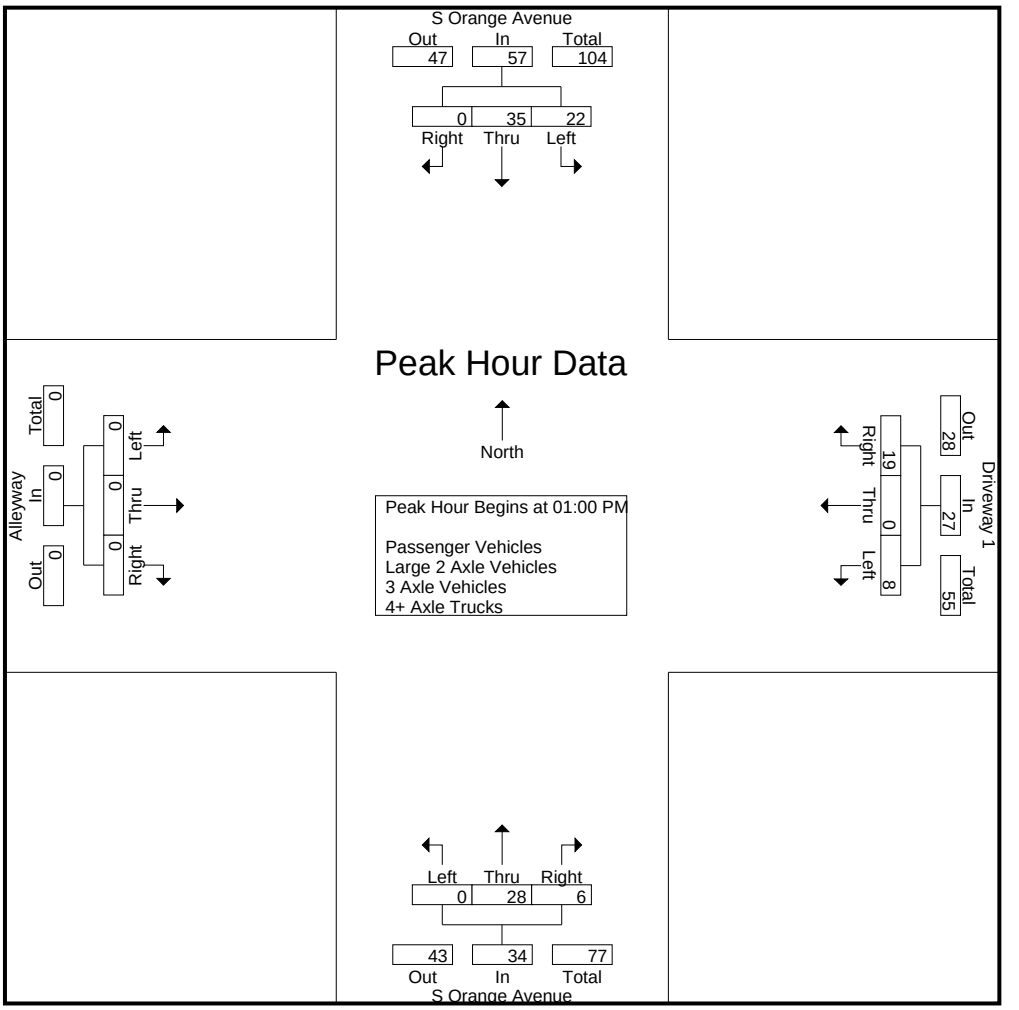
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	4	7	0	11	0	0	1	1	0	7	2	9	0	0	0	0	21
01:15 PM	13	11	0	24	1	0	2	3	0	4	2	6	0	0	0	0	33
01:30 PM	0	12	0	12	6	0	15	21	0	10	2	12	0	0	0	0	45
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total	22	35	0	57	8	0	19	27	0	28	6	34	0	0	0	0	118
02:00 PM	2	6	0	8	1	0	1	2	0	2	1	3	0	0	0	0	13
02:15 PM	1	5	0	6	0	0	4	4	0	5	0	5	0	0	0	0	15
02:30 PM	0	7	0	7	3	0	2	5	0	1	0	1	0	0	0	0	13
02:45 PM	1	3	0	4	0	0	2	2	0	2	0	2	0	0	0	0	8
Total	4	21	0	25	4	0	9	13	0	10	1	11	0	0	0	0	49
Grand Total	26	56	0	82	12	0	28	40	0	38	7	45	0	0	0	0	167
Apprch %	31.7	68.3	0		30	0	70		0	84.4	15.6		0	0	0		
Total %	15.6	33.5	0	49.1	7.2	0	16.8	24	0	22.8	4.2	26.9	0	0	0	0	
Passenger Vehicles	26	56	0	82	12	0	28	40	0	35	7	42	0	0	0	0	164
% Passenger Vehicles	100	100	0	100	100	0	100	100	0	92.1	100	93.3	0	0	0	0	98.2
Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
% Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	7.9	0	6.7	0	0	0	0	1.8
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	4	7	0	11	0	0	1	1	0	7	**2**	9	0	0	0	0	21
01:15 PM	**13**	11	0	**24**	1	0	2	3	0	4	2	6	0	0	0	0	33
01:30 PM	0	**12**	0	12	**6**	0	**15**	**21**	0	**10**	2	**12**	0	0	0	0	**45**
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total Volume	22	35	0	57	8	0	19	27	0	28	6	34	0	0	0	0	118
% App. Total	38.6	61.4	0		29.6	0	70.4		0	82.4	17.6		0	0	0		
PHF	.423	.729	.000	.594	.333	.000	.317	.321	.000	.700	.750	.708	.000	.000	.000	.000	.656

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:30 PM				01:00 PM				01:00 PM			
+0 mins.	4	7	0	11	**6**	0	**15**	**21**	0	7	**2**	9	0	0	0	0
+15 mins.	**13**	11	0	**24**	1	0	1	2	0	4	2	6	0	0	0	0
+30 mins.	0	**12**	0	12	1	0	1	2	0	**10**	2	**12**	0	0	0	0
+45 mins.	5	5	0	10	0	0	4	4	0	7	0	7	0	0	0	0
Total Volume	22	35	0	57	8	0	21	29	0	28	6	34	0	0	0	0
% App. Total	38.6	61.4	0		27.6	0	72.4		0	82.4	17.6		0	0	0	
PHF	.423	.729	.000	.594	.333	.000	.350	.345	.000	.700	.750	.708	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

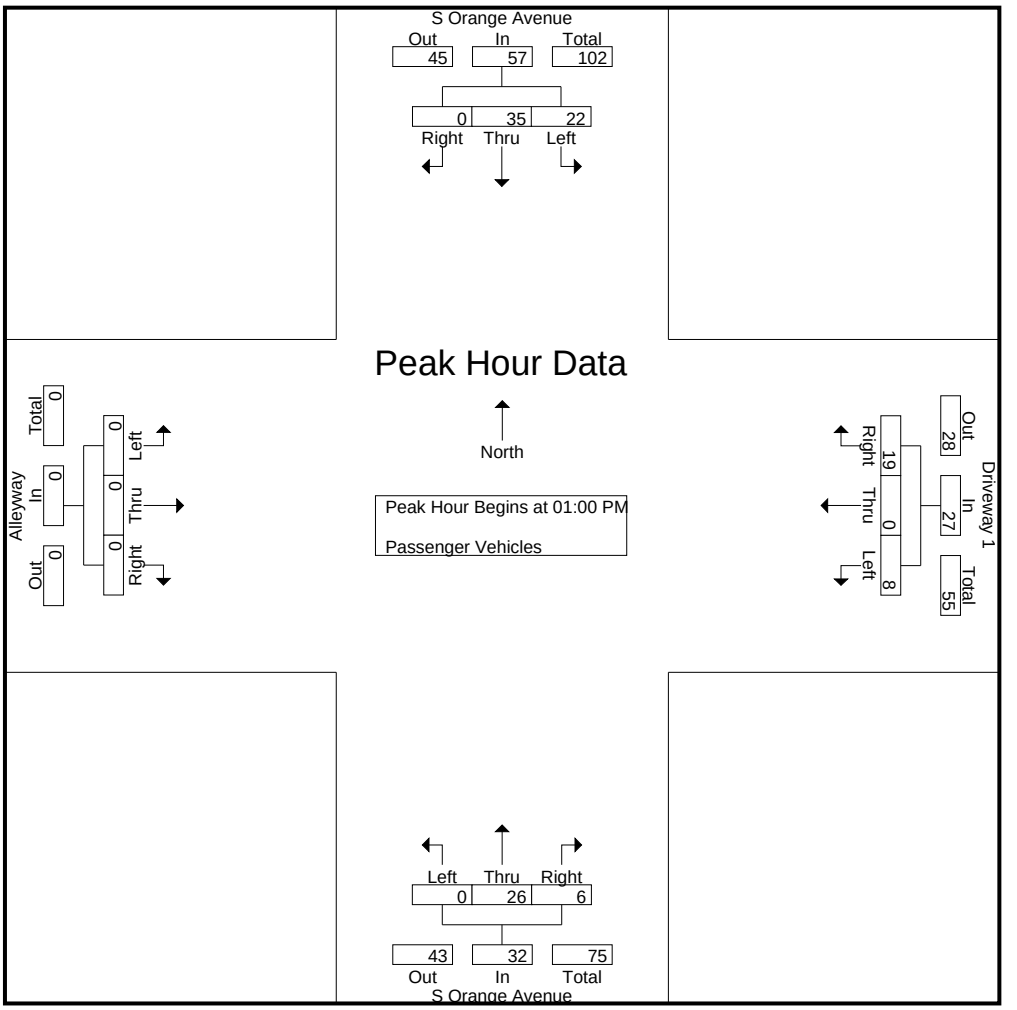
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	4	7	0	11	0	0	1	1	0	7	2	9	0	0	0	0	21
01:15 PM	13	11	0	24	1	0	2	3	0	3	2	5	0	0	0	0	32
01:30 PM	0	12	0	12	6	0	15	21	0	9	2	11	0	0	0	0	44
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total	22	35	0	57	8	0	19	27	0	26	6	32	0	0	0	0	116
02:00 PM	2	6	0	8	1	0	1	2	0	2	1	3	0	0	0	0	13
02:15 PM	1	5	0	6	0	0	4	4	0	4	0	4	0	0	0	0	14
02:30 PM	0	7	0	7	3	0	2	5	0	1	0	1	0	0	0	0	13
02:45 PM	1	3	0	4	0	0	2	2	0	2	0	2	0	0	0	0	8
Total	4	21	0	25	4	0	9	13	0	9	1	10	0	0	0	0	48
Grand Total	26	56	0	82	12	0	28	40	0	35	7	42	0	0	0	0	164
Apprch %	31.7	68.3	0		30	0	70		0	83.3	16.7		0	0	0		
Total %	15.9	34.1	0	50	7.3	0	17.1	24.4	0	21.3	4.3	25.6	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	4	7	0	11	0	0	1	1	0	7	**2**	9	0	0	0	0	21
01:15 PM	**13**	11	0	**24**	1	0	2	3	0	3	2	5	0	0	0	0	32
01:30 PM	0	**12**	0	12	**6**	0	**15**	**21**	0	**9**	2	**11**	0	0	0	0	**44**
01:45 PM	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0	19
Total Volume	22	35	0	57	8	0	19	27	0	26	6	32	0	0	0	0	116
% App. Total	38.6	61.4	0		29.6	0	70.4		0	81.2	18.8		0	0	0		
PHF	.423	.729	.000	.594	.333	.000	.317	.321	.000	.722	.750	.727	.000	.000	.000	.000	.659

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	4	7	0	11	0	0	1	1	0	7	**2**	9	0	0	0	0
+15 mins.	**13**	11	0	**24**	1	0	2	3	0	3	2	5	0	0	0	0
+30 mins.	0	**12**	0	12	**6**	0	**15**	**21**	0	**9**	2	**11**	0	0	0	0
+45 mins.	5	5	0	10	1	0	1	2	0	7	0	7	0	0	0	0
Total Volume	22	35	0	57	8	0	19	27	0	26	6	32	0	0	0	0
% App. Total	38.6	61.4	0		29.6	0	70.4		0	81.2	18.8		0	0	0	
PHF	.423	.729	.000	.594	.333	.000	.317	.321	.000	.722	.750	.727	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

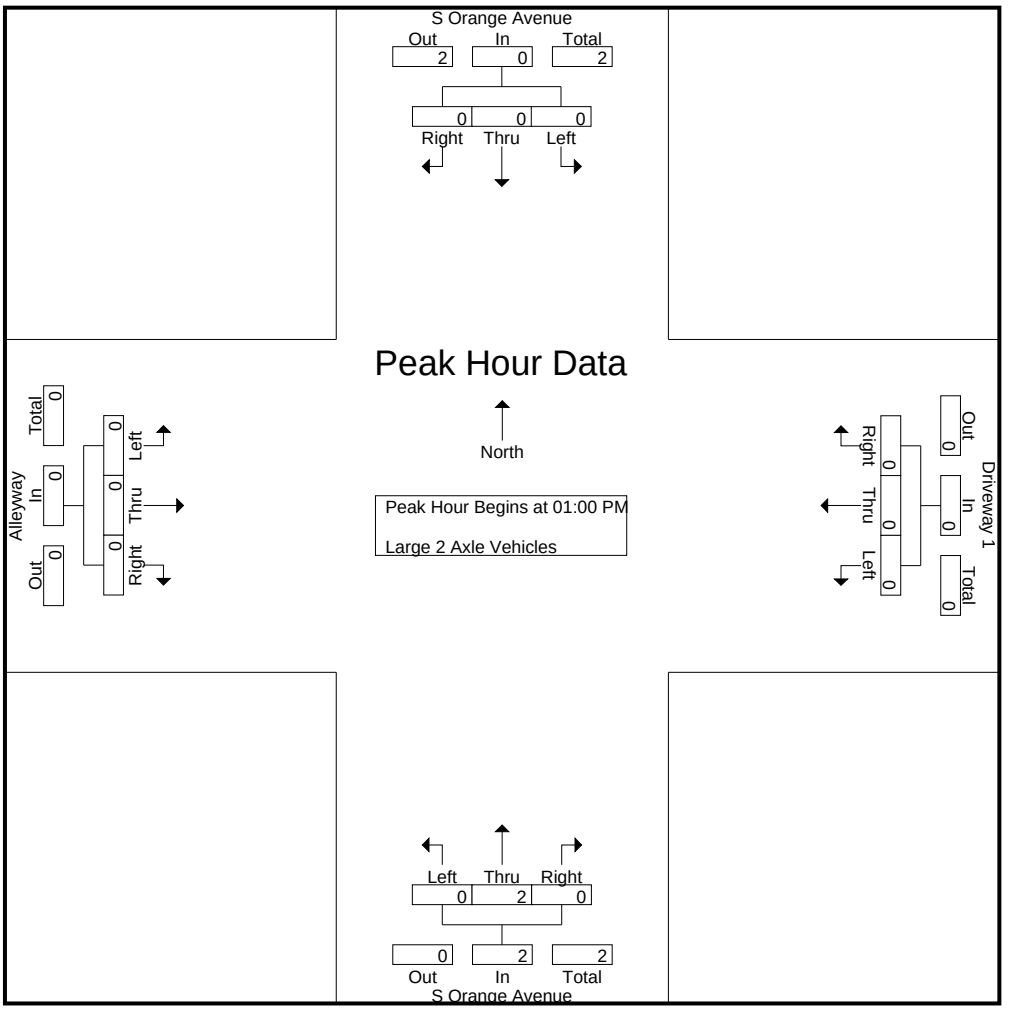
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
01:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.500

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022

Groups Printed- 3 Axle Vehicles

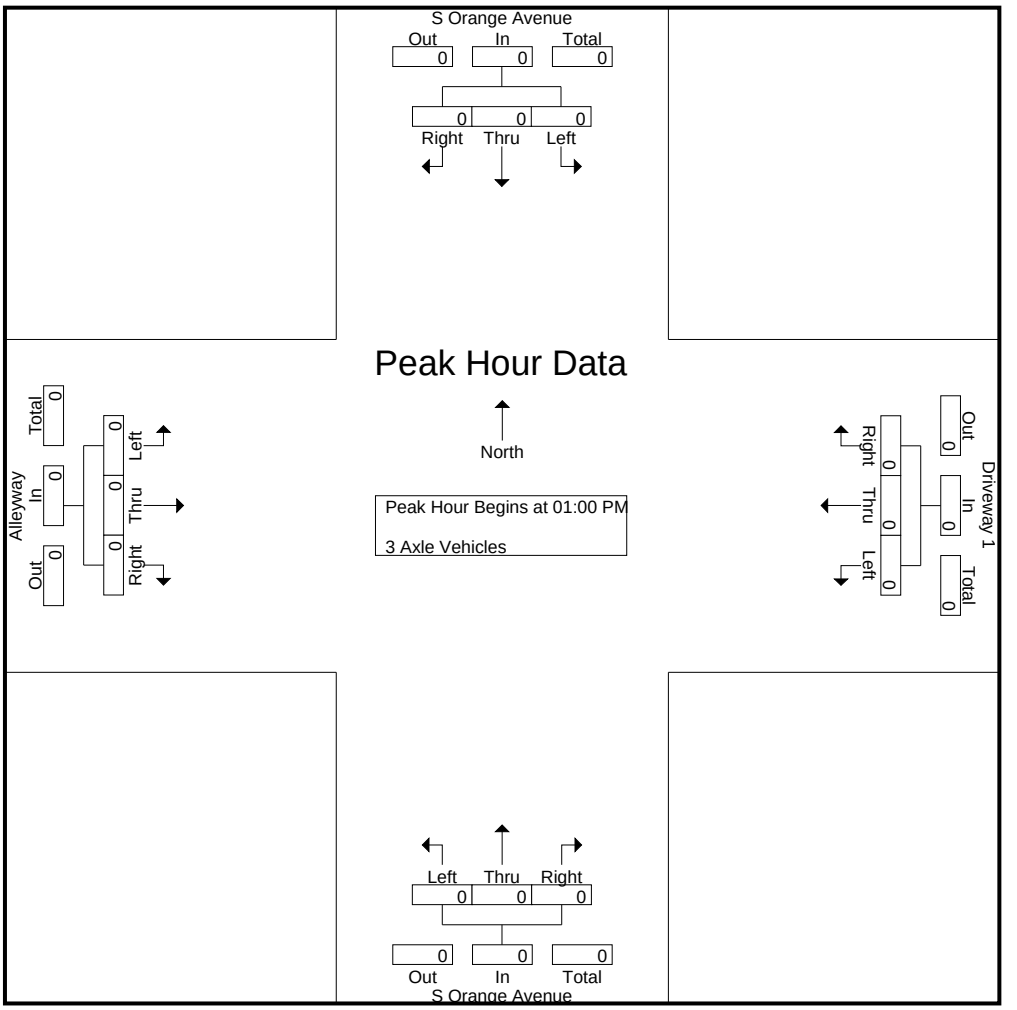
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022

Groups Printed- 4+ Axle Trucks

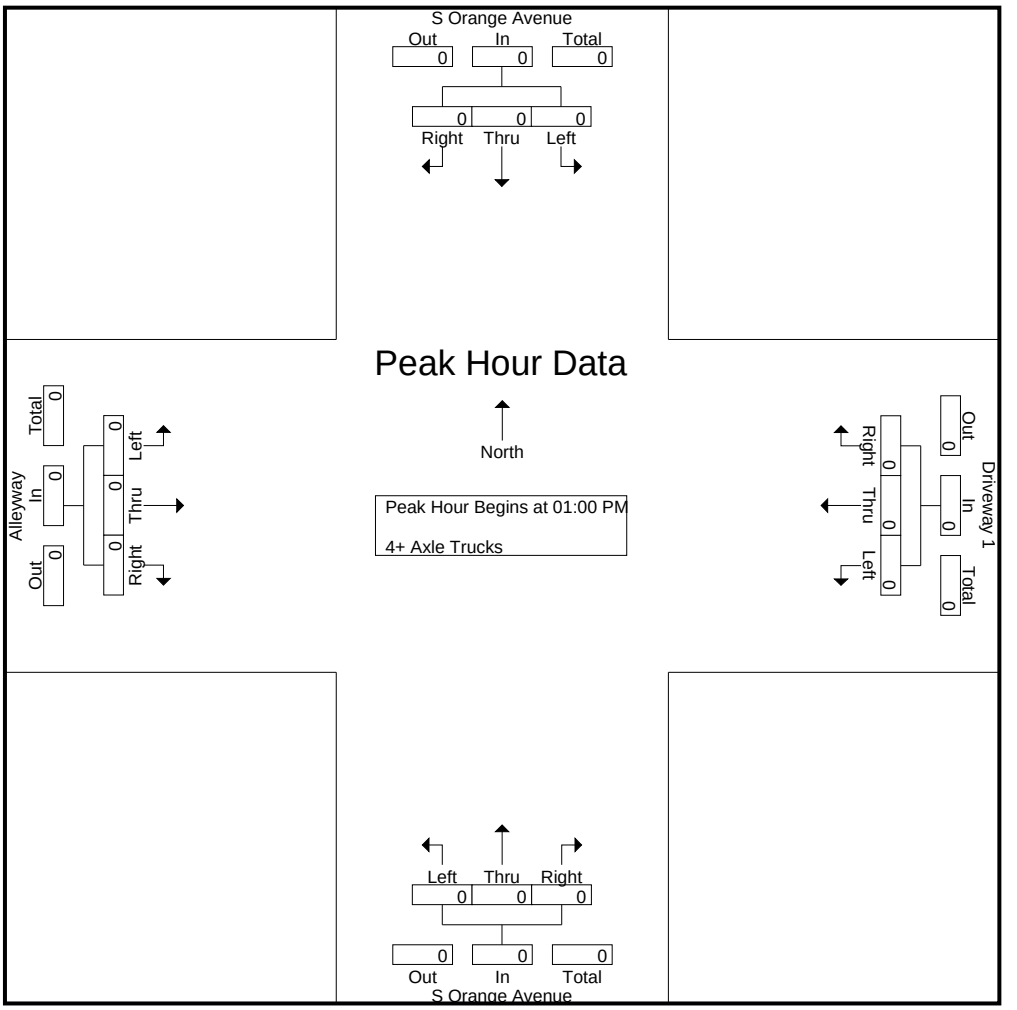
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:00 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

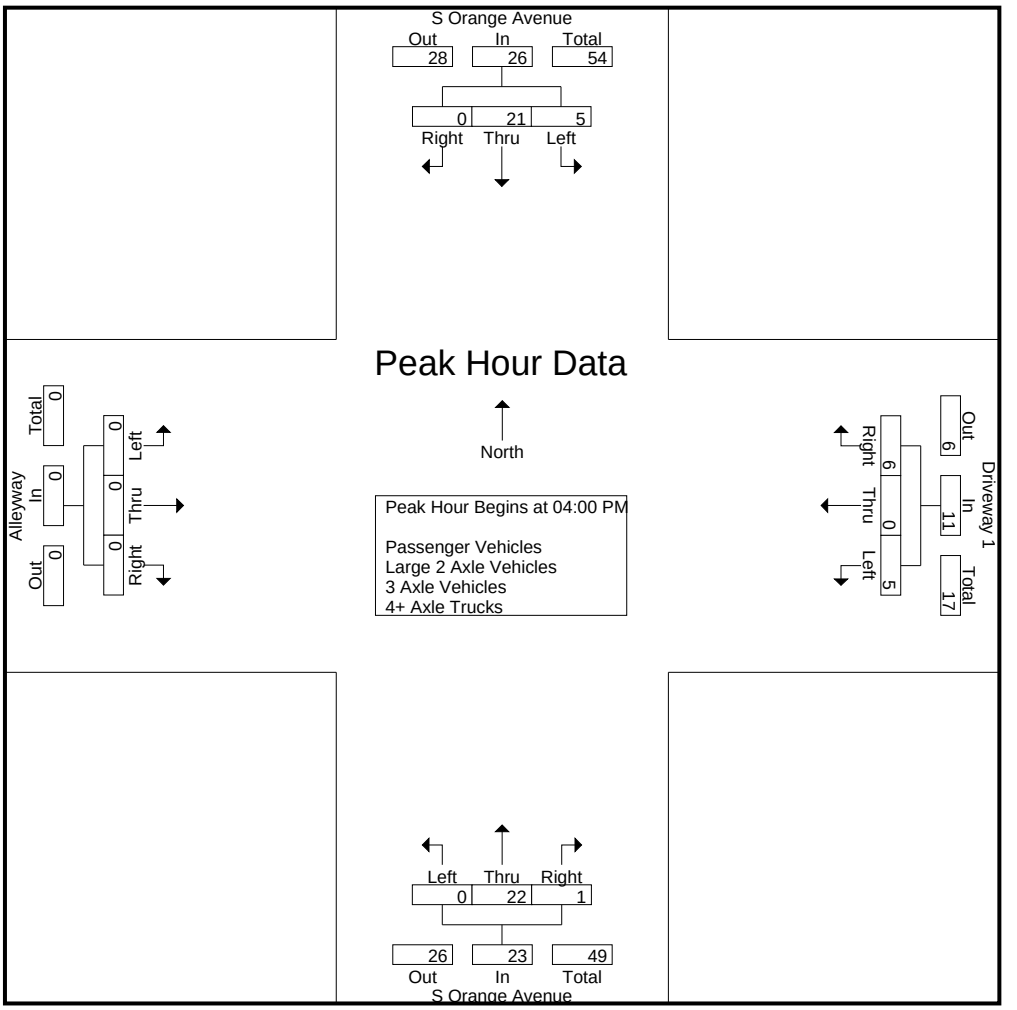
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	4	0	5	1	0	2	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	2	0	2	4	0	5	0	5	0	0	0	0	14
04:30 PM	2	7	0	9	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	11	1	12	0	0	0	0	21
Total	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
05:00 PM	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	5
05:15 PM	1	7	0	8	0	0	0	0	0	3	0	3	0	0	0	0	11
05:30 PM	1	5	0	6	0	0	2	2	0	6	0	6	0	0	0	0	14
05:45 PM	1	6	0	7	1	0	2	3	0	5	0	5	0	0	0	0	15
Total	3	19	0	22	1	0	4	5	0	18	0	18	0	0	0	0	45
Grand Total	8	40	0	48	6	0	10	16	0	40	1	41	0	0	0	0	105
Apprch %	16.7	83.3	0		37.5	0	62.5		0	97.6	2.4		0	0	0		
Total %	7.6	38.1	0	45.7	5.7	0	9.5	15.2	0	38.1	1	39	0	0	0	0	
Passenger Vehicles	8	40	0	48	6	0	10	16	0	40	1	41	0	0	0	0	105
% Passenger Vehicles	100	100	0	100	100	0	100	100	0	100	100	100	0	0	0	0	100
Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	4	0	5	1	0	**2**	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	**2**	0	2	**4**	0	5	0	5	0	0	0	0	14
04:30 PM	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	**11**	**1**	**12**	0	0	0	0	**21**
Total Volume	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
% App. Total	19.2	80.8	0		45.5	0	54.5		0	95.7	4.3		0	0	0		
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.500	.250	.479	.000	.000	.000	.000	.714

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
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:

	04:00 PM				04:00 PM				04:45 PM				04:00 PM			
+0 mins.	1	4	0	5	1	0	**2**	3	0	**11**	**1**	**12**	0	0	0	0
+15 mins.	1	4	0	5	**2**	0	2	**4**	0	4	0	4	0	0	0	0
+30 mins.	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0
+45 mins.	1	6	0	7	1	0	1	2	0	6	0	6	0	0	0	0
Total Volume	5	21	0	26	5	0	6	11	0	24	1	25	0	0	0	0
% App. Total	19.2	80.8	0		45.5	0	54.5		0	96	4		0	0	0	
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.545	.250	.521	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

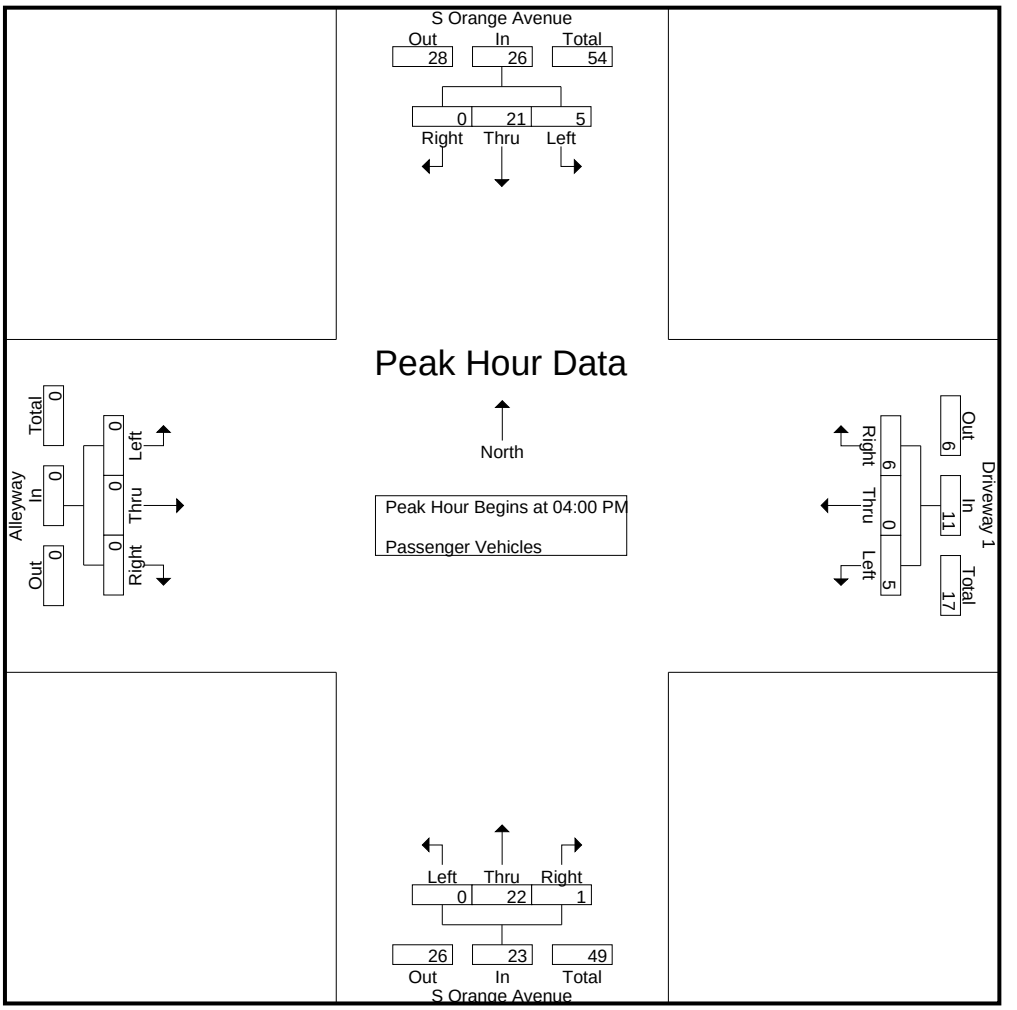
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	4	0	5	1	0	2	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	2	0	2	4	0	5	0	5	0	0	0	0	14
04:30 PM	2	7	0	9	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	11	1	12	0	0	0	0	21
Total	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
05:00 PM	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	5
05:15 PM	1	7	0	8	0	0	0	0	0	3	0	3	0	0	0	0	11
05:30 PM	1	5	0	6	0	0	2	2	0	6	0	6	0	0	0	0	14
05:45 PM	1	6	0	7	1	0	2	3	0	5	0	5	0	0	0	0	15
Total	3	19	0	22	1	0	4	5	0	18	0	18	0	0	0	0	45
Grand Total	8	40	0	48	6	0	10	16	0	40	1	41	0	0	0	0	105
Apprch %	16.7	83.3	0		37.5	0	62.5		0	97.6	2.4		0	0	0		
Total %	7.6	38.1	0	45.7	5.7	0	9.5	15.2	0	38.1	1	39	0	0	0	0	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	4	0	5	1	0	**2**	3	0	3	0	3	0	0	0	0	11
04:15 PM	1	4	0	5	**2**	0	2	**4**	0	5	0	5	0	0	0	0	14
04:30 PM	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0	14
04:45 PM	1	6	0	7	1	0	1	2	0	**11**	**1**	**12**	0	0	0	0	**21**
Total Volume	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0	60
% App. Total	19.2	80.8	0		45.5	0	54.5		0	95.7	4.3		0	0	0		
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.500	.250	.479	.000	.000	.000	.000	.714

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	1	4	0	5	1	0	**2**	3	0	3	0	3	0	0	0	0
+15 mins.	1	4	0	5	**2**	0	2	**4**	0	5	0	5	0	0	0	0
+30 mins.	**2**	**7**	0	**9**	1	0	1	2	0	3	0	3	0	0	0	0
+45 mins.	1	6	0	7	1	0	1	2	0	**11**	**1**	**12**	0	0	0	0
Total Volume	5	21	0	26	5	0	6	11	0	22	1	23	0	0	0	0
% App. Total	19.2	80.8	0		45.5	0	54.5		0	95.7	4.3		0	0	0	
PHF	.625	.750	.000	.722	.625	.000	.750	.688	.000	.500	.250	.479	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

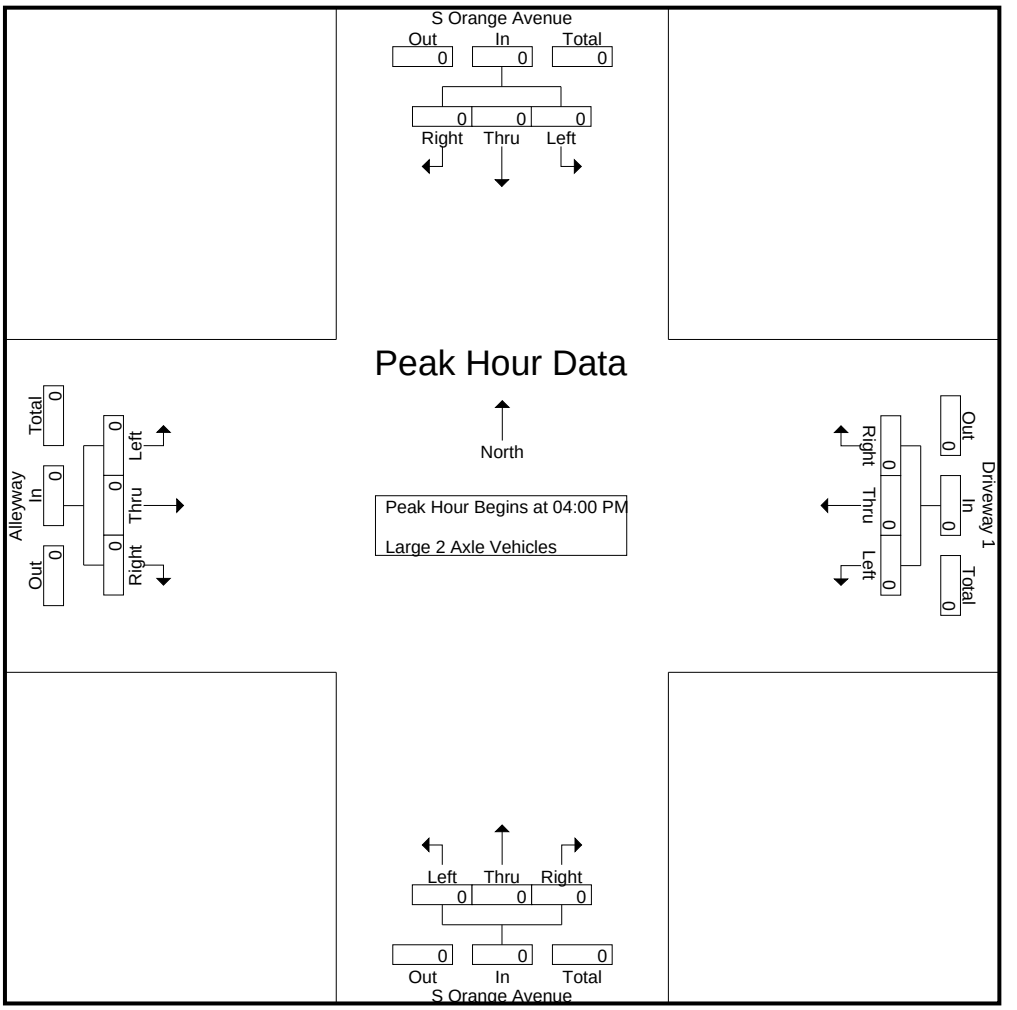
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

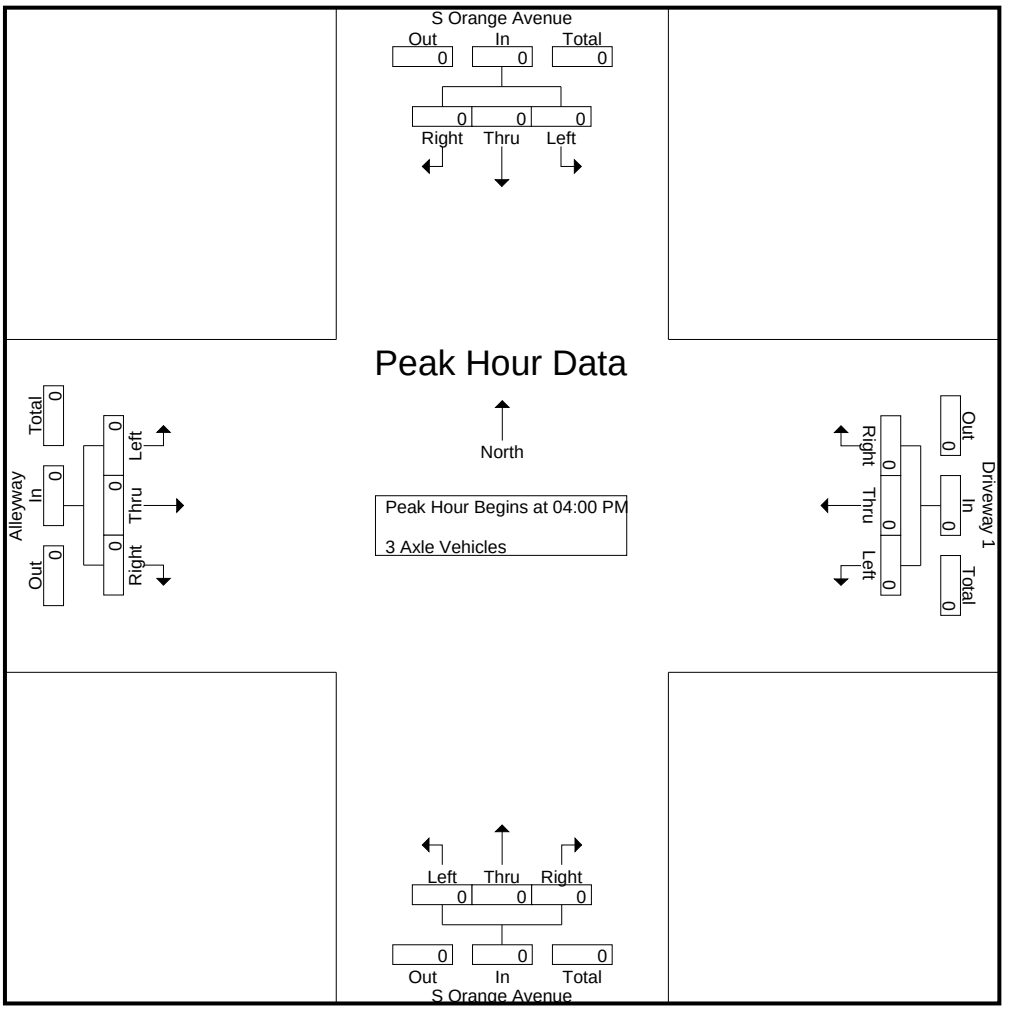
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

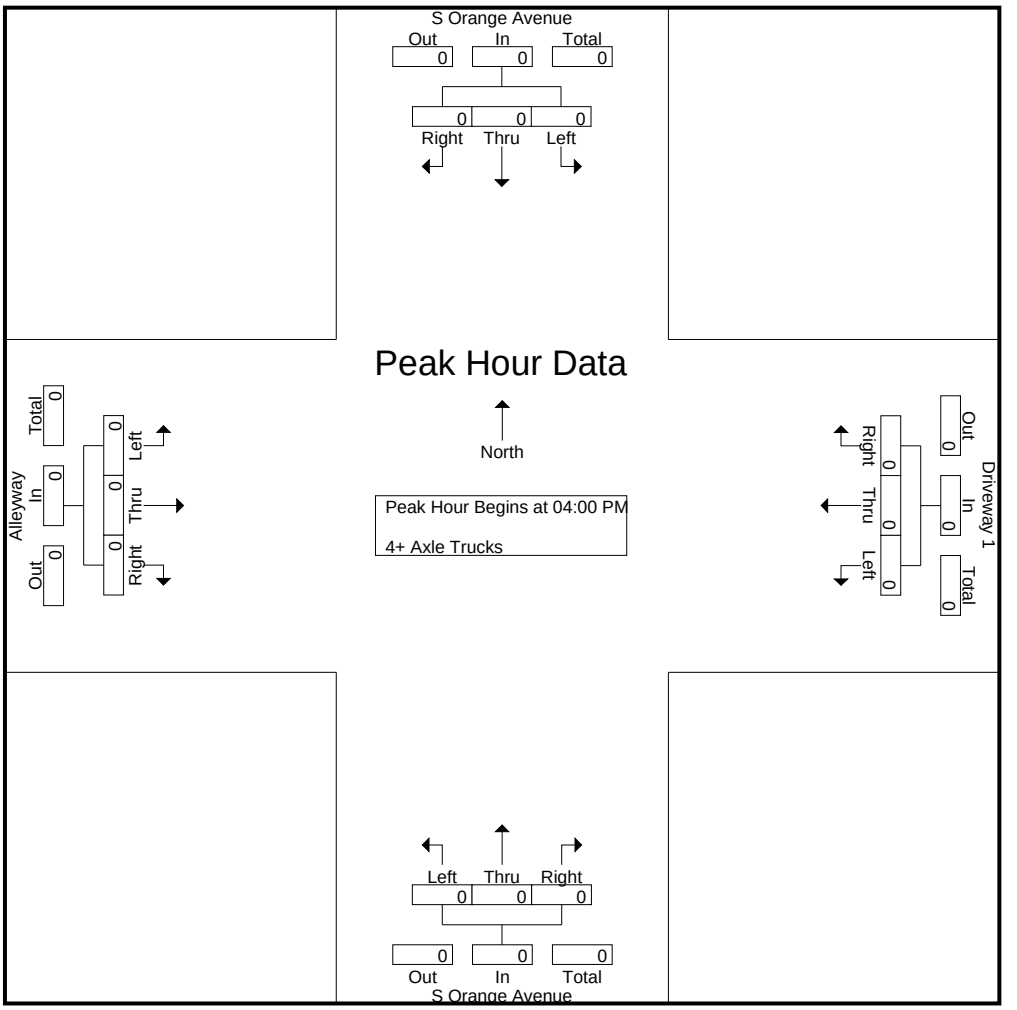
	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Orange Avenue Southbound				Driveway 1 Westbound				S Orange Avenue Northbound				Alleyway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Orange Avenue
E/W: Driveway 1
Weather: Clear

File Name : 03_BRE_Org_DW1 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Brea
N/S: S Orange Avenue
E/W: Driveway 1

Date: 9/20/2022
Day: Tuesday

PEDESTRIANS

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway 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	1	0	0	1
8:00 AM	0	0	2	0	2
8:15 AM	2	2	0	0	4
8:30 AM	0	0	1	0	1
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	2	5	3	0	10

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway Pedestrians	
1:00 PM	1	1	0	0	2
1:15 PM	1	3	0	0	4
1:30 PM	0	1	1	0	2
1:45 PM	1	1	0	0	2
2:00 PM	0	0	0	0	0
2:15 PM	0	1	0	0	1
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL VOLUMES:	3	7	1	0	11

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway 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	1	1	0	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:	1	1	0	0	2

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951-268-6268

Location: Brea
N/S: S Orange Avenue
E/W: Driveway 1

Date: 9/20/2022
Day: Tuesday

BICYCLES

	Southbound S Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	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	2	0	0	0	0	2
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	2	0	0	0	0	2

	Southbound S Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	1	0	0	0	0	0	0	1

	Southbound S Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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951-268-6268

Location: Brea
N/S: S Orange Avenue
E/W: Driveway 1

Date: 9/21/2022
Day: Wednesday

PEDESTRIANS

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	1	0	2	0	3
7:45 AM	1	1	4	0	6
8:00 AM	4	2	1	0	7
8:15 AM	1	1	1	0	3
8:30 AM	0	1	0	0	1
8:45 AM	1	1	0	0	2
TOTAL VOLUMES:	8	7	8	0	23

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway Pedestrians	
1:00 PM	0	0	1	0	1
1:15 PM	3	1	0	0	4
1:30 PM	0	0	6	0	6
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	1	0	0	0	1
2:30 PM	1	1	0	0	2
2:45 PM	0	0	0	0	0
TOTAL VOLUMES:	5	2	7	0	14

	North Leg S Orange Avenue Pedestrians	East Leg Driveway 1 Pedestrians	South Leg S Orange Avenue Pedestrians	West Leg Alleyway Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Brea
N/S: S Orange Avenue
E/W: Driveway 1

Date: 9/21/2022
Day: Wednesday

BICYCLES

	Southbound S Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	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 Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	1	0	0	0	1

	Southbound S Orange Avenue			Westbound Driveway 1			Northbound S Orange Avenue			Eastbound Alleyway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

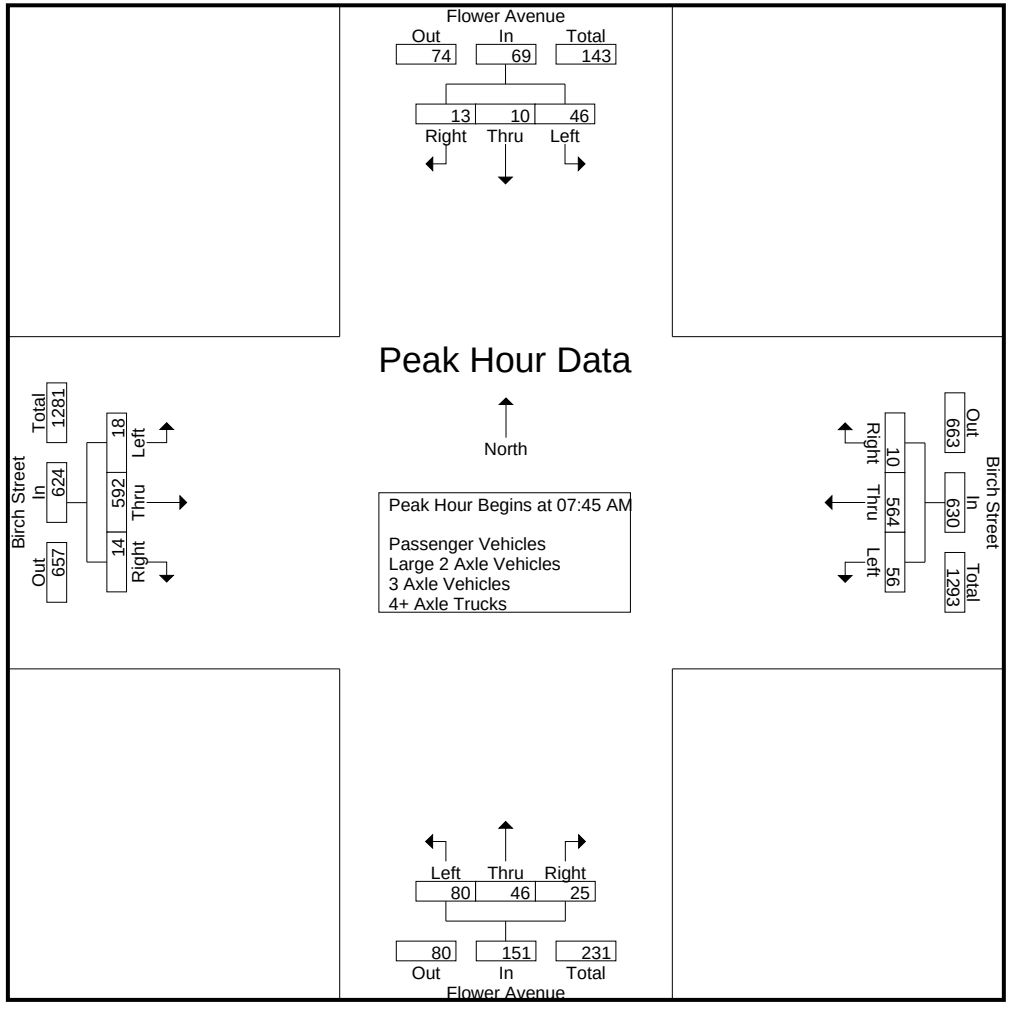
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	7	6	0	0	13	9	55	0	0	64	1	2	4	2	7	1	54	3	1	58	3	142	145
07:15 AM	4	0	0	0	4	23	83	2	1	108	2	2	11	5	15	2	64	3	1	69	7	196	203
07:30 AM	5	1	1	0	7	12	81	2	0	95	16	7	3	1	26	3	68	7	3	78	4	206	210
07:45 AM	12	4	2	0	18	18	131	4	0	153	55	27	1	0	83	6	161	11	1	178	1	432	433
Total	28	11	3	0	42	62	350	8	1	420	74	38	19	8	131	12	347	24	6	383	15	976	991
08:00 AM	15	3	5	4	23	8	154	4	0	166	21	14	3	0	38	2	162	2	0	166	4	393	397
08:15 AM	8	2	4	2	14	19	147	0	0	166	3	3	10	7	16	6	136	1	0	143	9	339	348
08:30 AM	11	1	2	1	14	11	132	2	0	145	1	2	11	6	14	4	133	0	0	137	7	310	317
08:45 AM	5	0	0	0	5	19	132	2	1	153	1	1	14	7	16	1	161	5	1	167	9	341	350
Total	39	6	11	7	56	57	565	8	1	630	26	20	38	20	84	13	592	8	1	613	29	1383	1412
Grand Total	67	17	14	7	98	119	915	16	2	1050	100	58	57	28	215	25	939	32	7	996	44	2359	2403
Apprch %	68.4	17.3	14.3			11.3	87.1	1.5			46.5	27	26.5			2.5	94.3	3.2					
Total %	2.8	0.7	0.6		4.2	5	38.8	0.7		44.5	4.2	2.5	2.4		9.1	1.1	39.8	1.4		42.2	1.8	98.2	
Passenger Vehicles	66	17	14		104	119	898	16		1035	99	56	54		235	23	919	32		981	0	0	2355
% Passenger Vehicles	98.5	100	100	100	99	100	98.1	100	100	98.4	99	96.6	94.7	92.9	96.7	92	97.9	100	100	97.8	0	0	98
Large 2 Axle Vehicles	1	0	0		1	0	16	0		16	1	2	2		6	2	18	0		20	0	0	43
% Large 2 Axle Vehicles	1.5	0	0	0	1	0	1.7	0	0	1.5	1	3.4	3.5	3.6	2.5	8	1.9	0	0	2	0	0	1.8
3 Axle Vehicles	0	0	0		0	0	1	0		1	0	0	1		2	0	1	0		1	0	0	4
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	0	0	0.1	0	0	1.8	3.6	0.8	0	0.1	0	0	0.1	0	0	0.2
4+ Axle Trucks	0	0	0		0	0	0	0		0	0	0	0		0	0	1	0		1	0	0	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM																	
07:45 AM	12	**4**	2	18	18	131	**4**	153	**55**	**27**	1	**83**	**6**	161	**11**	**178**	**432**
08:00 AM	**15**	3	**5**	**23**	8	**154**	4	**166**	21	14	3	38	2	**162**	2	166	393
08:15 AM	8	2	4	14	**19**	147	0	166	3	3	10	16	6	136	1	143	339
08:30 AM	11	1	2	14	11	132	2	145	1	2	**11**	14	4	133	0	137	310
Total Volume	46	10	13	69	56	564	10	630	80	46	25	151	18	592	14	624	1474
% App. Total	66.7	14.5	18.8		8.9	89.5	1.6		53	30.5	16.6		2.9	94.9	2.2		
PHF	.767	.625	.650	.750	.737	.916	.625	.949	.364	.426	.568	.455	.750	.914	.318	.876	.853

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:30 AM				07:45 AM				
+0 mins.	12	**4**	2	18	18	131	**4**	153	16	7	3	26	**6**	161	**11**	**178**	
+15 mins.	**15**	3	**5**	**23**	8	**154**	4	**166**	**55**	**27**	1	**83**	2	**162**	2	166	
+30 mins.	8	2	4	14	**19**	147	0	166	21	14	3	38	6	136	1	143	
+45 mins.	11	1	2	14	11	132	2	145	3	3	**10**	16	4	133	0	137	
Total Volume	46	10	13	69	56	564	10	630	95	51	17	163	18	592	14	624	
% App. Total	66.7	14.5	18.8		8.9	89.5	1.6		58.3	31.3	10.4		2.9	94.9	2.2		
PHF	.767	.625	.650	.750	.737	.916	.625	.949	.432	.472	.425	.491	.750	.914	.318	.876	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

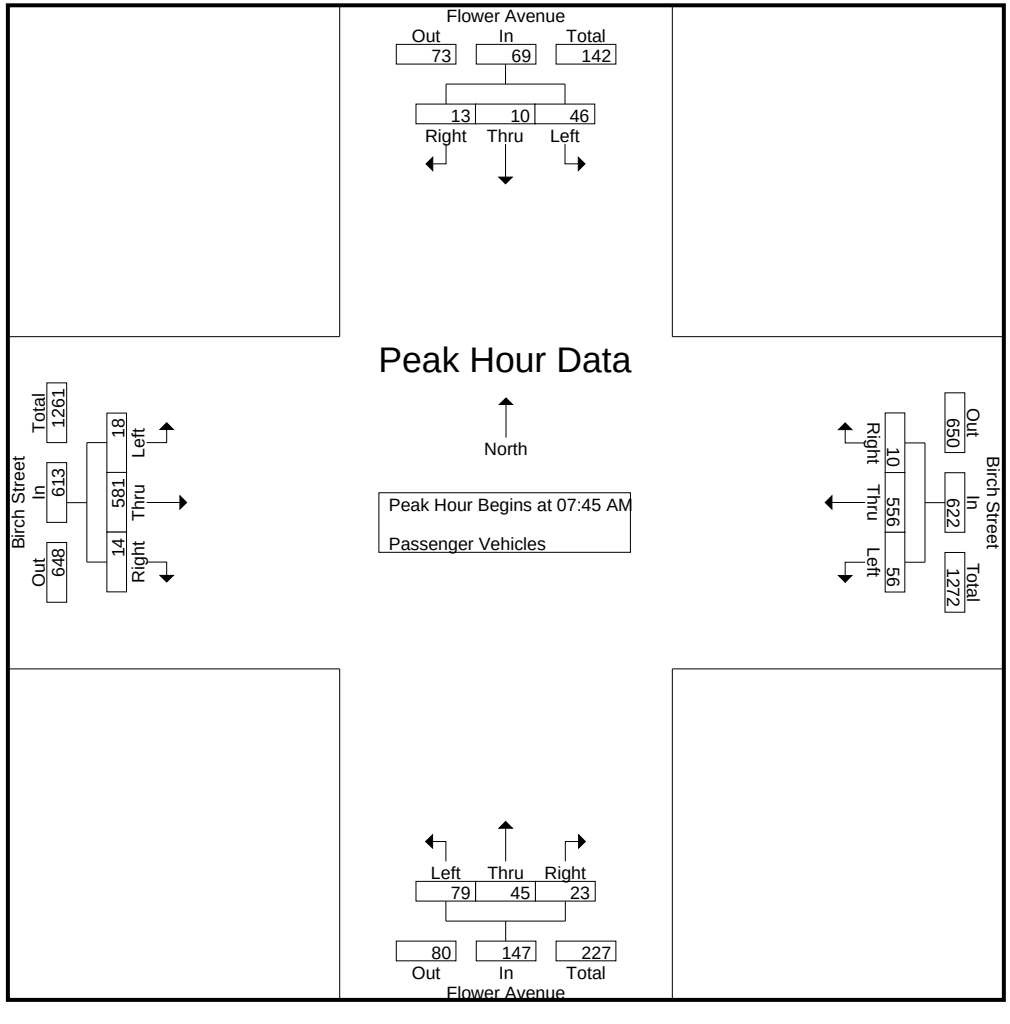
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	6	6	0	0	12	9	55	0	0	64	1	2	4	2	7	0	51	3	1	54	3	137	140
07:15 AM	4	0	0	0	4	23	81	2	1	106	2	1	11	5	14	2	62	3	1	67	7	191	198
07:30 AM	5	1	1	0	7	12	78	2	0	92	16	7	3	1	26	3	67	7	3	77	4	202	206
07:45 AM	12	4	2	0	18	18	130	4	0	152	55	26	1	0	82	6	161	11	1	178	1	430	431
Total	27	11	3	0	41	62	344	8	1	414	74	36	19	8	129	11	341	24	6	376	15	960	975
08:00 AM	15	3	5	4	23	8	149	4	0	161	20	14	3	0	37	2	160	2	0	164	4	385	389
08:15 AM	8	2	4	2	14	19	145	0	0	164	3	3	9	6	15	6	129	1	0	136	8	329	337
08:30 AM	11	1	2	1	14	11	132	2	0	145	1	2	10	5	13	4	131	0	0	135	6	307	313
08:45 AM	5	0	0	0	5	19	128	2	1	149	1	1	13	7	15	0	158	5	1	163	9	332	341
Total	39	6	11	7	56	57	554	8	1	619	25	20	35	18	80	12	578	8	1	598	27	1353	1380
Grand Total	66	17	14	7	97	119	898	16	2	1033	99	56	54	26	209	23	919	32	7	974	42	2313	2355
Apprch %	68	17.5	14.4			11.5	86.9	1.5			47.4	26.8	25.8			2.4	94.4	3.3					
Total %	2.9	0.7	0.6		4.2	5.1	38.8	0.7		44.7	4.3	2.4	2.3		9	1	39.7	1.4		42.1	1.8	98.2	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	12	**4**	2	18	18	130	**4**	152	**55**	**26**	1	**82**	**6**	**161**	**11**	**178**	**430**
08:00 AM	**15**	3	**5**	**23**	8	**149**	4	161	20	14	3	37	2	160	2	164	385
08:15 AM	8	2	4	14	**19**	145	0	**164**	3	3	9	15	6	129	1	136	329
08:30 AM	11	1	2	14	11	132	2	145	1	2	**10**	13	4	131	0	135	307
Total Volume	46	10	13	69	56	556	10	622	79	45	23	147	18	581	14	613	1451
% App. Total	66.7	14.5	18.8		9	89.4	1.6		53.7	30.6	15.6		2.9	94.8	2.3		
PHF	.767	.625	.650	.750	.737	.933	.625	.948	.359	.433	.575	.448	.750	.902	.318	.861	.844

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
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File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	12	**4**	2	18	18	130	**4**	152	**55**	**26**	1	**82**	**6**	**161**	**11**	**178**	
+15 mins.	**15**	3	**5**	**23**	8	**149**	4	161	20	14	3	37	2	160	2	164	
+30 mins.	8	2	4	14	**19**	145	0	**164**	3	3	9	15	6	129	1	136	
+45 mins.	11	1	2	14	11	132	2	145	1	2	**10**	13	4	131	0	135	
Total Volume	46	10	13	69	56	556	10	622	79	45	23	147	18	581	14	613	
% App. Total	66.7	14.5	18.8		9	89.4	1.6		53.7	30.6	15.6		2.9	94.8	2.3		
PHF	.767	.625	.650	.750	.737	.933	.625	.948	.359	.433	.575	.448	.750	.902	.318	.861	

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City of Brea
N/S: Flower Avenue
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File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

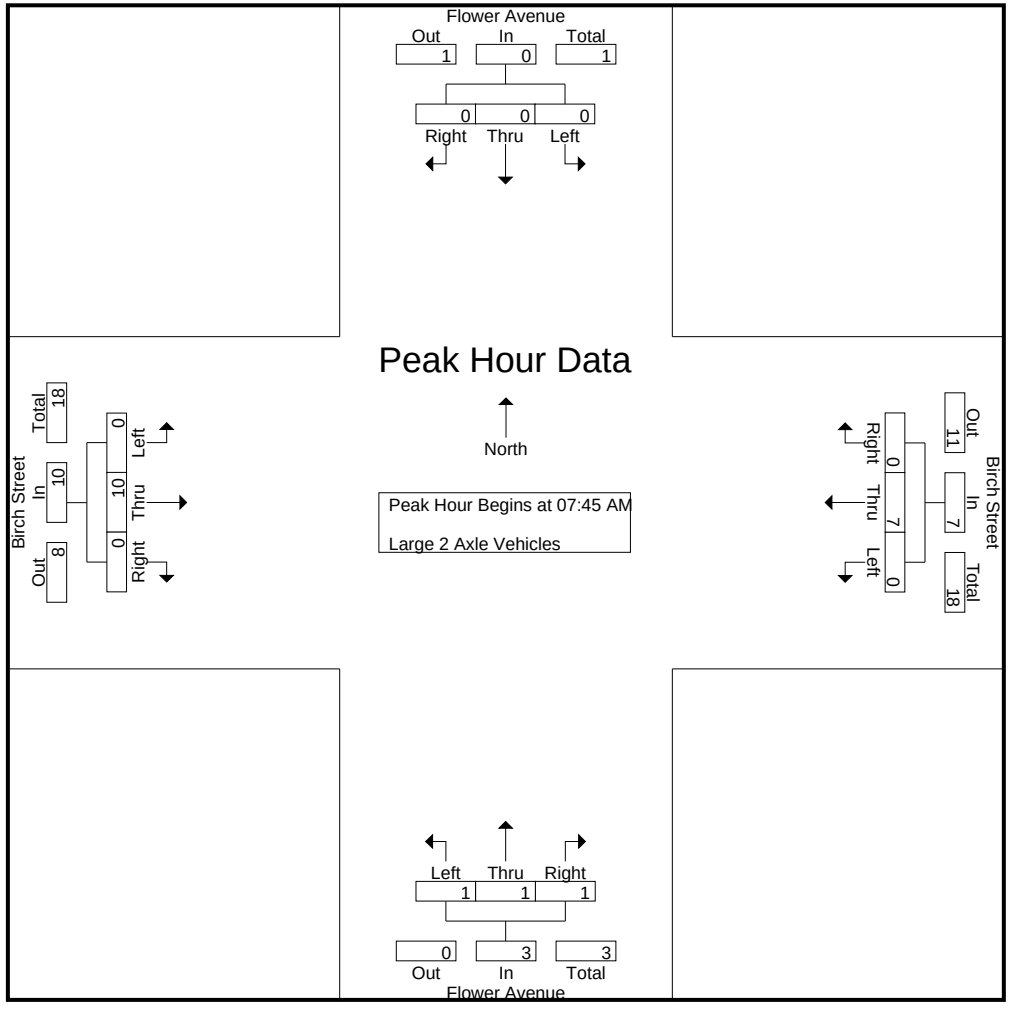
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	5	5
07:15 AM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	2	0	0	2	0	5	5
07:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Total	1	0	0	0	1	0	5	0	0	5	0	2	0	0	2	1	6	0	0	7	0	15	15
08:00 AM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	2	0	0	2	0	8	8
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	0	0	6	0	8	8
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	2	0	0	2	1	3	4
08:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	2	0	0	3	0	8	8
Total	0	0	0	0	0	0	11	0	0	11	1	0	2	1	3	1	12	0	0	13	1	27	28
Grand Total	1	0	0	0	1	0	16	0	0	16	1	2	2	1	5	2	18	0	0	20	1	42	43
Apprch %	100	0	0			0	100	0			20	40	40			10	90	0					
Total %	2.4	0	0		2.4	0	38.1	0		38.1	2.4	4.8	4.8		11.9	4.8	42.9	0		47.6	2.3	97.7	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
08:00 AM	0	0	0	0	0	**5**	0	**5**	**1**	0	0	1	0	2	0	2	**8**
08:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	**6**	0	**6**	8
08:30 AM	0	0	0	0	0	0	0	0	0	0	**1**	1	0	2	0	2	3
Total Volume	0	0	0	0	0	7	0	7	1	1	1	3	0	10	0	10	20
% App. Total	0	0	0		0	100	0		33.3	33.3	33.3		0	100	0		
PHF	.000	.000	.000	.000	.000	.350	.000	.350	.250	.250	.250	.750	.000	.417	.000	.417	.625

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City of Brea
N/S: Flower Avenue
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Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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N/S: Flower Avenue
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Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	
+15 mins.	0	0	0	0	0	**5**	0	**5**	**1**	0	0	1	0	2	0	2	
+30 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	**6**	0	**6**	
+45 mins.	0	0	0	0	0	0	0	0	0	0	**1**	1	0	2	0	2	
Total Volume	0	0	0	0	0	7	0	7	1	1	1	3	0	10	0	10	
% App. Total	0	0	0		0	100	0		33.3	33.3	33.3		0	100	0		
PHF	.000	.000	.000	.000	.000	.350	.000	.350	.250	.250	.250	.750	.000	.417	.000	.417	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

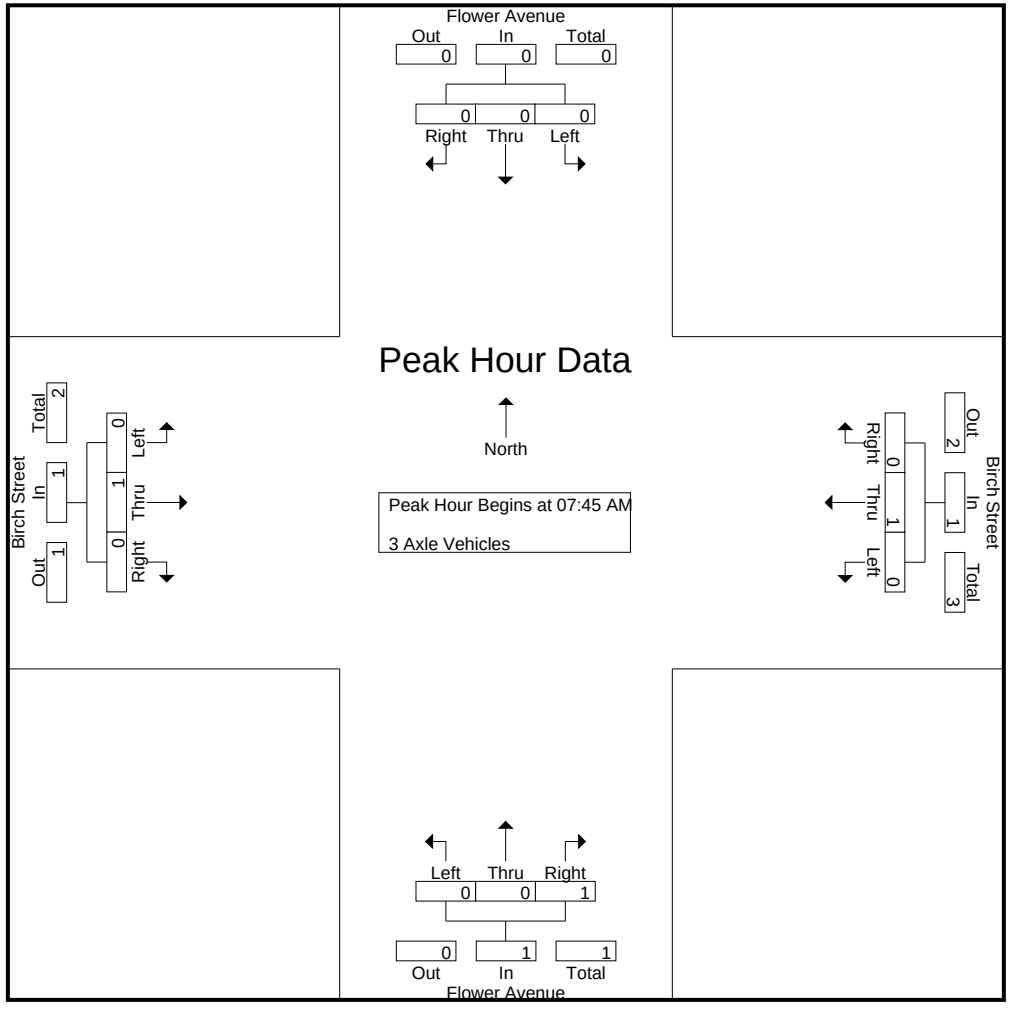
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	1	2	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	1	2	3
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0	0	1	1	3	4
Apprch %	0	0	0			0	100	0			0	0	100			0	100	0					
Total %	0	0	0		0	0	33.3	0		33.3	0	0	33.3		33.3	0	33.3	0		33.3	25	75	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	**1**	0	**1**	**2**
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	1	1	0	1	0	1	3
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.250	.250	.000	.250	.000	.250	.375

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
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File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	**1**	0	**1**	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	1	0	1	0	0	1	1	0	1	0	1	
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.250	.250	.000	.250	.000	.250	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

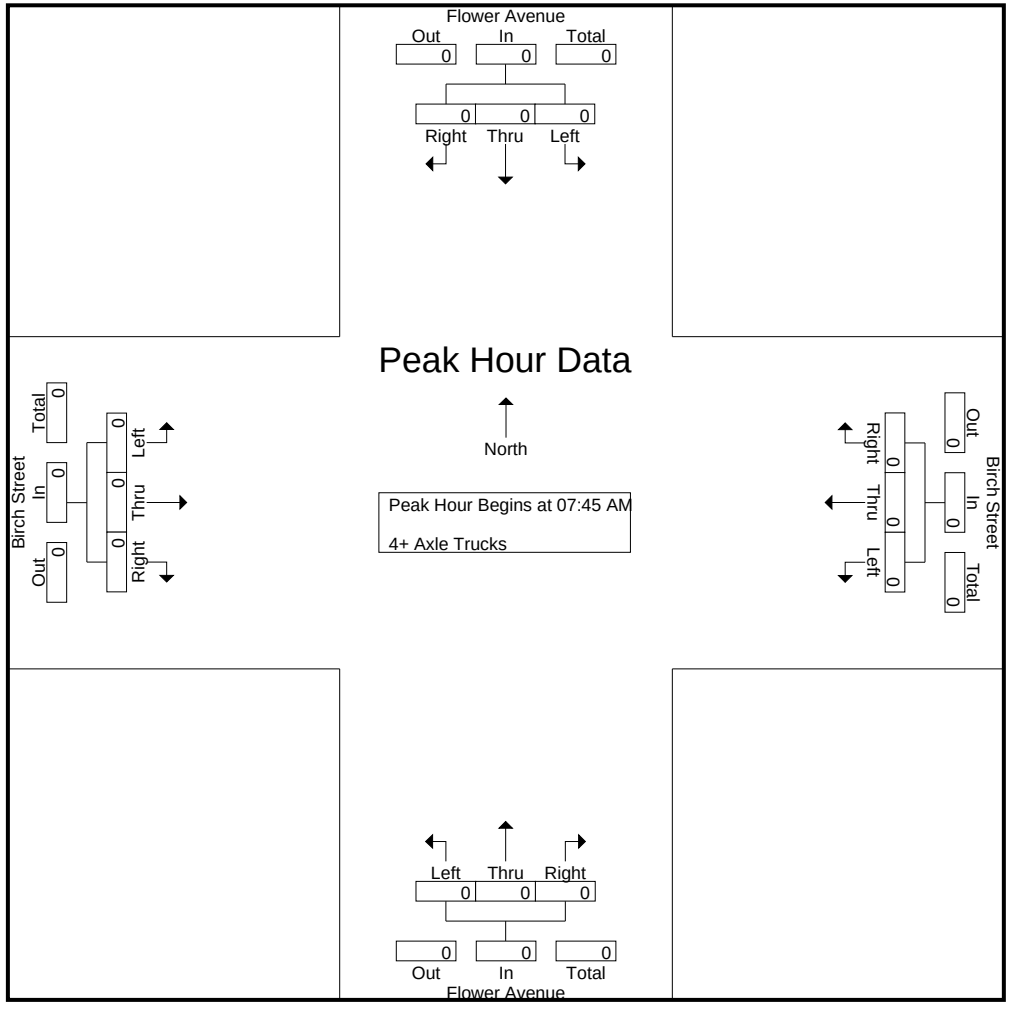
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Apprch %	0	0	0			0	0	0			0	0	0			0	100	0					
Total %	0	0	0		0	0	0	0		0	0	0	0		0	0	100	0		100	0	100	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch AM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

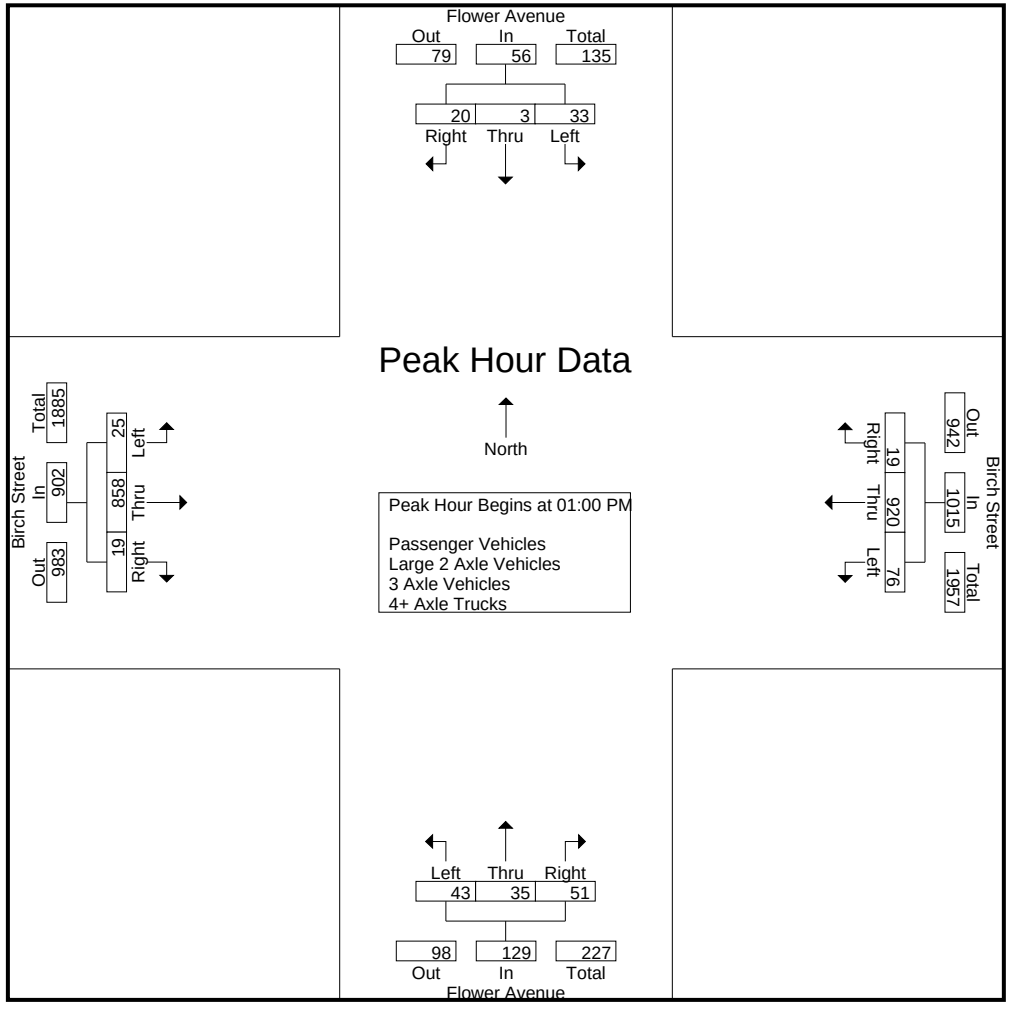
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	3	3	7	5	13	18	181	6	0	205	5	5	12	11	22	7	185	1	0	193	16	433	449
12:15 PM	7	2	7	3	16	13	215	5	1	233	2	3	14	10	19	5	165	2	0	172	14	440	454
12:30 PM	8	1	5	1	14	16	237	3	0	256	4	1	9	5	14	5	181	1	0	187	6	471	477
12:45 PM	4	0	3	1	7	20	196	5	0	221	5	4	18	13	27	7	184	5	0	196	14	451	465
Total	22	6	22	10	50	67	829	19	1	915	16	13	53	39	82	24	715	9	0	748	50	1795	1845
01:00 PM	9	0	1	1	10	23	201	5	1	229	5	4	14	9	23	8	198	3	0	209	11	471	482
01:15 PM	6	1	2	1	9	21	235	8	1	264	10	6	8	1	24	4	199	8	0	211	3	508	511
01:30 PM	12	2	13	8	27	15	245	4	0	264	22	20	11	4	53	9	234	5	0	248	12	592	604
01:45 PM	6	0	4	4	10	17	239	2	0	258	6	5	18	10	29	4	227	3	1	234	15	531	546
Total	33	3	20	14	56	76	920	19	2	1015	43	35	51	24	129	25	858	19	1	902	41	2102	2143
Grand Total	55	9	42	24	106	143	1749	38	3	1930	59	48	104	63	211	49	1573	28	1	1650	91	3897	3988
Apprch %	51.9	8.5	39.6			7.4	90.6	2			28	22.7	49.3			3	95.3	1.7					
Total %	1.4	0.2	1.1		2.7	3.7	44.9	1		49.5	1.5	1.2	2.7		5.4	1.3	40.4	0.7		42.3	2.3	97.7	
Passenger Vehicles	53	9	42		128	140	1724	37		1904	57	45	103		268	48	1558	27		1633	0	0	3933
% Passenger Vehicles	96.4	100	100	100	98.5	97.9	98.6	97.4	100	98.5	96.6	93.8	99	100	97.8	98	99	96.4	0	98.9	0	0	98.6
Large 2 Axle Vehicles	2	0	0		2	3	24	1		28	2	2	1		5	1	15	1		18	0	0	53
% Large 2 Axle Vehicles	3.6	0	0	0	1.5	2.1	1.4	2.6	0	1.4	3.4	4.2	1	0	1.8	2	1	3.6	100	1.1	0	0	1.3
3 Axle Vehicles	0	0	0		0	0	1	0		1	0	0	0		0	0	0	0		0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0		0	0	0	0		0	0	1	0		1	0	0	0		0	0	0	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	2.1	0	0	0.4	0	0	0	0	0	0	0	0

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 12:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	9	0	1	10	**23**	201	5	229	5	4	14	23	8	198	3	209	471
01:15 PM	6	1	2	9	21	235	**8**	**264**	10	6	8	24	4	199	**8**	211	508
01:30 PM	**12**	**2**	**13**	**27**	15	**245**	4	264	**22**	**20**	11	**53**	**9**	**234**	5	**248**	**592**
01:45 PM	6	0	4	10	17	239	2	258	6	5	**18**	29	4	227	3	234	531
Total Volume	33	3	20	56	76	920	19	1015	43	35	51	129	25	858	19	902	2102
% App. Total	58.9	5.4	35.7		7.5	90.6	1.9		33.3	27.1	39.5		2.8	95.1	2.1		
PHF	.688	.375	.385	.519	.826	.939	.594	.961	.489	.438	.708	.608	.694	.917	.594	.909	.888

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City of Brea
N/S: Flower Avenue
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Weather: Clear

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Page No : 2



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Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 12:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	9	0	1	10	**23**	201	5	229	5	4	14	23	8	198	3	209	
+15 mins.	6	1	2	9	21	235	**8**	**264**	10	6	8	24	4	199	**8**	211	
+30 mins.	**12**	**2**	**13**	**27**	15	**245**	4	264	**22**	**20**	11	**53**	**9**	**234**	5	**248**	
+45 mins.	6	0	4	10	17	239	2	258	6	5	**18**	29	4	227	3	234	
Total Volume	33	3	20	56	76	920	19	1015	43	35	51	129	25	858	19	902	
% App. Total	58.9	5.4	35.7		7.5	90.6	1.9		33.3	27.1	39.5		2.8	95.1	2.1		
PHF	.688	.375	.385	.519	.826	.939	.594	.961	.489	.438	.708	.608	.694	.917	.594	.909	

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File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

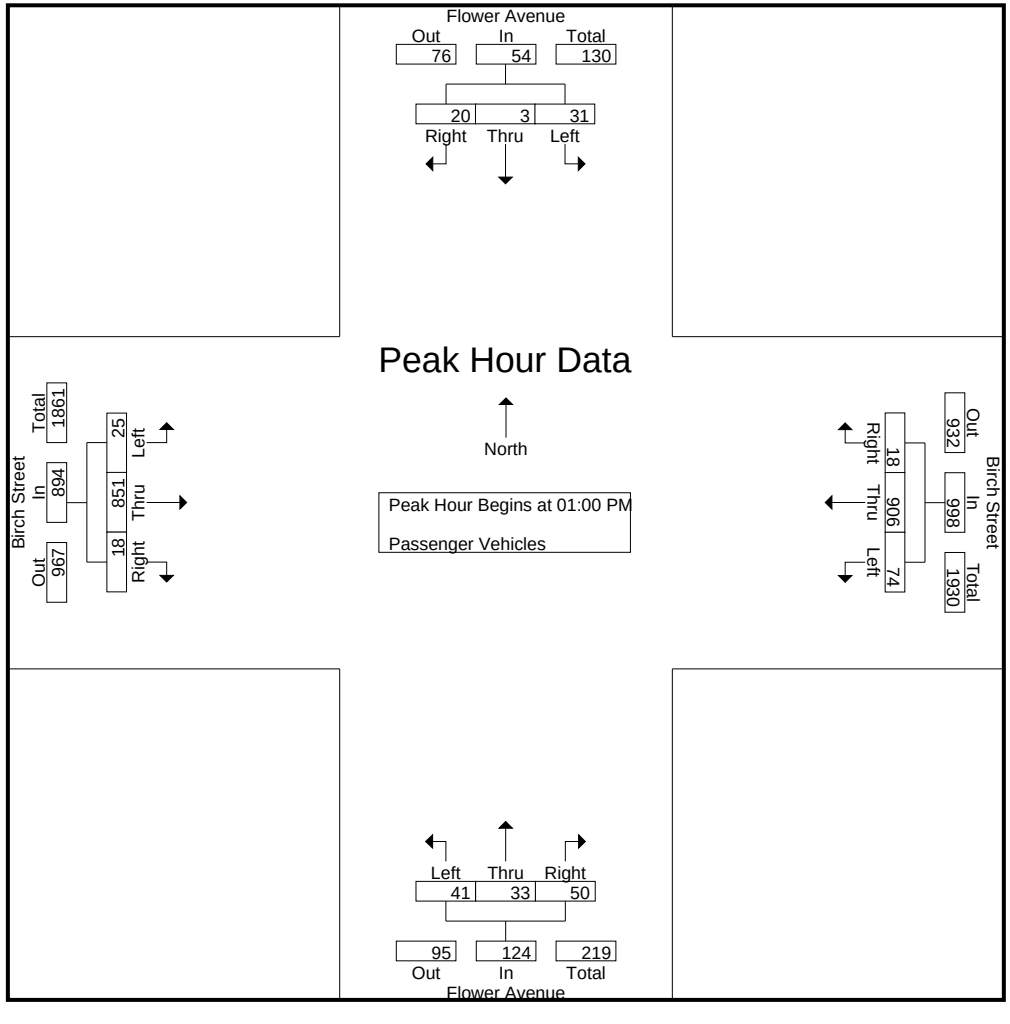
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	3	3	7	5	13	17	180	6	0	203	5	4	12	11	21	7	182	1	0	190	16	427	443
12:15 PM	7	2	7	3	16	13	213	5	1	231	2	3	14	10	19	5	164	2	0	171	14	437	451
12:30 PM	8	1	5	1	14	16	233	3	0	252	4	1	9	5	14	5	180	1	0	186	6	466	472
12:45 PM	4	0	3	1	7	20	192	5	0	217	5	4	18	13	27	6	181	5	0	192	14	443	457
Total	22	6	22	10	50	66	818	19	1	903	16	12	53	39	81	23	707	9	0	739	50	1773	1823
01:00 PM	8	0	1	1	9	23	200	4	1	227	5	4	14	9	23	8	197	3	0	208	11	467	478
01:15 PM	6	1	2	1	9	21	233	8	1	262	10	6	8	1	24	4	199	8	0	211	3	506	509
01:30 PM	12	2	13	8	27	13	241	4	0	258	21	19	11	4	51	9	231	5	0	245	12	581	593
01:45 PM	5	0	4	4	9	17	232	2	0	251	5	4	17	10	26	4	224	2	0	230	14	516	530
Total	31	3	20	14	54	74	906	18	2	998	41	33	50	24	124	25	851	18	0	894	40	2070	2110
Grand Total	53	9	42	24	104	140	1724	37	3	1901	57	45	103	63	205	48	1558	27	0	1633	90	3843	3933
Apprch %	51	8.7	40.4			7.4	90.7	1.9			27.8	22	50.2			2.9	95.4	1.7					
Total %	1.4	0.2	1.1		2.7	3.6	44.9	1		49.5	1.5	1.2	2.7		5.3	1.2	40.5	0.7		42.5	2.3	97.7	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	8	0	1	9	**23**	200	4	227	5	4	14	23	8	197	3	208	467
01:15 PM	6	1	2	9	21	233	**8**	**262**	10	6	8	24	4	199	**8**	211	506
01:30 PM	**12**	**2**	**13**	**27**	13	**241**	4	258	**21**	**19**	11	**51**	**9**	**231**	5	**245**	**581**
01:45 PM	5	0	4	9	17	232	2	251	5	4	**17**	26	4	224	2	230	516
Total Volume	31	3	20	54	74	906	18	998	41	33	50	124	25	851	18	894	2070
% App. Total	57.4	5.6	37		7.4	90.8	1.8		33.1	26.6	40.3		2.8	95.2	2		
PHF	.646	.375	.385	.500	.804	.940	.563	.952	.488	.434	.735	.608	.694	.921	.563	.912	.891

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	8	0	1	9	**23**	200	4	227	5	4	14	23	8	197	3	208	
+15 mins.	6	1	2	9	21	233	**8**	**262**	10	6	8	24	4	199	**8**	211	
+30 mins.	**12**	**2**	**13**	**27**	13	**241**	4	258	**21**	**19**	11	**51**	**9**	**231**	5	**245**	
+45 mins.	5	0	4	9	17	232	2	251	5	4	**17**	26	4	224	2	230	
Total Volume	31	3	20	54	74	906	18	998	41	33	50	124	25	851	18	894	
% App. Total	57.4	5.6	37		7.4	90.8	1.8		33.1	26.6	40.3		2.8	95.2	2		
PHF	.646	.375	.385	.500	.804	.940	.563	.952	.488	.434	.735	.608	.694	.921	.563	.912	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

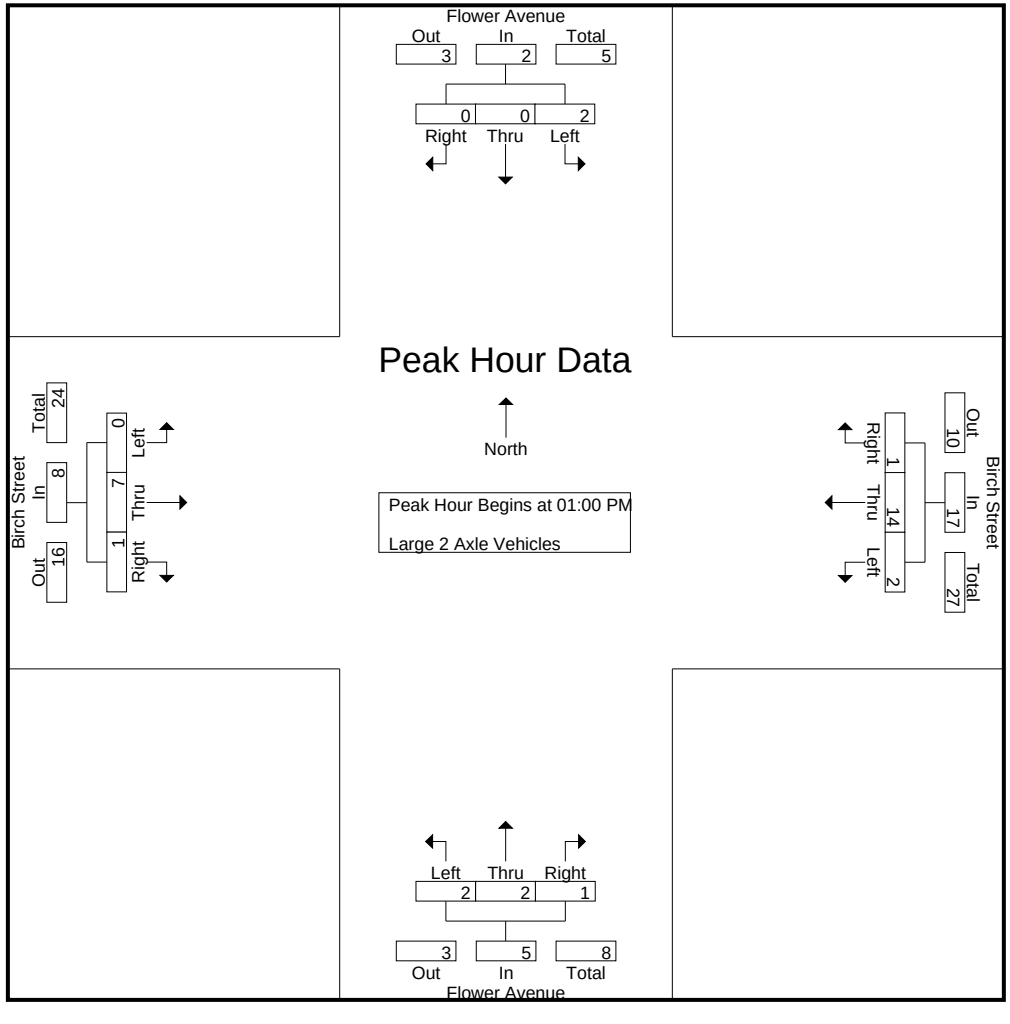
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
12:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
12:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
12:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	3	0	0	4	0	8	8
Total	0	0	0	0	0	1	10	0	0	11	0	0	0	0	0	1	8	0	0	9	0	20	20
01:00 PM	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	4	4
01:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
01:30 PM	0	0	0	0	0	2	4	0	0	6	1	1	0	0	2	0	3	0	0	3	0	11	11
01:45 PM	1	0	0	0	1	0	7	0	0	7	1	1	1	0	3	0	3	1	1	4	1	15	16
Total	2	0	0	0	2	2	14	1	0	17	2	2	1	0	5	0	7	1	1	8	1	32	33
Grand Total	2	0	0	0	2	3	24	1	0	28	2	2	1	0	5	1	15	1	1	17	1	52	53
Apprch %	100	0	0			10.7	85.7	3.6			40	40	20			5.9	88.2	5.9					
Total %	3.8	0	0		3.8	5.8	46.2	1.9		53.8	3.8	3.8	1.9		9.6	1.9	28.8	1.9		32.7	1.9	98.1	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	**1**	0	0	**1**	0	1	**1**	2	0	0	0	0	0	1	0	1	4
01:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
01:30 PM	0	0	0	0	**2**	4	0	6	**1**	**1**	0	2	0	**3**	0	3	11
01:45 PM	1	0	0	1	0	**7**	0	**7**	1	1	**1**	**3**	0	3	**1**	**4**	**15**
Total Volume	2	0	0	2	2	14	1	17	2	2	1	5	0	7	1	8	32
% App. Total	100	0	0		11.8	82.4	5.9		40	40	20		0	87.5	12.5		
PHF	.500	.000	.000	.500	.250	.500	.250	.607	.500	.500	.250	.417	.000	.583	.250	.500	.533

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	**1**	0	0	**1**	0	1	**1**	2	0	0	0	0	0	1	0	1	
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	**2**	4	0	6	**1**	**1**	0	2	0	**3**	0	3	
+45 mins.	1	0	0	1	0	**7**	0	**7**	1	1	**1**	**3**	0	3	**1**	**4**	
Total Volume	2	0	0	2	2	14	1	17	2	2	1	5	0	7	1	8	
% App. Total	100	0	0		11.8	82.4	5.9		40	40	20		0	87.5	12.5		
PHF	.500	.000	.000	.500	.250	.500	.250	.607	.500	.500	.250	.417	.000	.583	.250	.500	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

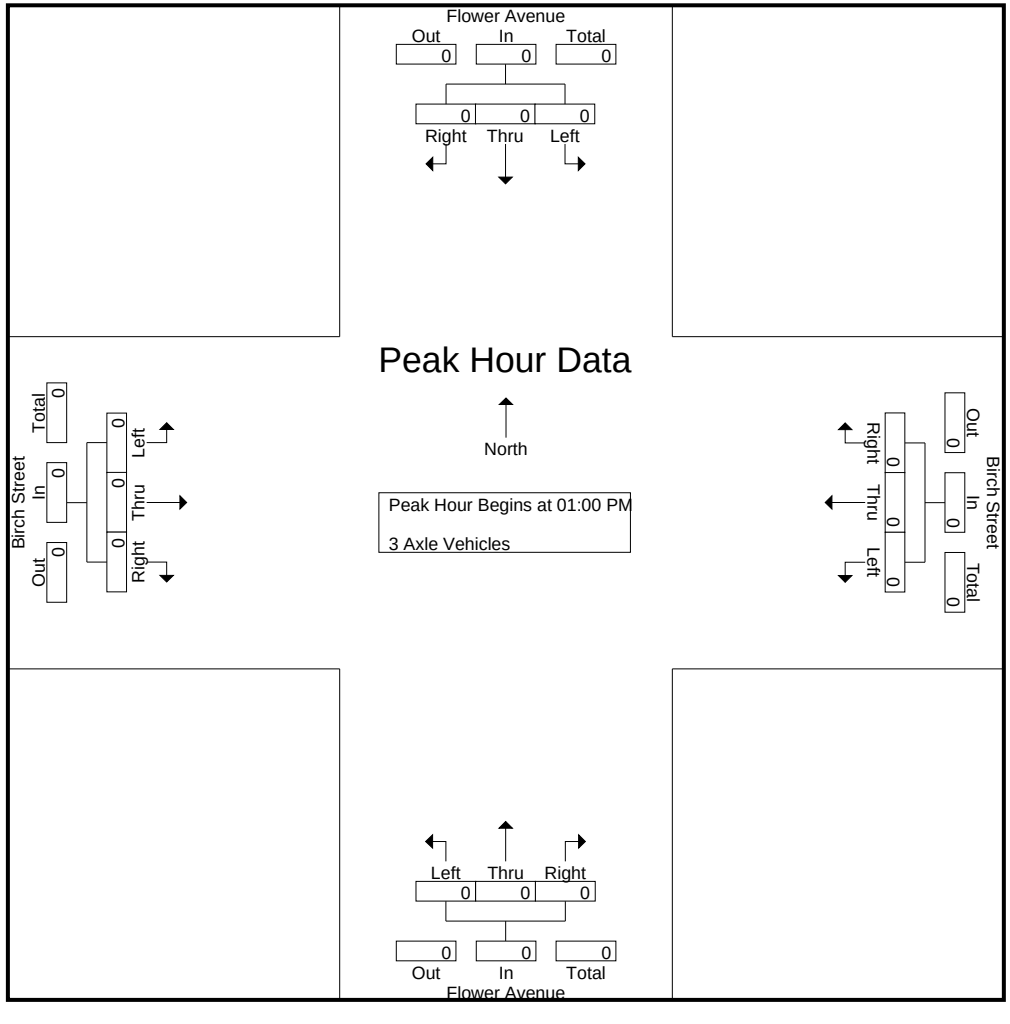
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Apprch %	0	0	0			0	100	0			0	0	0			0	0	0					
Total %	0	0	0		0	0	100	0		100	0	0	0		0	0	0	0		0	0	100	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

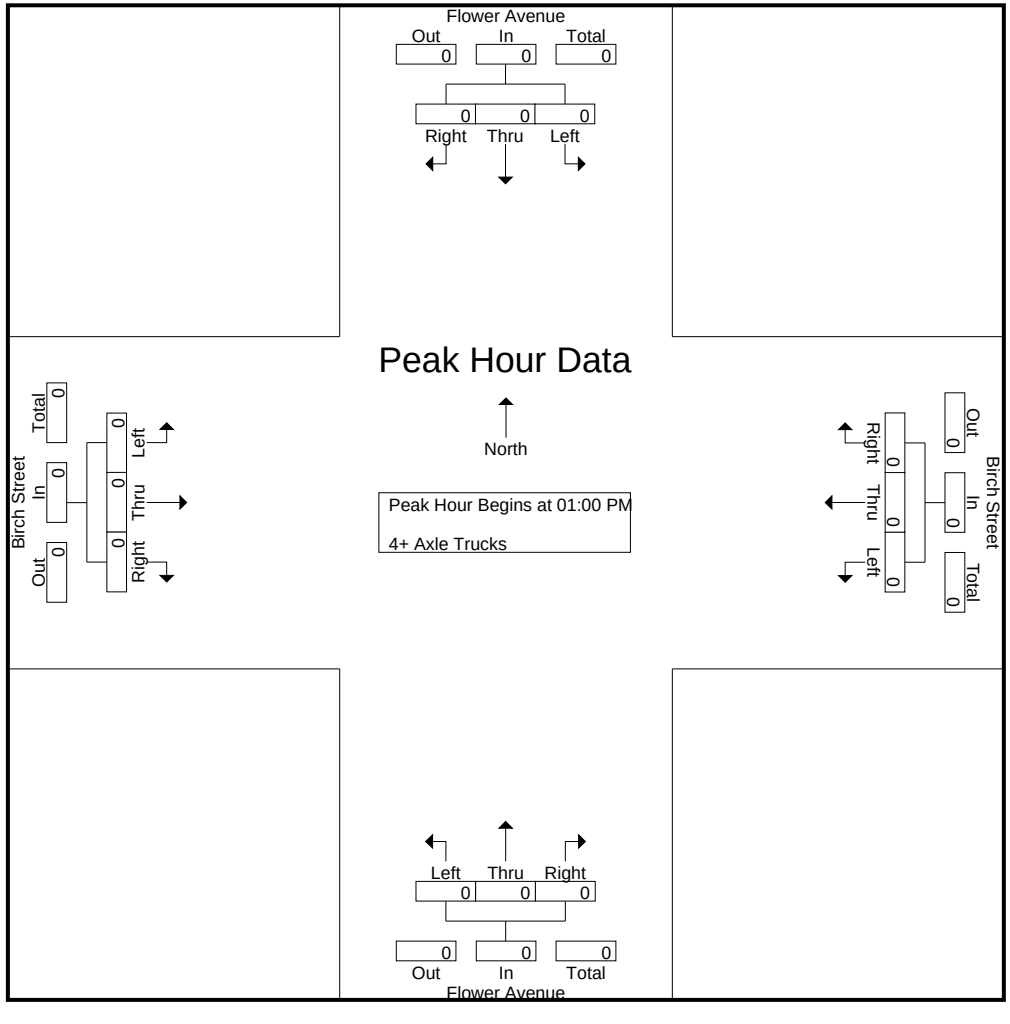
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Apprch %	0	0	0			0	0	0			0	100	0			0	0	0					
Total %	0	0	0		0	0	0	0		0	0	100	0		100	0	0	0		0	0	100	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch MD
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

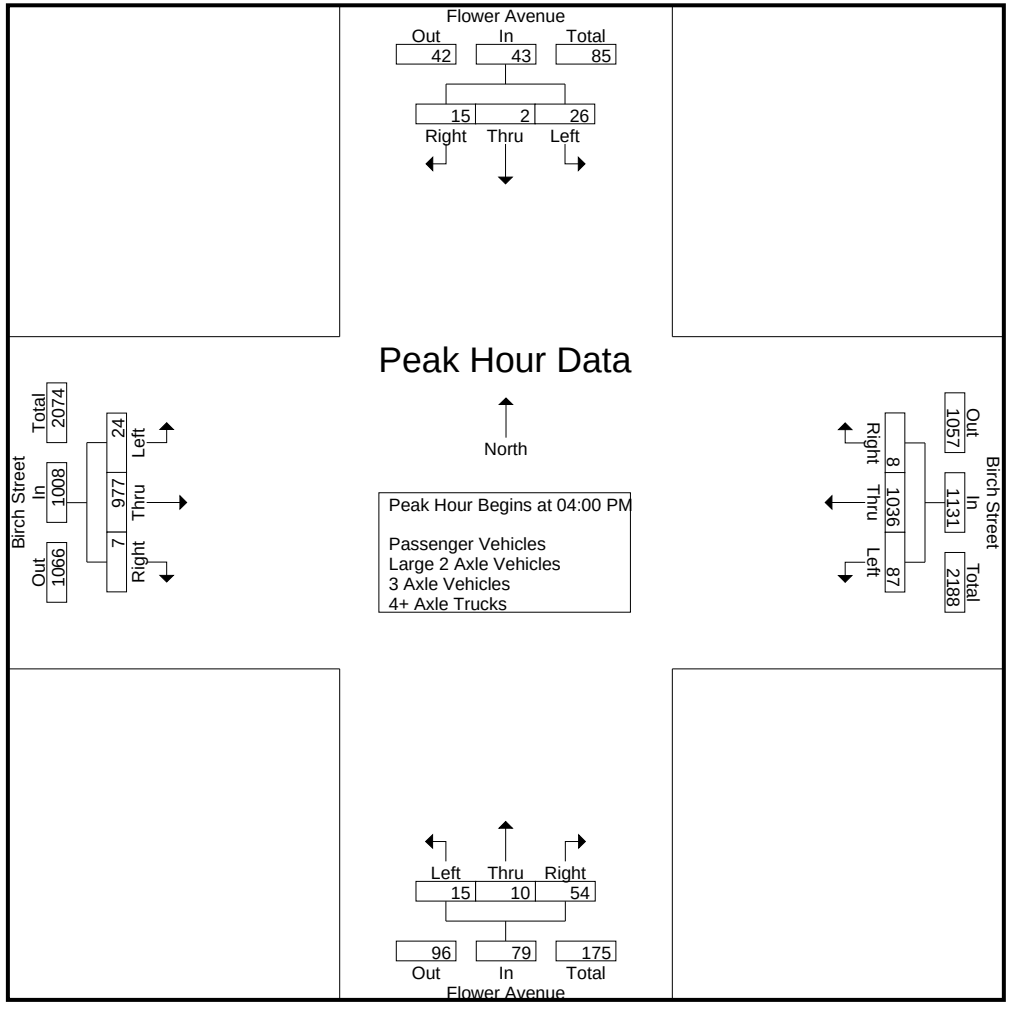
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	9	2	5	3	16	23	254	1	0	278	6	3	5	3	14	3	256	3	1	262	7	570	577
04:15 PM	4	0	2	0	6	19	262	1	0	282	4	1	14	5	19	4	251	1	0	256	5	563	568
04:30 PM	7	0	7	1	14	21	248	4	0	273	4	3	20	11	27	10	235	2	0	247	12	561	573
04:45 PM	6	0	1	0	7	24	272	2	0	298	1	3	15	11	19	7	235	1	0	243	11	567	578
Total	26	2	15	4	43	87	1036	8	0	1131	15	10	54	30	79	24	977	7	1	1008	35	2261	2296
05:00 PM	3	0	1	1	4	13	263	2	0	278	6	7	10	4	23	7	225	0	0	232	5	537	542
05:15 PM	5	2	1	0	8	19	264	6	1	289	5	3	10	4	18	8	220	1	0	229	5	544	549
05:30 PM	12	0	3	3	15	31	277	7	1	315	3	2	11	4	16	6	250	4	1	260	9	606	615
05:45 PM	7	2	2	2	11	20	259	7	0	286	4	7	19	6	30	6	235	2	0	243	8	570	578
Total	27	4	7	6	38	83	1063	22	2	1168	18	19	50	18	87	27	930	7	1	964	27	2257	2284
Grand Total	53	6	22	10	81	170	2099	30	2	2299	33	29	104	48	166	51	1907	14	2	1972	62	4518	4580
Apprch %	65.4	7.4	27.2			7.4	91.3	1.3			19.9	17.5	62.7			2.6	96.7	0.7					
Total %	1.2	0.1	0.5		1.8	3.8	46.5	0.7		50.9	0.7	0.6	2.3		3.7	1.1	42.2	0.3		43.6	1.4	98.6	
Passenger Vehicles	53	5	22		90	169	2088	30		2289	32	29	104		213	51	1897	14		1964	0	0	4556
% Passenger Vehicles	100	83.3	100	100	98.9	99.4	99.5	100	100	99.5	97	100	100	100	99.5	100	99.5	100	100	99.5	0	0	99.5
Large 2 Axle Vehicles	0	1	0		1	1	10	0		11	1	0	0		1	0	9	0		9	0	0	22
% Large 2 Axle Vehicles	0	16.7	0	0	1.1	0.6	0.5	0	0	0.5	3	0	0	0	0.5	0	0.5	0	0	0.5	0	0	0.5
3 Axle Vehicles	0	0	0		0	0	1	0		1	0	0	0		0	0	0	0		0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0		0	0	0	0		0	0	0	0		0	0	1	0		1	0	0	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:00 PM																	
04:00 PM	**9**	**2**	5	**16**	23	254	1	278	**6**	**3**	5	14	3	**256**	**3**	**262**	**570**
04:15 PM	4	0	2	6	19	262	1	282	4	1	14	19	4	251	1	256	563
04:30 PM	7	0	**7**	14	21	248	**4**	273	4	3	**20**	**27**	**10**	235	2	247	561
04:45 PM	6	0	1	7	**24**	**272**	2	**298**	1	3	15	19	7	235	1	243	567
Total Volume	26	2	15	43	87	1036	8	1131	15	10	54	79	24	977	7	1008	2261
% App. Total	60.5	4.7	34.9		7.7	91.6	0.7		19	12.7	68.4		2.4	96.9	0.7		
PHF	.722	.250	.536	.672	.906	.952	.500	.949	.625	.833	.675	.731	.600	.954	.583	.962	.992

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 Each Approach Begins at:																	
	04:00 PM				04:45 PM				04:15 PM				04:00 PM				
+0 mins.	**9**	**2**	5	**16**	24	272	2	298	4	1	14	19	3	**256**	**3**	**262**	
+15 mins.	4	0	2	6	13	263	2	278	4	3	**20**	**27**	4	251	1	256	
+30 mins.	7	0	**7**	14	19	264	6	289	1	3	15	19	**10**	235	2	247	
+45 mins.	6	0	1	7	**31**	**277**	**7**	**315**	**6**	**7**	10	23	7	235	1	243	
Total Volume	26	2	15	43	87	1076	17	1180	15	14	59	88	24	977	7	1008	
% App. Total	60.5	4.7	34.9		7.4	91.2	1.4		17	15.9	67		2.4	96.9	0.7		
PHF	.722	.250	.536	.672	.702	.971	.607	.937	.625	.500	.738	.815	.600	.954	.583	.962	

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City of Brea
N/S: Flower Avenue
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Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

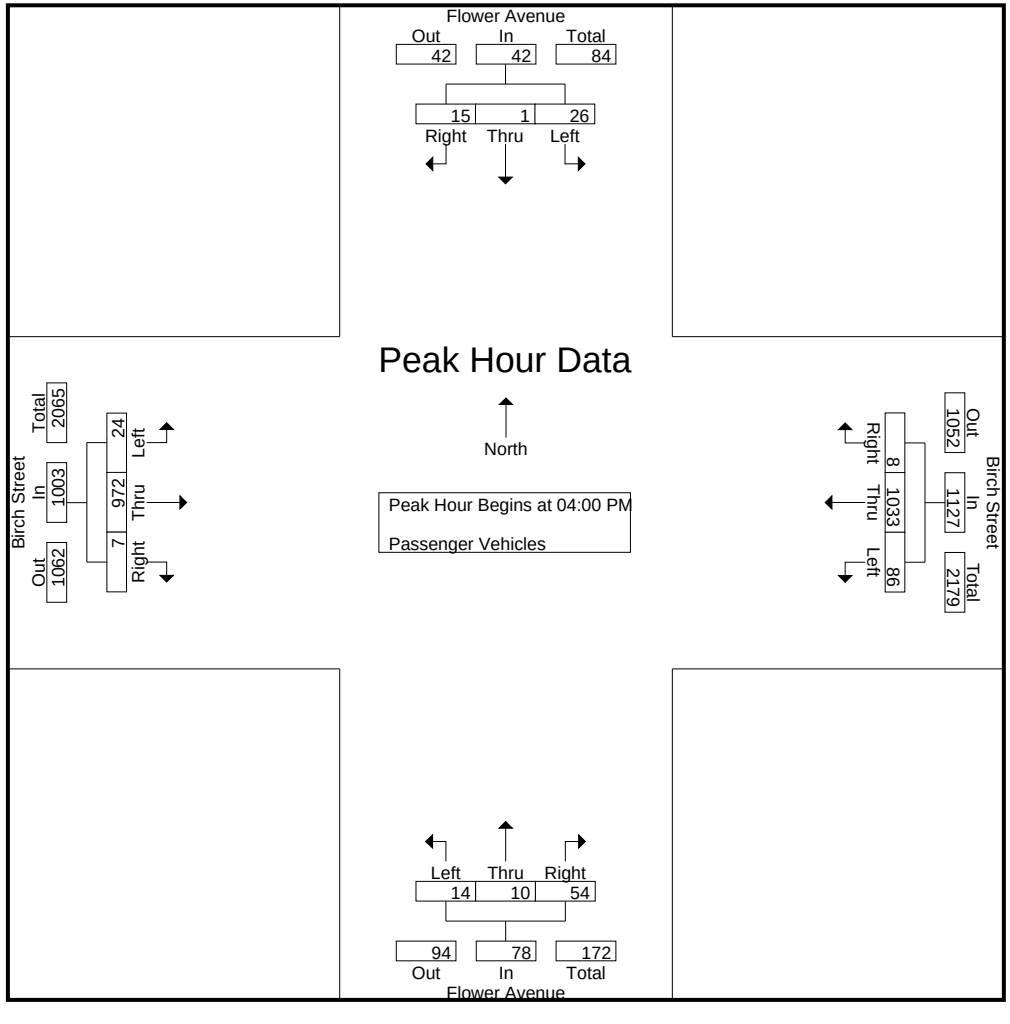
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	9	1	5	3	15	22	254	1	0	277	5	3	5	3	13	3	255	3	1	261	7	566	573
04:15 PM	4	0	2	0	6	19	260	1	0	280	4	1	14	5	19	4	250	1	0	255	5	560	565
04:30 PM	7	0	7	1	14	21	247	4	0	272	4	3	20	11	27	10	232	2	0	244	12	557	569
04:45 PM	6	0	1	0	7	24	272	2	0	298	1	3	15	11	19	7	235	1	0	243	11	567	578
Total	26	1	15	4	42	86	1033	8	0	1127	14	10	54	30	78	24	972	7	1	1003	35	2250	2285
05:00 PM	3	0	1	1	4	13	261	2	0	276	6	7	10	4	23	7	225	0	0	232	5	535	540
05:15 PM	5	2	1	0	8	19	262	6	1	287	5	3	10	4	18	8	218	1	0	227	5	540	545
05:30 PM	12	0	3	3	15	31	274	7	1	312	3	2	11	4	16	6	247	4	1	257	9	600	609
05:45 PM	7	2	2	2	11	20	258	7	0	285	4	7	19	6	30	6	235	2	0	243	8	569	577
Total	27	4	7	6	38	83	1055	22	2	1160	18	19	50	18	87	27	925	7	1	959	27	2244	2271
Grand Total	53	5	22	10	80	169	2088	30	2	2287	32	29	104	48	165	51	1897	14	2	1962	62	4494	4556
Apprch %	66.2	6.2	27.5			7.4	91.3	1.3			19.4	17.6	63			2.6	96.7	0.7					
Total %	1.2	0.1	0.5		1.8	3.8	46.5	0.7		50.9	0.7	0.6	2.3		3.7	1.1	42.2	0.3		43.7	1.4	98.6	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**9**	**1**	5	**15**	22	254	1	277	**5**	**3**	5	13	3	**255**	**3**	**261**	566
04:15 PM	4	0	2	6	19	260	1	280	4	1	14	19	4	250	1	255	560
04:30 PM	7	0	**7**	14	21	247	**4**	272	4	3	**20**	**27**	**10**	232	2	244	557
04:45 PM	6	0	1	7	**24**	**272**	2	**298**	1	3	15	19	7	235	1	243	**567**
Total Volume	26	1	15	42	86	1033	8	1127	14	10	54	78	24	972	7	1003	2250
% App. Total	61.9	2.4	35.7		7.6	91.7	0.7		17.9	12.8	69.2		2.4	96.9	0.7		
PHF	.722	.250	.536	.700	.896	.949	.500	.945	.700	.833	.675	.722	.600	.953	.583	.961	.992

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 3

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	**9**	**1**	5	**15**	22	254	1	277	**5**	**3**	5	13	3	**255**	**3**	**261**	
+15 mins.	4	0	2	6	19	260	1	280	4	1	14	19	4	250	1	255	
+30 mins.	7	0	**7**	14	21	247	**4**	272	4	3	**20**	**27**	**10**	232	2	244	
+45 mins.	6	0	1	7	**24**	**272**	2	**298**	1	3	15	19	7	235	1	243	
Total Volume	26	1	15	42	86	1033	8	1127	14	10	54	78	24	972	7	1003	
% App. Total	61.9	2.4	35.7		7.6	91.7	0.7		17.9	12.8	69.2		2.4	96.9	0.7		
PHF	.722	.250	.536	.700	.896	.949	.500	.945	.700	.833	.675	.722	.600	.953	.583	.961	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

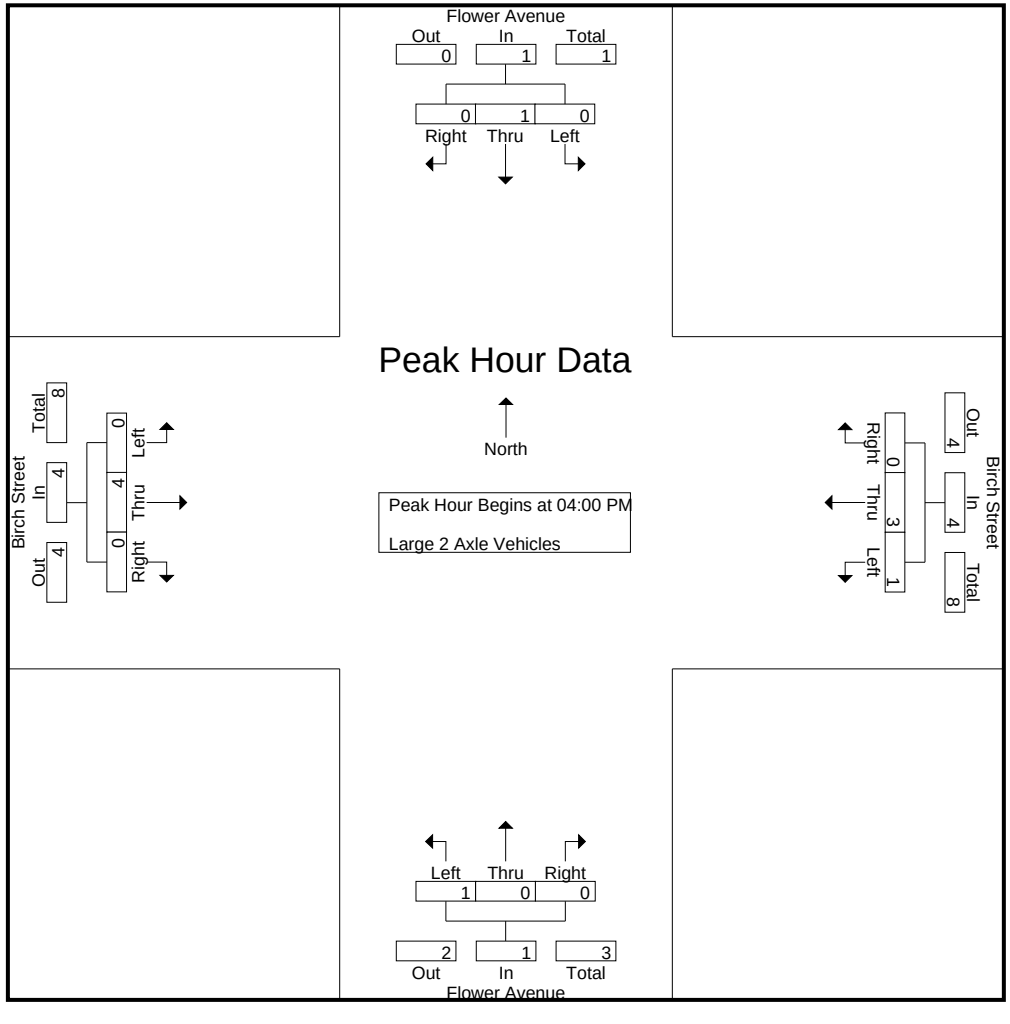
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	3	3
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	4	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	1	3	0	0	4	1	0	0	0	1	0	4	0	0	4	0	10	10
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	5	0	0	5	0	12	12
Grand Total	0	1	0	0	1	1	10	0	0	11	1	0	0	0	1	0	9	0	0	9	0	22	22
Apprch %	0	100	0			9.1	90.9	0			100	0	0			0	100	0					
Total %	0	4.5	0		4.5	4.5	45.5	0		50	4.5	0	0		4.5	0	40.9	0		40.9	0	100	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	**1**	0	0	1	**1**	0	0	**1**	0	0	0	0	3
04:15 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1	3
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	**3**	0	**3**	**4**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	1	3	0	4	1	0	0	1	0	4	0	4	10
% App. Total	0	100	0		25	75	0		100	0	0		0	100	0		
PHF	.000	.250	.000	.250	.250	.375	.000	.500	.250	.000	.000	.250	.000	.333	.000	.333	.625

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
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File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	**1**	0	**1**	**1**	0	0	1	**1**	0	0	**1**	0	0	0	0	
+15 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1	
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**3**	0	**3**	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	1	0	1	1	3	0	4	1	0	0	1	0	4	0	4	
% App. Total	0	100	0		25	75	0		100	0	0		0	100	0		
PHF	.000	.250	.000	.250	.250	.375	.000	.500	.250	.000	.000	.250	.000	.333	.000	.333	

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City of Brea
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Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

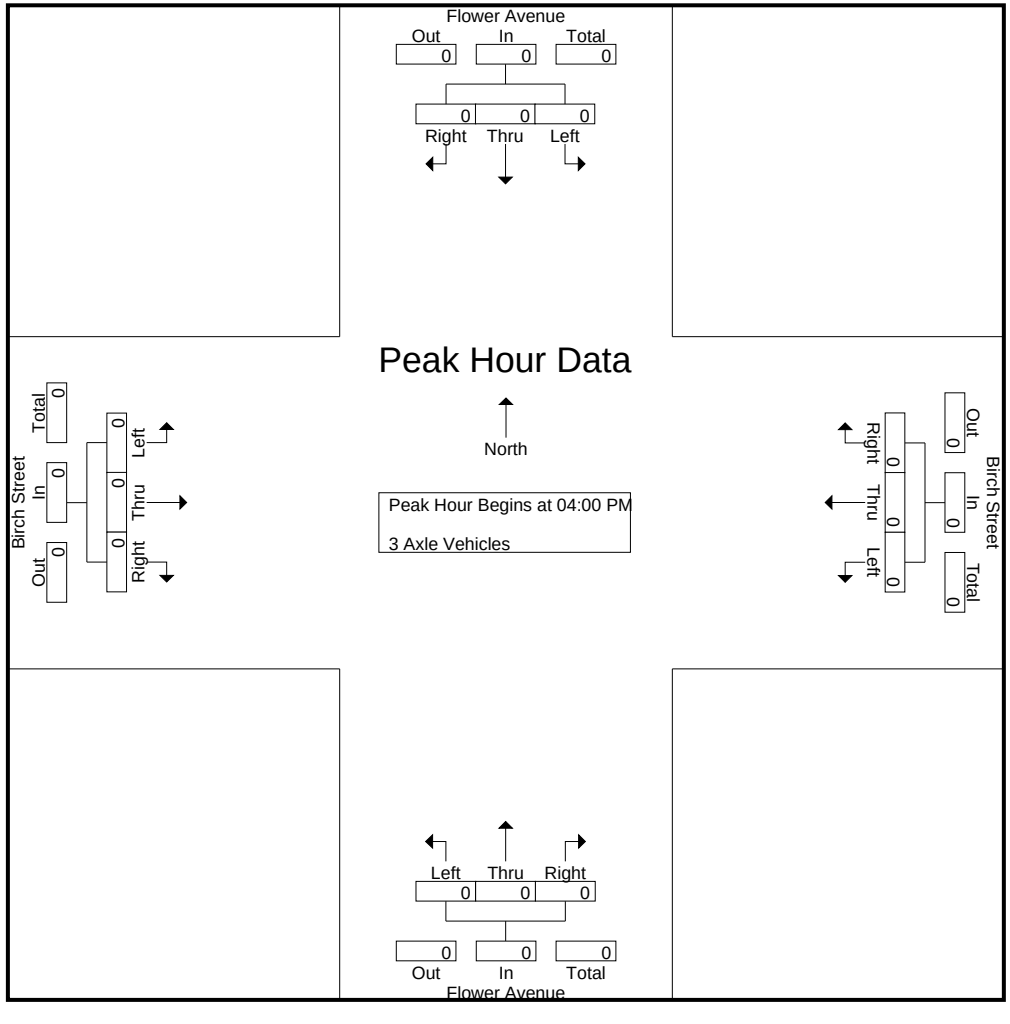
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Apprch %	0	0	0			0	100	0			0	0	0			0	0	0					
Total %	0	0	0		0	0	100	0		100	0	0	0		0	0	0	0		0	0	100	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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(951)268-6268

City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

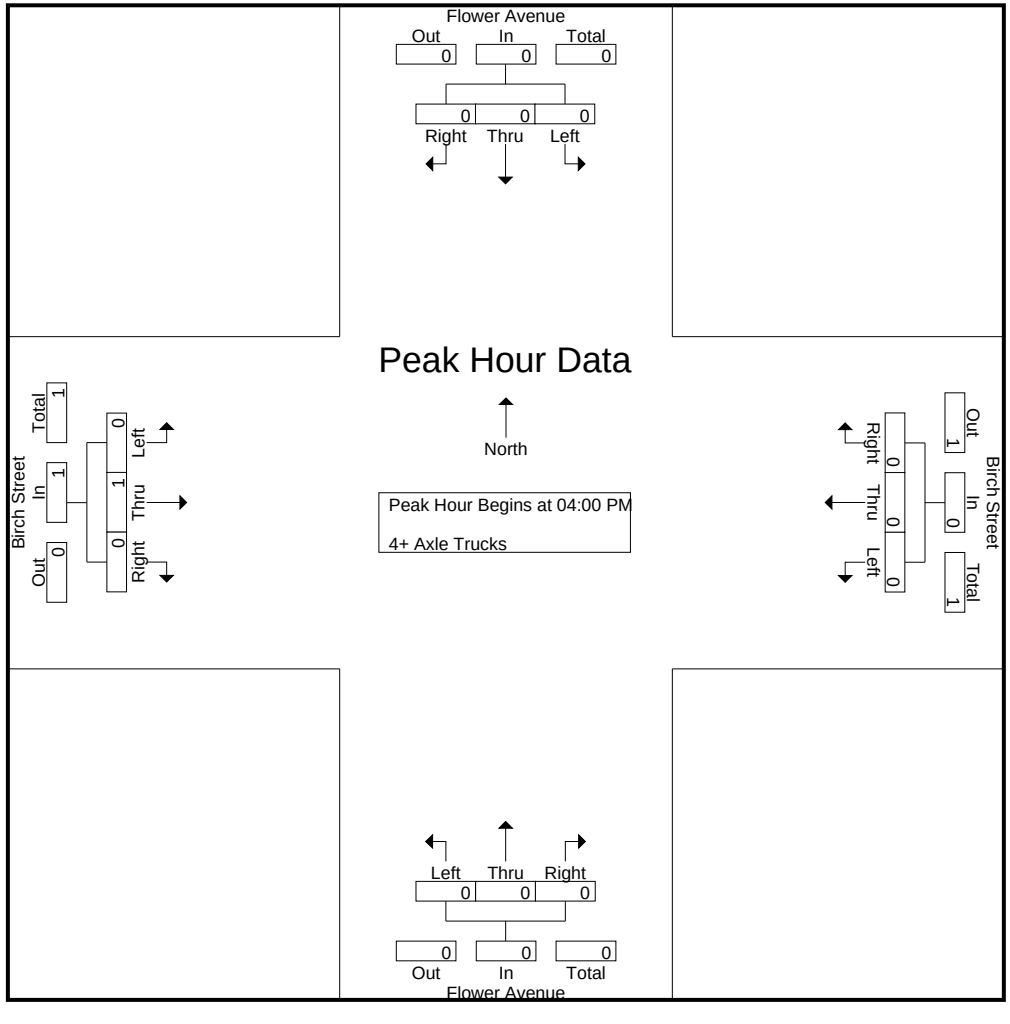
	Flower Avenue Southbound					Birch Street Westbound					Flower Avenue Northbound					Birch Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Apprch %	0	0	0			0	0	0			0	0	0			0	100	0					
Total %	0	0	0		0	0	0	0		0	0	0	0		0	0	100	0		100	0	100	

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0	0		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022
Page No : 2



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City of Brea
N/S: Flower Avenue
E/W: Birch Street
Weather: Clear

File Name : 03A_BRE_Flo_Birch PM
Site Code : 221110
Start Date : 12/21/2022

	Flower Avenue Southbound				Birch Street Westbound				Flower Avenue Northbound				Birch 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 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
% App. Total	0	0	0		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	

Location: Brea
N/S: Flower Avenue
E/W: Birch Street

Date: 12/21/2022
Day: Wednesday

PEDESTRIANS

	North Leg Flower Avenue	East Leg Birch Street	South Leg Flower Avenue	West Leg Birch Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	3	0	0	3
7:30 AM	0	8	0	0	8
7:45 AM	0	45	4	2	51
8:00 AM	1	8	2	0	11
8:15 AM	0	2	0	0	2
8:30 AM	3	0	1	1	5
8:45 AM	2	0	0	0	2
TOTAL VOLUMES:	6	66	7	3	82

	North Leg Flower Avenue	East Leg Birch Street	South Leg Flower Avenue	West Leg Birch Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
12:00 PM	1	0	1	0	2
12:15 PM	0	0	0	0	0
12:30 PM	2	1	1	0	4
12:45 PM	1	0	0	0	1
1:00 PM	0	2	0	0	2
1:15 PM	0	18	3	0	21
1:30 PM	2	53	7	0	62
1:45 PM	2	1	0	0	3
TOTAL VOLUMES:	8	75	12	0	95

	North Leg Flower Avenue	East Leg Birch Street	South Leg Flower Avenue	West Leg Birch Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	1	1	3
4:15 PM	5	2	1	0	8
4:30 PM	2	2	1	1	6
4:45 PM	2	0	1	0	3
5:00 PM	1	0	6	3	10
5:15 PM	1	0	2	0	3
5:30 PM	1	0	0	1	2
5:45 PM	0	0	5	0	5
TOTAL VOLUMES:	13	4	17	6	40

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Location: Brea
N/S: Flower Avenue
E/W: Birch Street

Date: 12/21/2022
Day: Wednesday

BICYCLES

	Southbound Flower Avenue			Westbound Birch Street			Northbound Flower Avenue			Eastbound Birch 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	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	0	1	0	1	1	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	2	0	0	0	1	0	1	1	6

	Southbound Flower Avenue			Westbound Birch Street			Northbound Flower Avenue			Eastbound Birch Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
12:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	1	0	2

	Southbound Flower Avenue			Westbound Birch Street			Northbound Flower Avenue			Eastbound Birch Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	0	0	3

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

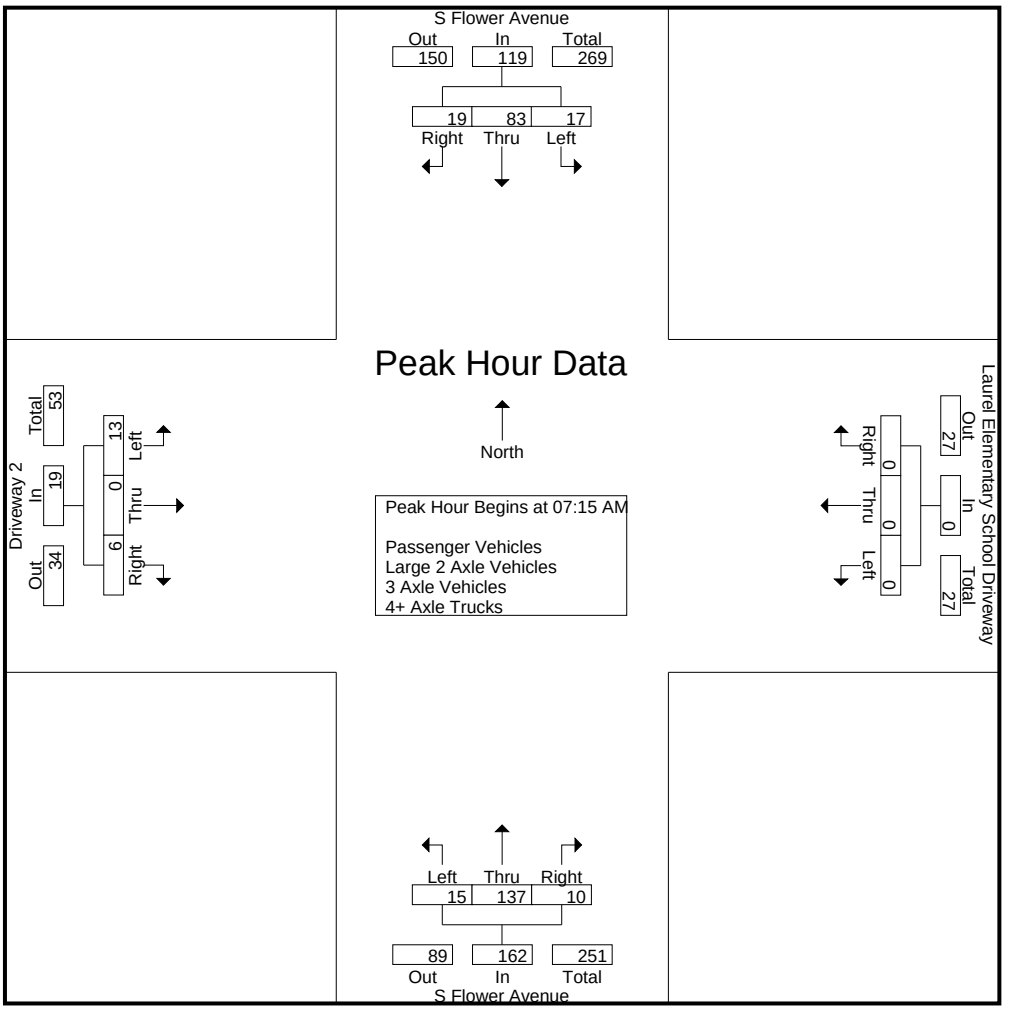
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	13	0	15	0	0	0	0	1	9	4	14	0	0	0	0	29
07:15 AM	11	28	1	40	0	0	0	0	2	5	9	16	0	0	0	0	56
07:30 AM	1	20	3	24	0	0	0	0	3	21	1	25	3	0	1	4	53
07:45 AM	3	24	10	37	0	0	0	0	6	89	0	95	9	0	2	11	143
Total	17	85	14	116	0	0	0	0	12	124	14	150	12	0	3	15	281
08:00 AM	2	11	5	18	0	0	0	0	4	22	0	26	1	0	3	4	48
08:15 AM	0	25	2	27	0	0	0	0	2	8	0	10	1	0	0	1	38
08:30 AM	1	8	4	13	0	0	0	0	2	10	0	12	1	0	0	1	26
08:45 AM	1	14	1	16	0	0	1	1	0	4	0	4	1	0	0	1	22
Total	4	58	12	74	0	0	1	1	8	44	0	52	4	0	3	7	134
Grand Total	21	143	26	190	0	0	1	1	20	168	14	202	16	0	6	22	415
Apprch %	11.1	75.3	13.7		0	0	100		9.9	83.2	6.9		72.7	0	27.3		
Total %	5.1	34.5	6.3	45.8	0	0	0.2	0.2	4.8	40.5	3.4	48.7	3.9	0	1.4	5.3	
Passenger Vehicles	20	142	26	188	0	0	1	1	19	166	14	199	16	0	6	22	410
% Passenger Vehicles	95.2	99.3	100	98.9	0	0	100	100	95	98.8	100	98.5	100	0	100	100	98.8
Large 2 Axle Vehicles	1	1	0	2	0	0	0	0	1	2	0	3	0	0	0	0	5
% Large 2 Axle Vehicles	4.8	0.7	0	1.1	0	0	0	0	5	1.2	0	1.5	0	0	0	0	1.2
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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	**11**	**28**	1	**40**	0	0	0	0	2	5	**9**	16	0	0	0	0	56
07:30 AM	1	20	3	24	0	0	0	0	3	21	1	25	3	0	1	4	53
07:45 AM	3	24	**10**	37	0	0	0	0	**6**	**89**	0	**95**	**9**	0	2	**11**	**143**
08:00 AM	2	11	5	18	0	0	0	0	4	22	0	26	1	0	**3**	4	48
Total Volume	17	83	19	119	0	0	0	0	15	137	10	162	13	0	6	19	300
% App. Total	14.3	69.7	16		0	0	0		9.3	84.6	6.2		68.4	0	31.6		
PHF	.386	.741	.475	.744	.000	.000	.000	.000	.625	.385	.278	.426	.361	.000	.500	.432	.524

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
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:

	07:15 AM				08:00 AM				07:15 AM				07:30 AM			
+0 mins.	**11**	**28**	1	**40**	0	0	0	0	2	5	**9**	16	3	0	1	4
+15 mins.	1	20	3	24	0	0	0	0	3	21	1	25	**9**	0	2	**11**
+30 mins.	3	24	**10**	37	0	0	0	0	**6**	**89**	0	**95**	1	0	**3**	4
+45 mins.	2	11	5	18	0	0	**1**	**1**	4	22	0	26	1	0	0	1
Total Volume	17	83	19	119	0	0	1	1	15	137	10	162	14	0	6	20
% App. Total	14.3	69.7	16		0	0	100		9.3	84.6	6.2		70	0	30	
PHF	.386	.741	.475	.744	.000	.000	.250	.250	.625	.385	.278	.426	.389	.000	.500	.455

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles

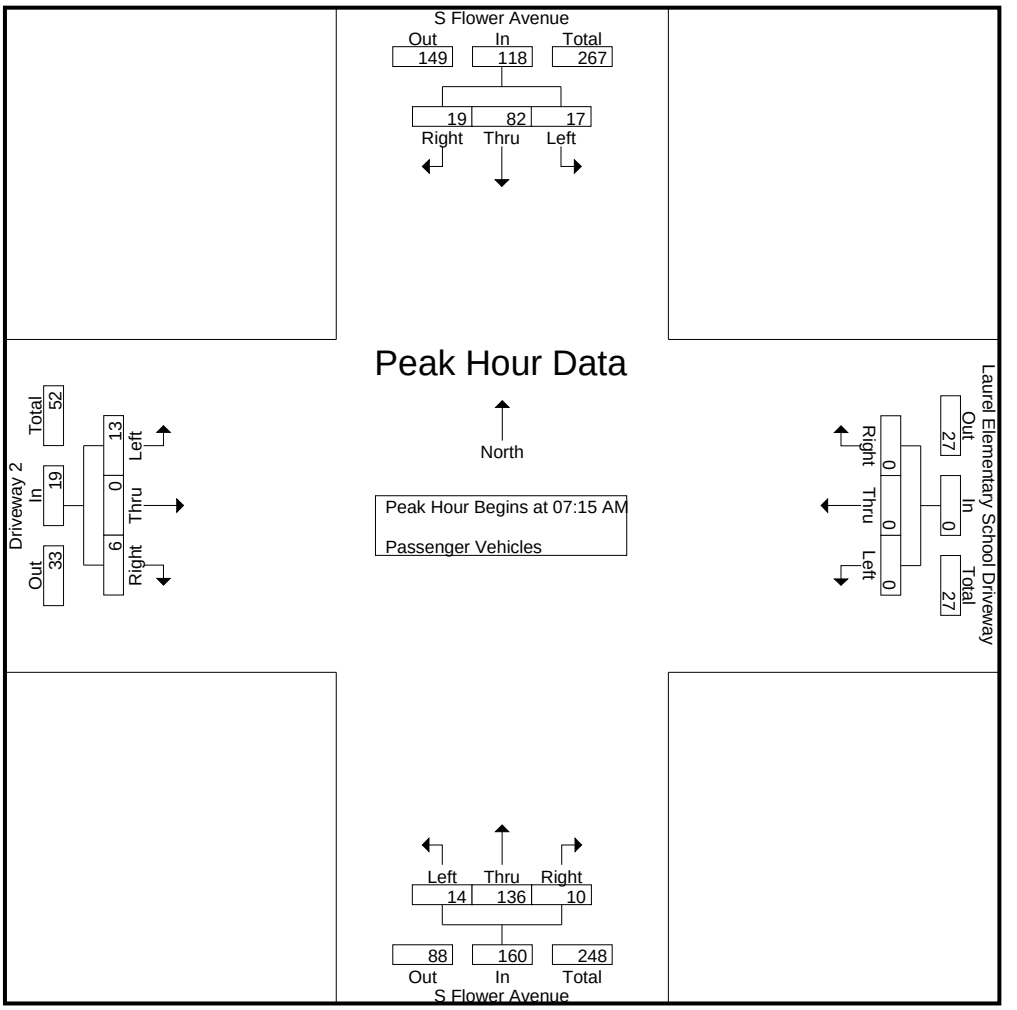
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	13	0	15	0	0	0	0	1	9	4	14	0	0	0	0	29
07:15 AM	11	28	1	40	0	0	0	0	2	5	9	16	0	0	0	0	56
07:30 AM	1	19	3	23	0	0	0	0	2	21	1	24	3	0	1	4	51
07:45 AM	3	24	10	37	0	0	0	0	6	88	0	94	9	0	2	11	142
Total	17	84	14	115	0	0	0	0	11	123	14	148	12	0	3	15	278
08:00 AM	2	11	5	18	0	0	0	0	4	22	0	26	1	0	3	4	48
08:15 AM	0	25	2	27	0	0	0	0	2	7	0	9	1	0	0	1	37
08:30 AM	0	8	4	12	0	0	0	0	2	10	0	12	1	0	0	1	25
08:45 AM	1	14	1	16	0	0	1	1	0	4	0	4	1	0	0	1	22
Total	3	58	12	73	0	0	1	1	8	43	0	51	4	0	3	7	132
Grand Total	20	142	26	188	0	0	1	1	19	166	14	199	16	0	6	22	410
Apprch %	10.6	75.5	13.8		0	0	100		9.5	83.4	7		72.7	0	27.3		
Total %	4.9	34.6	6.3	45.9	0	0	0.2	0.2	4.6	40.5	3.4	48.5	3.9	0	1.5	5.4	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**11**	**28**	1	**40**	0	0	0	0	2	5	**9**	16	0	0	0	0	56
07:30 AM	1	19	3	23	0	0	0	0	2	21	1	24	3	0	1	4	51
07:45 AM	3	24	**10**	37	0	0	0	0	**6**	**88**	0	**94**	**9**	0	2	**11**	**142**
08:00 AM	2	11	5	18	0	0	0	0	4	22	0	26	1	0	**3**	4	48
Total Volume	17	82	19	118	0	0	0	0	14	136	10	160	13	0	6	19	297
% App. Total	14.4	69.5	16.1		0	0	0		8.8	85	6.2		68.4	0	31.6		
PHF	.386	.732	.475	.738	.000	.000	.000	.000	.583	.386	.278	.426	.361	.000	.500	.432	.523

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	**11**	**28**	1	**40**	0	0	0	0	2	5	**9**	16	0	0	0	0
+15 mins.	1	19	3	23	0	0	0	0	2	21	1	24	3	0	1	4
+30 mins.	3	24	**10**	37	0	0	0	0	**6**	**88**	0	**94**	**9**	0	2	**11**
+45 mins.	2	11	5	18	0	0	0	0	4	22	0	26	1	0	**3**	4
Total Volume	17	82	19	118	0	0	0	0	14	136	10	160	13	0	6	19
% App. Total	14.4	69.5	16.1		0	0	0		8.8	85	6.2		68.4	0	31.6	
PHF	.386	.732	.475	.738	.000	.000	.000	.000	.583	.386	.278	.426	.361	.000	.500	.432

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

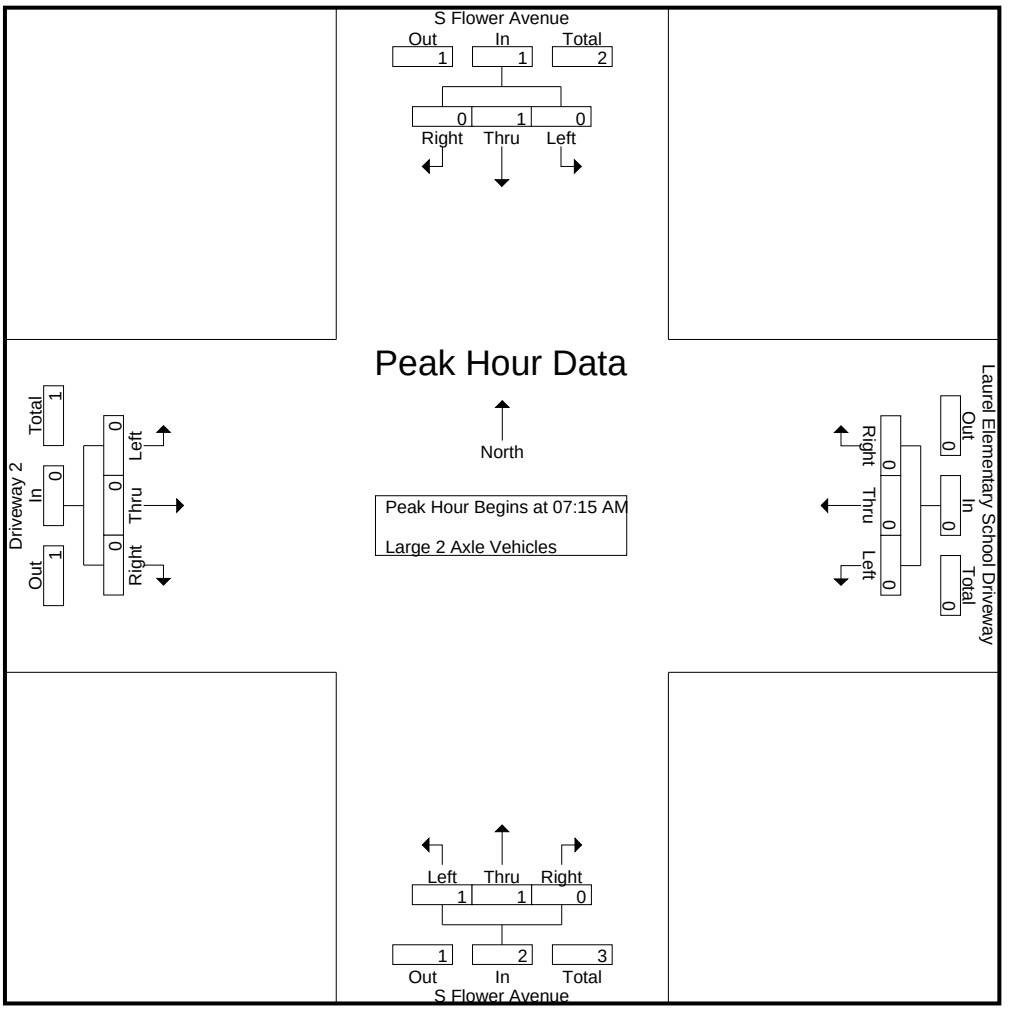
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	1	1	0	2	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Grand Total	1	1	0	2	0	0	0	0	1	2	0	3	0	0	0	0	5
Apprch %	50	50	0		0	0	0		33.3	66.7	0		0	0	0		
Total %	20	20	0	40	0	0	0	0	20	40	0	60	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	**1**	0	**1**	0	0	0	0	**1**	0	0	**1**	0	0	0	0	**2**
07:45 AM	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	1	1	0	2	0	0	0	0	3
% App. Total	0	100	0		0	0	0		50	50	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.375

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	**1**	0	**1**	0	0	0	0	**1**	0	0	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	1	1	0	2	0	0	0	0
% App. Total	0	100	0		0	0	0		50	50	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

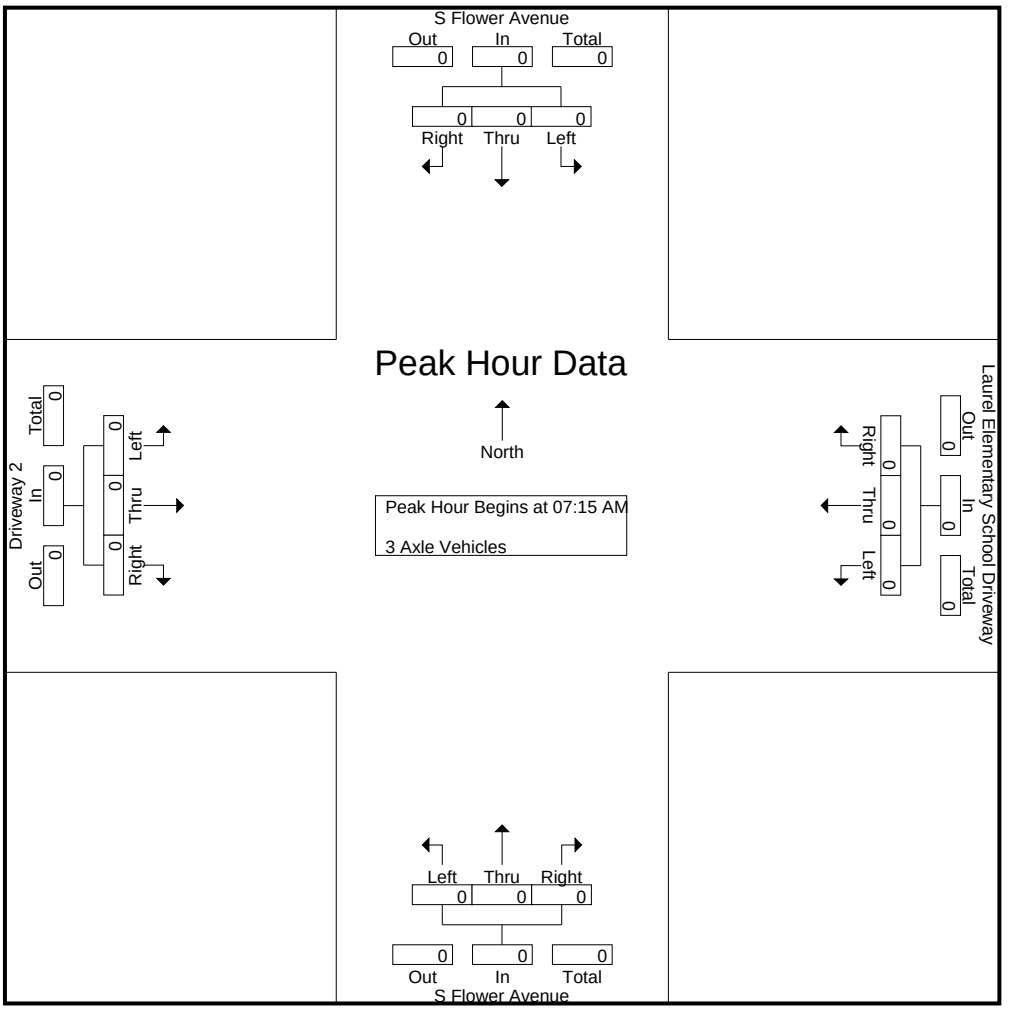
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

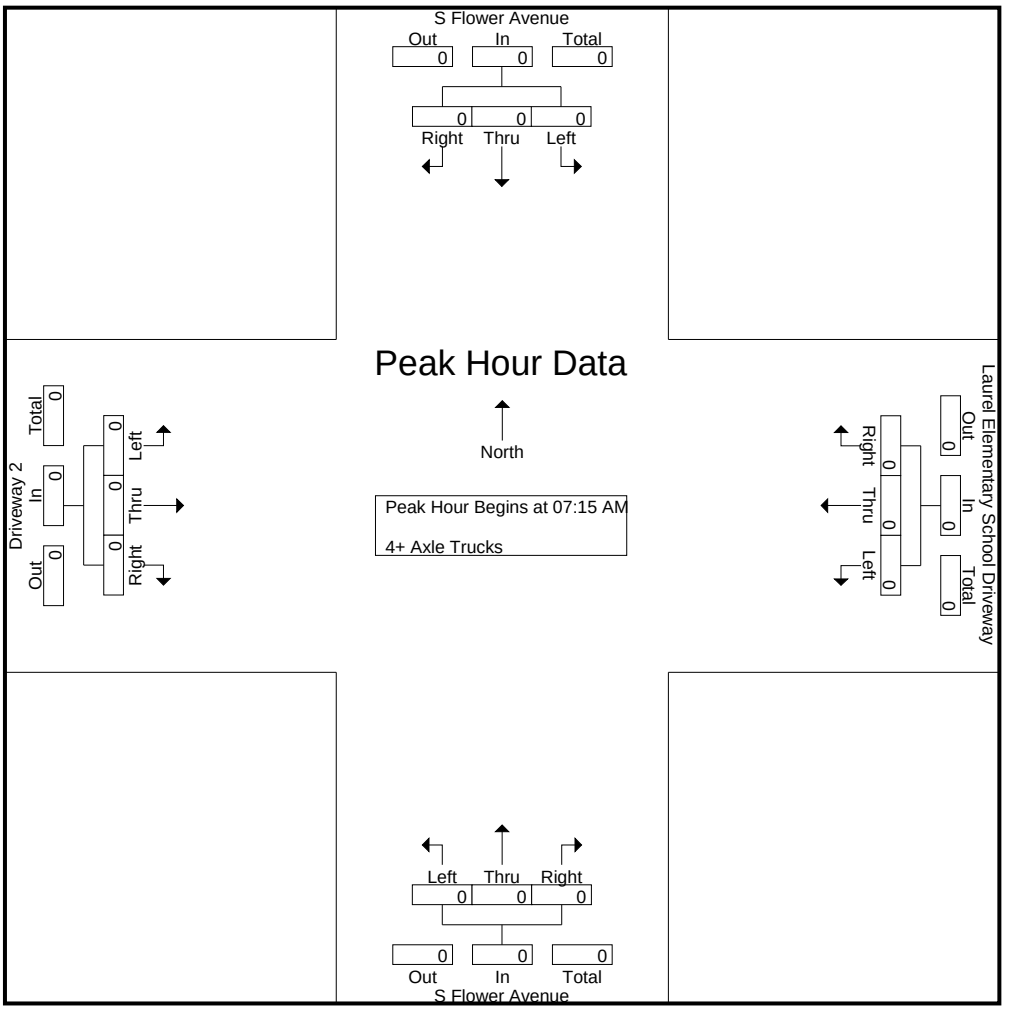
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

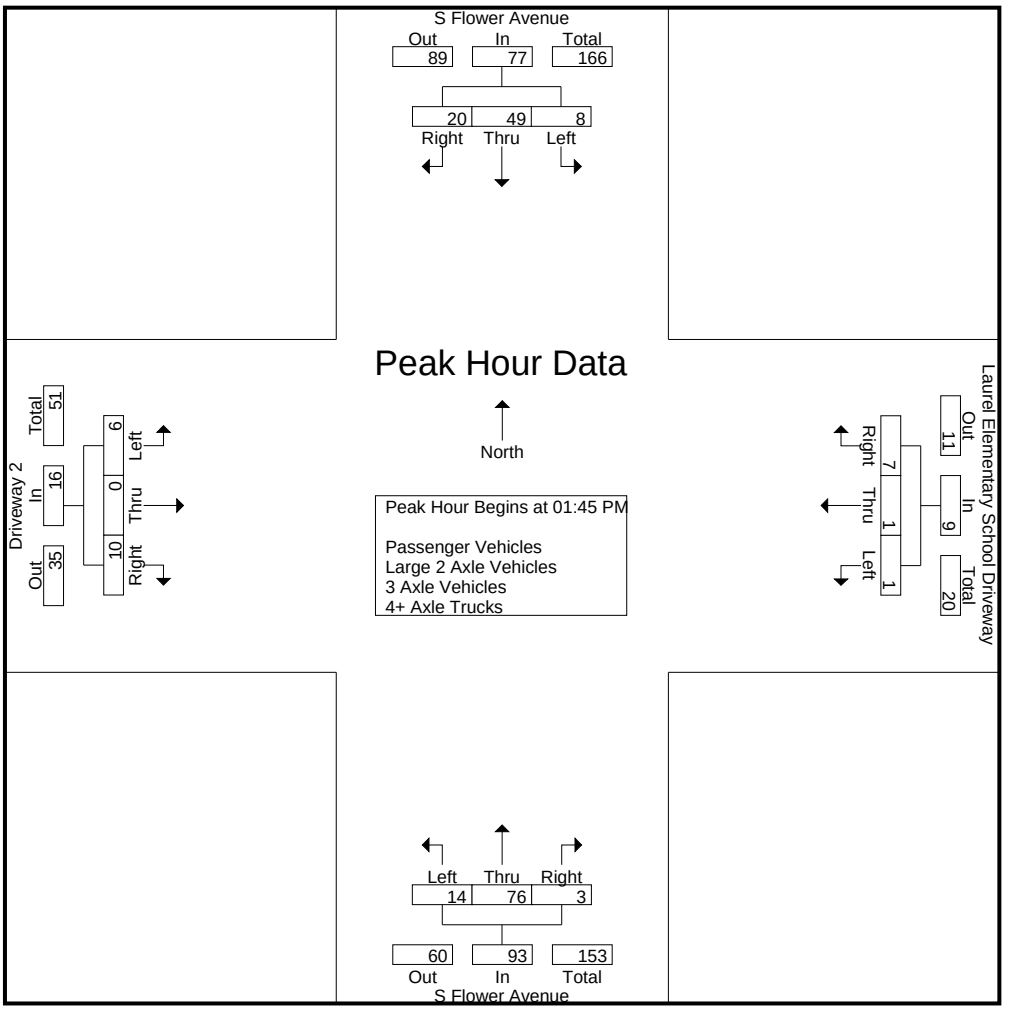
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	13	1	14	0	0	0	0	0	10	0	10	0	0	0	0	24
01:15 PM	0	13	1	14	0	0	0	0	1	9	1	11	0	0	0	0	25
01:30 PM	2	9	0	11	0	0	1	1	2	9	1	12	0	0	1	1	25
01:45 PM	3	9	3	15	0	0	0	0	5	15	0	20	2	0	1	3	38
Total	5	44	5	54	0	0	1	1	8	43	2	53	2	0	2	4	112
02:00 PM	3	17	12	32	0	1	2	3	6	13	1	20	2	0	1	3	58
02:15 PM	1	15	2	18	0	0	2	2	1	29	1	31	2	0	4	6	57
02:30 PM	1	8	3	12	1	0	3	4	2	19	1	22	0	0	4	4	42
02:45 PM	2	12	2	16	0	0	1	1	1	18	0	19	0	0	0	0	36
Total	7	52	19	78	1	1	8	10	10	79	3	92	4	0	9	13	193
Grand Total	12	96	24	132	1	1	9	11	18	122	5	145	6	0	11	17	305
Apprch %	9.1	72.7	18.2		9.1	9.1	81.8		12.4	84.1	3.4		35.3	0	64.7		
Total %	3.9	31.5	7.9	43.3	0.3	0.3	3	3.6	5.9	40	1.6	47.5	2	0	3.6	5.6	
Passenger Vehicles	12	90	23	125	1	1	9	11	18	121	4	143	6	0	11	17	296
% Passenger Vehicles	100	93.8	95.8	94.7	100	100	100	100	100	99.2	80	98.6	100	0	100	100	97
Large 2 Axle Vehicles	0	5	0	5	0	0	0	0	0	1	1	2	0	0	0	0	7
% Large 2 Axle Vehicles	0	5.2	0	3.8	0	0	0	0	0	0.8	20	1.4	0	0	0	0	2.3
3 Axle Vehicles	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% 3 Axle Vehicles	0	1	4.2	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0.7
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	**3**	9	3	15	0	0	0	0	5	15	0	20	**2**	0	1	3	38
02:00 PM	3	**17**	**12**	**32**	0	**1**	2	3	**6**	13	**1**	20	2	0	1	3	**58**
02:15 PM	1	15	2	18	0	0	2	2	1	**29**	1	**31**	2	0	**4**	**6**	57
02:30 PM	1	8	3	12	**1**	0	**3**	**4**	2	19	1	22	0	0	4	4	42
Total Volume	8	49	20	77	1	1	7	9	14	76	3	93	6	0	10	16	195
% App. Total	10.4	63.6	26		11.1	11.1	77.8		15.1	81.7	3.2		37.5	0	62.5		
PHF	.667	.721	.417	.602	.250	.250	.583	.563	.583	.655	.750	.750	.750	.000	.625	.667	.841

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				01:45 PM				01:45 PM			
+0 mins.	**3**	**17**	**12**	**32**	0	**1**	2	3	5	15	0	20	**2**	0	1	3
+15 mins.	1	15	2	18	0	0	2	2	**6**	13	**1**	20	2	0	1	3
+30 mins.	1	8	3	12	**1**	0	**3**	**4**	1	**29**	1	**31**	2	0	**4**	**6**
+45 mins.	2	12	2	16	0	0	1	1	2	19	1	22	0	0	4	4
Total Volume	7	52	19	78	1	1	8	10	14	76	3	93	6	0	10	16
% App. Total	9	66.7	24.4		10	10	80		15.1	81.7	3.2		37.5	0	62.5	
PHF	.583	.765	.396	.609	.250	.250	.667	.625	.583	.655	.750	.750	.750	.000	.625	.667

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles

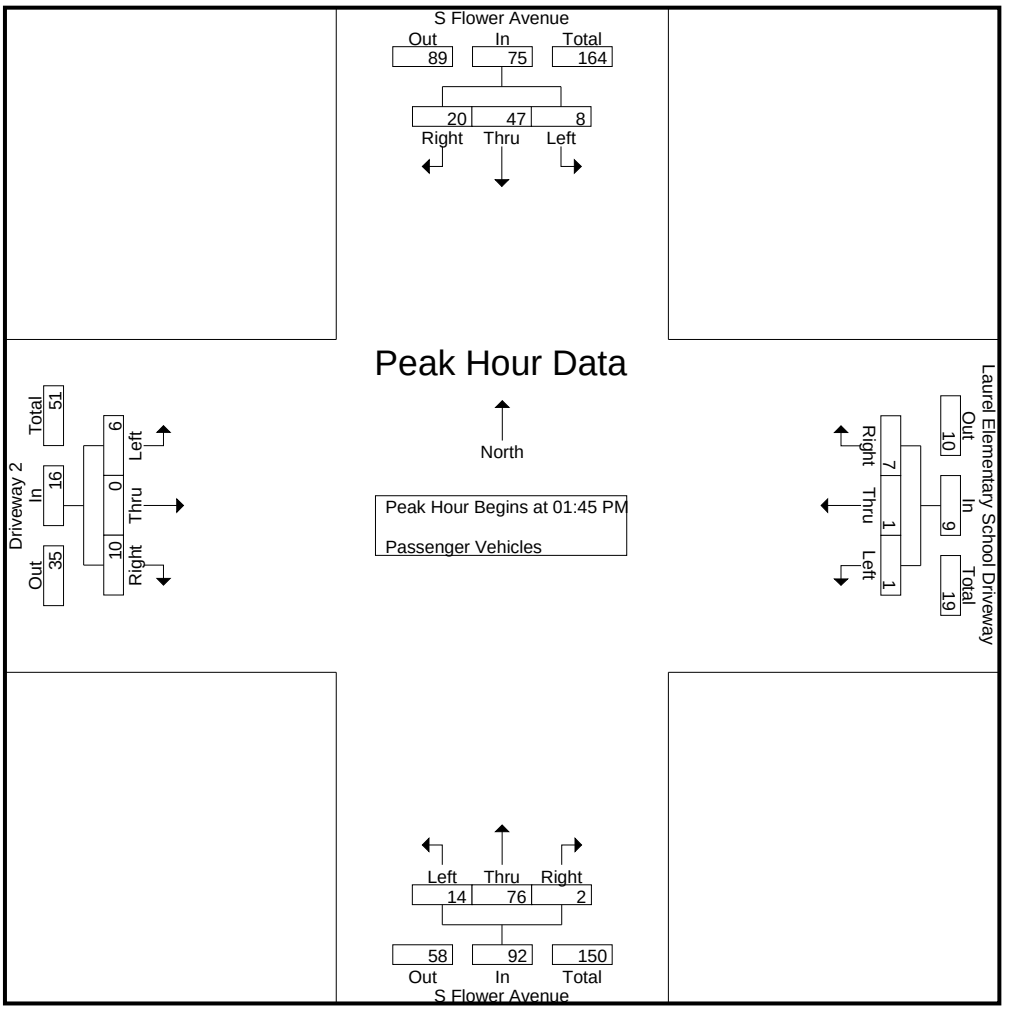
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	11	1	12	0	0	0	0	0	10	0	10	0	0	0	0	22
01:15 PM	0	13	1	14	0	0	0	0	1	9	1	11	0	0	0	0	25
01:30 PM	2	8	0	10	0	0	1	1	2	8	1	11	0	0	1	1	23
01:45 PM	3	8	3	14	0	0	0	0	5	15	0	20	2	0	1	3	37
Total	5	40	5	50	0	0	1	1	8	42	2	52	2	0	2	4	107
02:00 PM	3	17	12	32	0	1	2	3	6	13	0	19	2	0	1	3	57
02:15 PM	1	14	2	17	0	0	2	2	1	29	1	31	2	0	4	6	56
02:30 PM	1	8	3	12	1	0	3	4	2	19	1	22	0	0	4	4	42
02:45 PM	2	11	1	14	0	0	1	1	1	18	0	19	0	0	0	0	34
Total	7	50	18	75	1	1	8	10	10	79	2	91	4	0	9	13	189
Grand Total	12	90	23	125	1	1	9	11	18	121	4	143	6	0	11	17	296
Apprch %	9.6	72	18.4		9.1	9.1	81.8		12.6	84.6	2.8		35.3	0	64.7		
Total %	4.1	30.4	7.8	42.2	0.3	0.3	3	3.7	6.1	40.9	1.4	48.3	2	0	3.7	5.7	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 01:45 PM to 02:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	**3**	8	3	14	0	0	0	0	5	15	0	20	**2**	0	1	3	37
02:00 PM	3	**17**	**12**	**32**	0	**1**	2	3	**6**	13	0	19	2	0	1	3	**57**
02:15 PM	1	14	2	17	0	0	2	2	1	**29**	**1**	**31**	2	0	**4**	**6**	56
02:30 PM	1	8	3	12	**1**	0	**3**	**4**	2	19	1	22	0	0	4	4	42
Total Volume	8	47	20	75	1	1	7	9	14	76	2	92	6	0	10	16	192
% App. Total	10.7	62.7	26.7		11.1	11.1	77.8		15.2	82.6	2.2		37.5	0	62.5		
PHF	.667	.691	.417	.586	.250	.250	.583	.563	.583	.655	.500	.742	.750	.000	.625	.667	.842

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 01:45 PM to 02:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:45 PM				01:45 PM				01:45 PM				01:45 PM			
+0 mins.	**3**	8	3	14	0	0	0	0	5	15	0	20	**2**	0	1	3
+15 mins.	3	**17**	**12**	**32**	0	**1**	2	3	**6**	13	0	19	2	0	1	3
+30 mins.	1	14	2	17	0	0	2	2	1	**29**	**1**	**31**	2	0	**4**	**6**
+45 mins.	1	8	3	12	**1**	0	**3**	**4**	2	19	1	22	0	0	4	4
Total Volume	8	47	20	75	1	1	7	9	14	76	2	92	6	0	10	16
% App. Total	10.7	62.7	26.7		11.1	11.1	77.8		15.2	82.6	2.2		37.5	0	62.5	
PHF	.667	.691	.417	.586	.250	.250	.583	.563	.583	.655	.500	.742	.750	.000	.625	.667

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

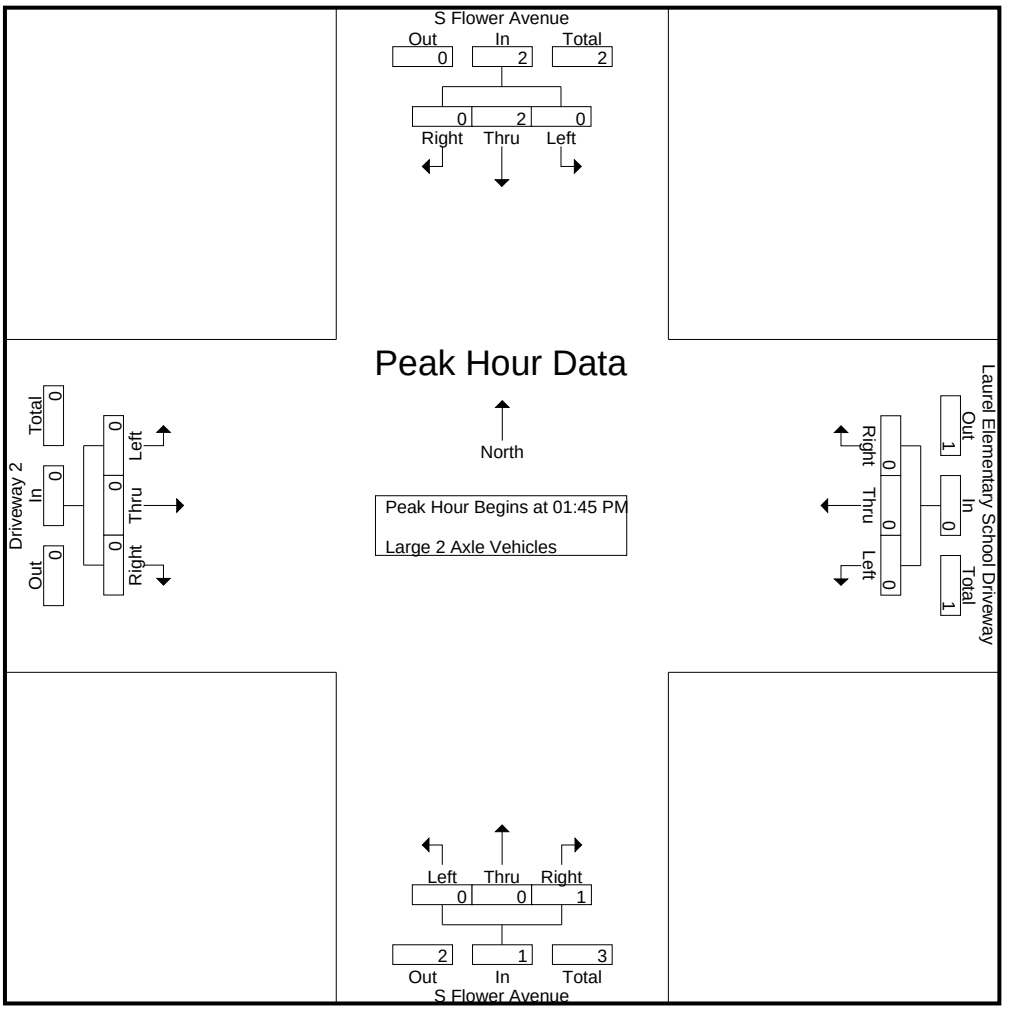
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
01:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	4	0	4	0	0	0	0	0	1	0	1	0	0	0	0	5
02:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
02:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
Grand Total	0	5	0	5	0	0	0	0	0	1	1	2	0	0	0	0	7
Apprch %	0	100	0		0	0	0		0	50	50		0	0	0		
Total %	0	71.4	0	71.4	0	0	0	0	0	14.3	14.3	28.6	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 01:45 PM to 02:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
02:00 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	1
02:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	0	1	1	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.750

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 01:45 PM to 02:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:45 PM				01:45 PM				01:45 PM				01:45 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+30 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	0	1	1	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	100		0	0	0	
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

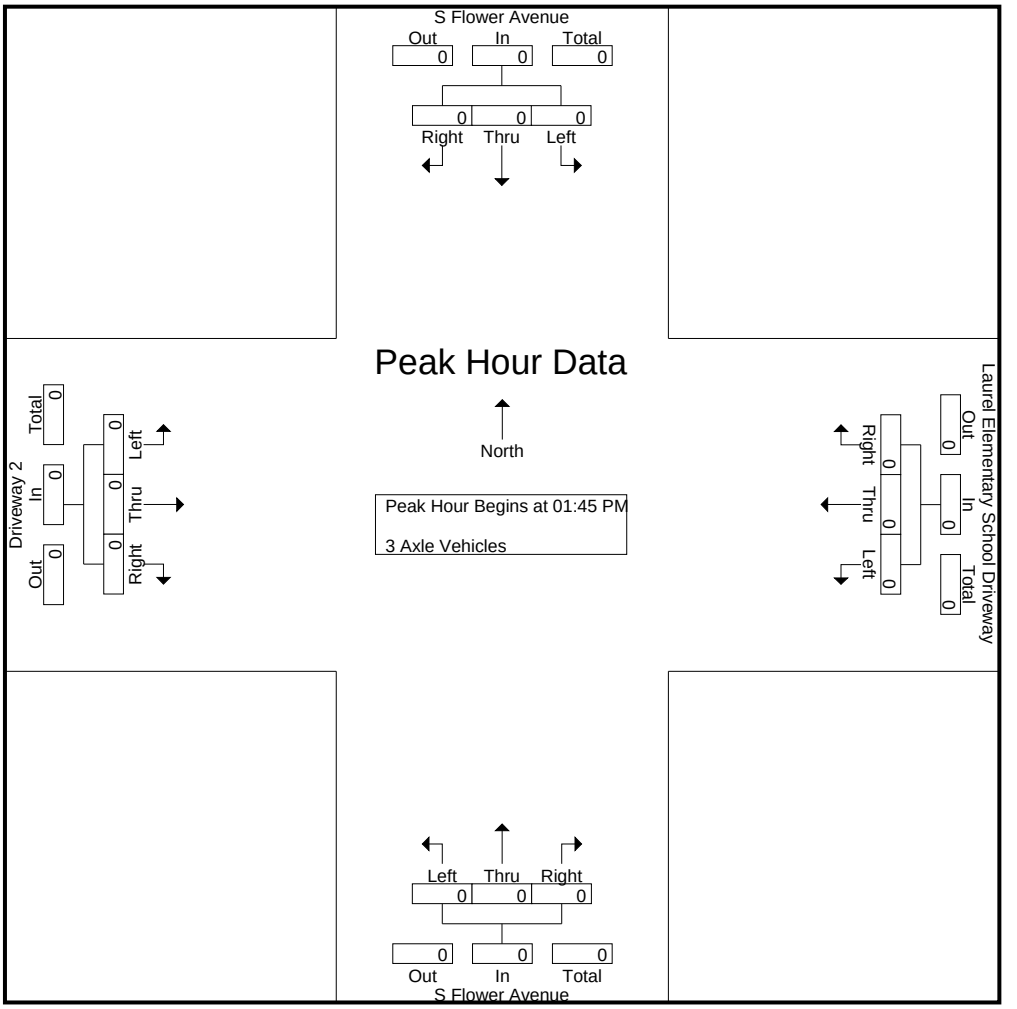
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Apprch %	0	50	50		0	0	0		0	0	0		0	0	0		
Total %	0	50	50	100	0	0	0	0	0	0	0	0	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 01:45 PM to 02:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 01:45 PM to 02:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:45 PM				01:45 PM				01:45 PM				01:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

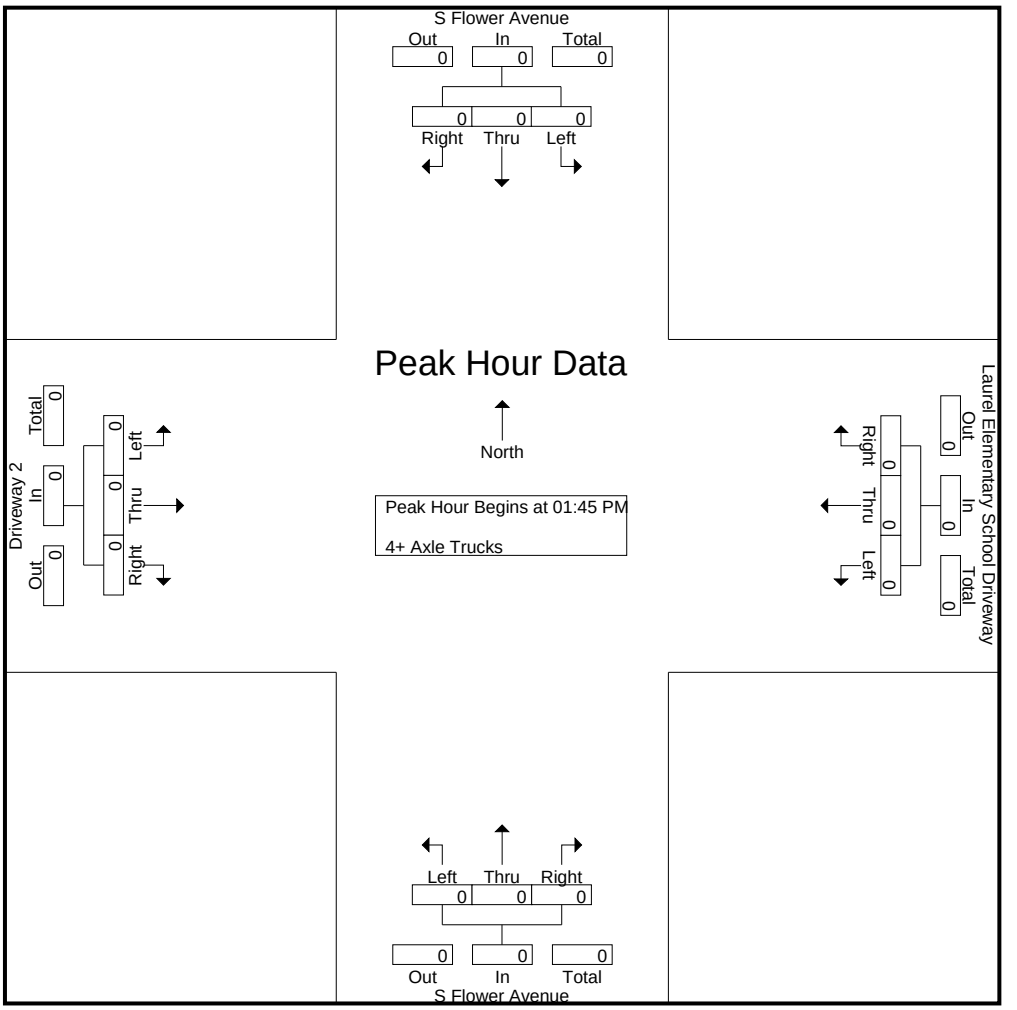
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 01:45 PM to 02:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 01:45 PM to 02:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:45 PM				01:45 PM				01:45 PM				01:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

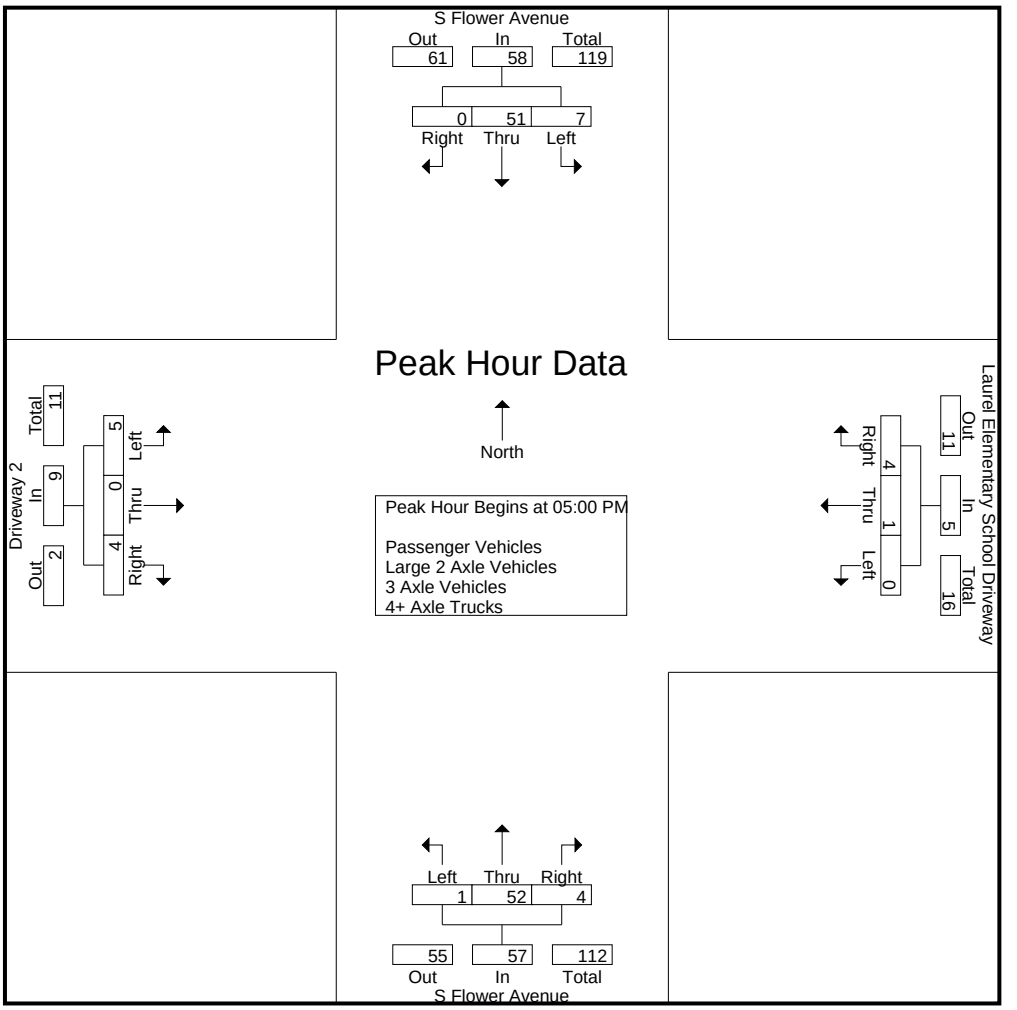
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	13	0	13	1	0	1	2	1	9	0	10	0	0	3	3	28
04:15 PM	1	11	1	13	0	0	0	0	0	18	2	20	1	0	1	2	35
04:30 PM	1	14	1	16	0	0	0	0	1	12	1	14	2	0	2	4	34
04:45 PM	0	12	0	12	1	0	0	1	0	11	0	11	1	0	1	2	26
Total	2	50	2	54	2	0	1	3	2	50	3	55	4	0	7	11	123
05:00 PM	0	10	0	10	0	0	0	0	0	11	1	12	0	0	1	1	23
05:15 PM	3	15	0	18	0	0	1	1	0	9	2	11	3	0	0	3	33
05:30 PM	3	14	0	17	0	0	3	3	1	15	0	16	2	0	1	3	39
05:45 PM	1	12	0	13	0	1	0	1	0	17	1	18	0	0	2	2	34
Total	7	51	0	58	0	1	4	5	1	52	4	57	5	0	4	9	129
Grand Total	9	101	2	112	2	1	5	8	3	102	7	112	9	0	11	20	252
Apprch %	8	90.2	1.8		25	12.5	62.5		2.7	91.1	6.2		45	0	55		
Total %	3.6	40.1	0.8	44.4	0.8	0.4	2	3.2	1.2	40.5	2.8	44.4	3.6	0	4.4	7.9	
Passenger Vehicles	9	100	2	111	2	1	5	8	3	102	7	112	9	0	11	20	251
% Passenger Vehicles	100	99	100	99.1	100	100	100	100	100	100	100	100	100	0	100	100	99.6
Large 2 Axle Vehicles	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Large 2 Axle Vehicles	0	1	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0.4
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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	0	10	0	10	0	0	0	0	0	11	1	12	0	0	1	1	23
05:15 PM	**3**	**15**	0	**18**	0	0	1	1	0	9	**2**	11	**3**	0	0	**3**	33
05:30 PM	3	14	0	17	0	0	**3**	**3**	**1**	15	0	16	2	0	1	3	**39**
05:45 PM	1	12	0	13	0	**1**	0	1	0	**17**	1	**18**	0	0	**2**	2	34
Total Volume	7	51	0	58	0	1	4	5	1	52	4	57	5	0	4	9	129
% App. Total	12.1	87.9	0		0	20	80		1.8	91.2	7		55.6	0	44.4		
PHF	.583	.850	.000	.806	.000	.250	.333	.417	.250	.765	.500	.792	.417	.000	.500	.750	.827

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
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				04:45 PM				04:15 PM				04:00 PM			
+0 mins.	0	10	0	10	**1**	0	0	1	0	**18**	**2**	**20**	0	0	**3**	3
+15 mins.	**3**	**15**	0	**18**	0	0	0	0	**1**	12	1	14	1	0	1	2
+30 mins.	3	14	0	17	0	0	1	1	0	11	0	11	**2**	0	2	**4**
+45 mins.	1	12	0	13	0	0	**3**	**3**	0	11	1	12	1	0	1	2
Total Volume	7	51	0	58	1	0	4	5	1	52	4	57	4	0	7	11
% App. Total	12.1	87.9	0		20	0	80		1.8	91.2	7		36.4	0	63.6	
PHF	.583	.850	.000	.806	.250	.000	.333	.417	.250	.722	.500	.713	.500	.000	.583	.688

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Passenger Vehicles

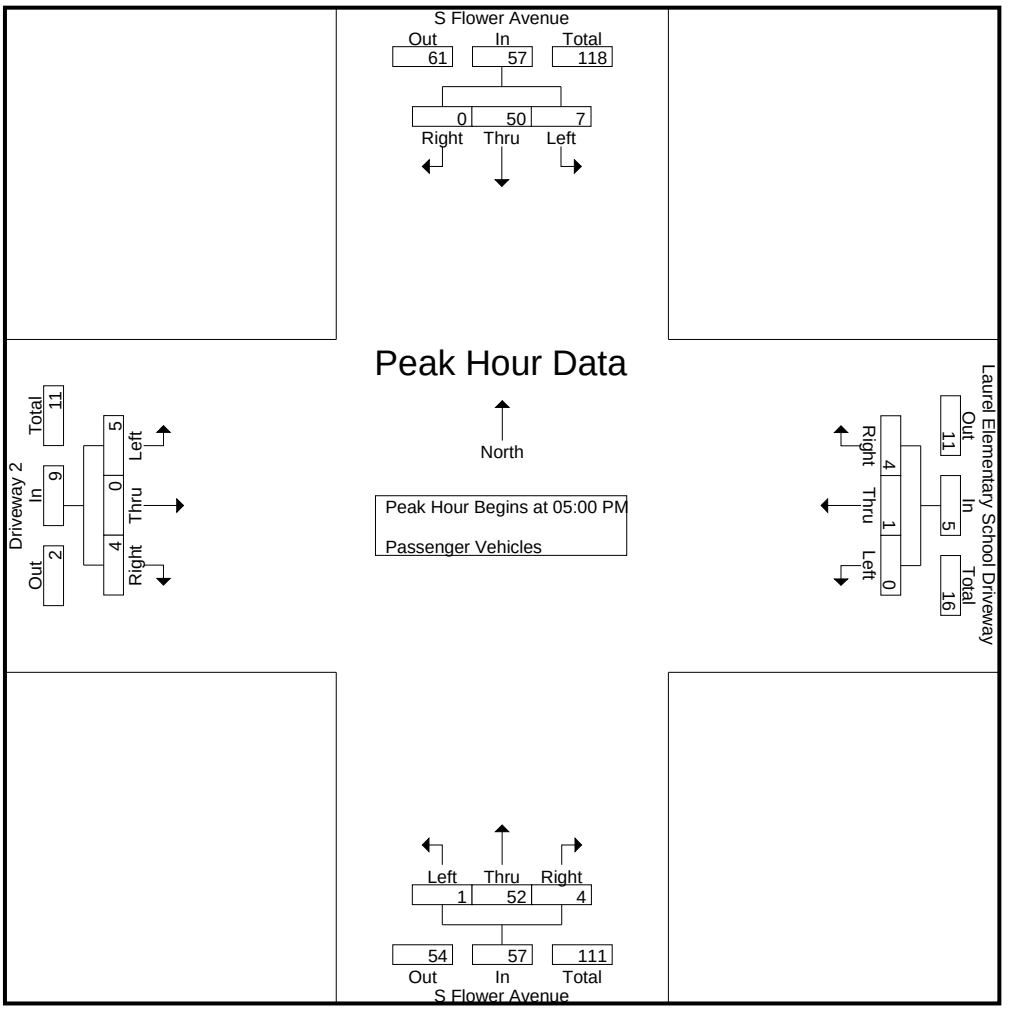
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	13	0	13	1	0	1	2	1	9	0	10	0	0	3	3	28
04:15 PM	1	11	1	13	0	0	0	0	0	18	2	20	1	0	1	2	35
04:30 PM	1	14	1	16	0	0	0	0	1	12	1	14	2	0	2	4	34
04:45 PM	0	12	0	12	1	0	0	1	0	11	0	11	1	0	1	2	26
Total	2	50	2	54	2	0	1	3	2	50	3	55	4	0	7	11	123
05:00 PM	0	10	0	10	0	0	0	0	0	11	1	12	0	0	1	1	23
05:15 PM	3	14	0	17	0	0	1	1	0	9	2	11	3	0	0	3	32
05:30 PM	3	14	0	17	0	0	3	3	1	15	0	16	2	0	1	3	39
05:45 PM	1	12	0	13	0	1	0	1	0	17	1	18	0	0	2	2	34
Total	7	50	0	57	0	1	4	5	1	52	4	57	5	0	4	9	128
Grand Total	9	100	2	111	2	1	5	8	3	102	7	112	9	0	11	20	251
Apprch %	8.1	90.1	1.8		25	12.5	62.5		2.7	91.1	6.2		45	0	55		
Total %	3.6	39.8	0.8	44.2	0.8	0.4	2	3.2	1.2	40.6	2.8	44.6	3.6	0	4.4	8	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	10	0	10	0	0	0	0	0	11	1	12	0	0	1	1	23
05:15 PM	**3**	**14**	0	**17**	0	0	1	1	0	9	**2**	11	**3**	0	0	**3**	32
05:30 PM	3	14	0	17	0	0	**3**	**3**	**1**	15	0	16	2	0	1	3	**39**
05:45 PM	1	12	0	13	0	**1**	0	1	0	**17**	1	**18**	0	0	**2**	2	34
Total Volume	7	50	0	57	0	1	4	5	1	52	4	57	5	0	4	9	128
% App. Total	12.3	87.7	0		0	20	80		1.8	91.2	7		55.6	0	44.4		
PHF	.583	.893	.000	.838	.000	.250	.333	.417	.250	.765	.500	.792	.417	.000	.500	.750	.821

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	10	0	10	0	0	0	0	0	11	1	12	0	0	1	1
+15 mins.	**3**	**14**	0	**17**	0	0	1	1	0	9	**2**	11	**3**	0	0	**3**
+30 mins.	3	14	0	17	0	0	**3**	**3**	**1**	15	0	16	2	0	1	3
+45 mins.	1	12	0	13	0	**1**	0	1	0	**17**	1	**18**	0	0	**2**	2
Total Volume	7	50	0	57	0	1	4	5	1	52	4	57	5	0	4	9
% App. Total	12.3	87.7	0		0	20	80		1.8	91.2	7		55.6	0	44.4	
PHF	.583	.893	.000	.838	.000	.250	.333	.417	.250	.765	.500	.792	.417	.000	.500	.750

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

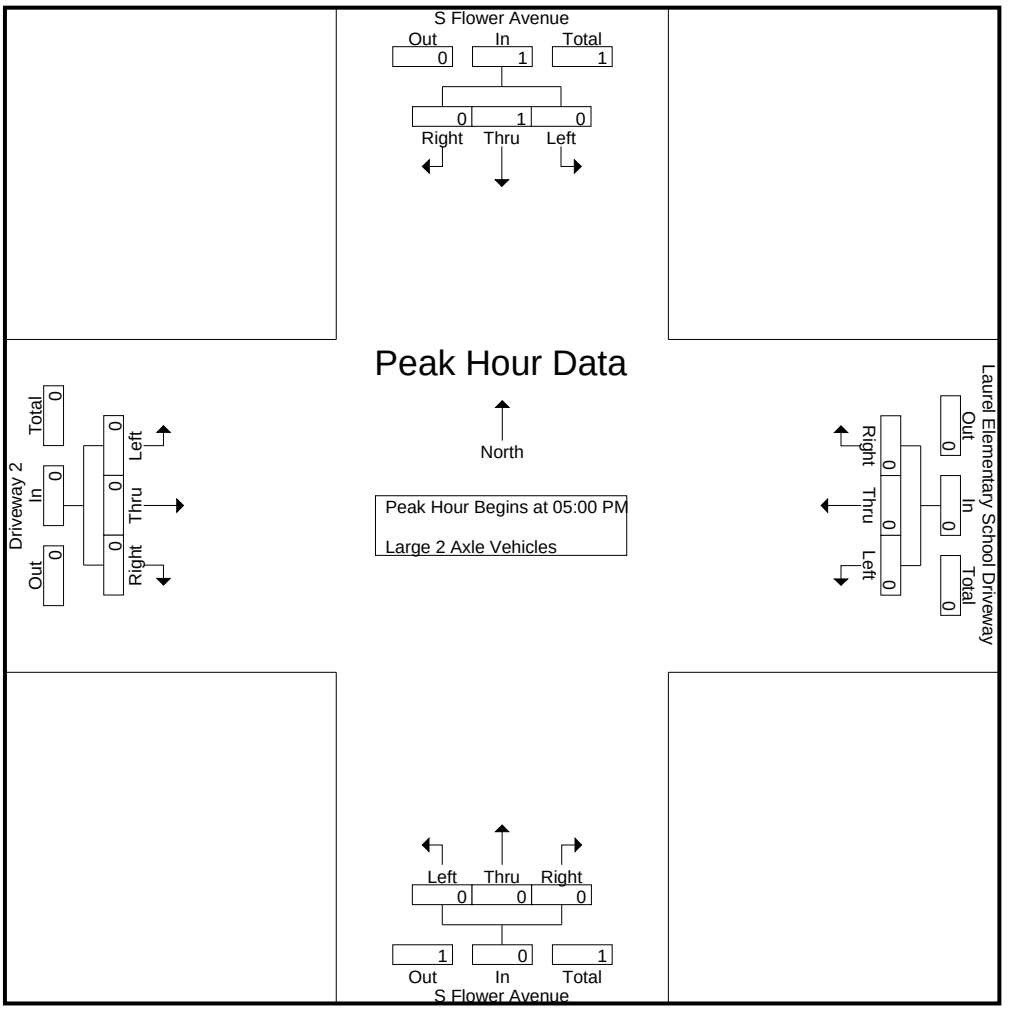
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0		
Total %	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

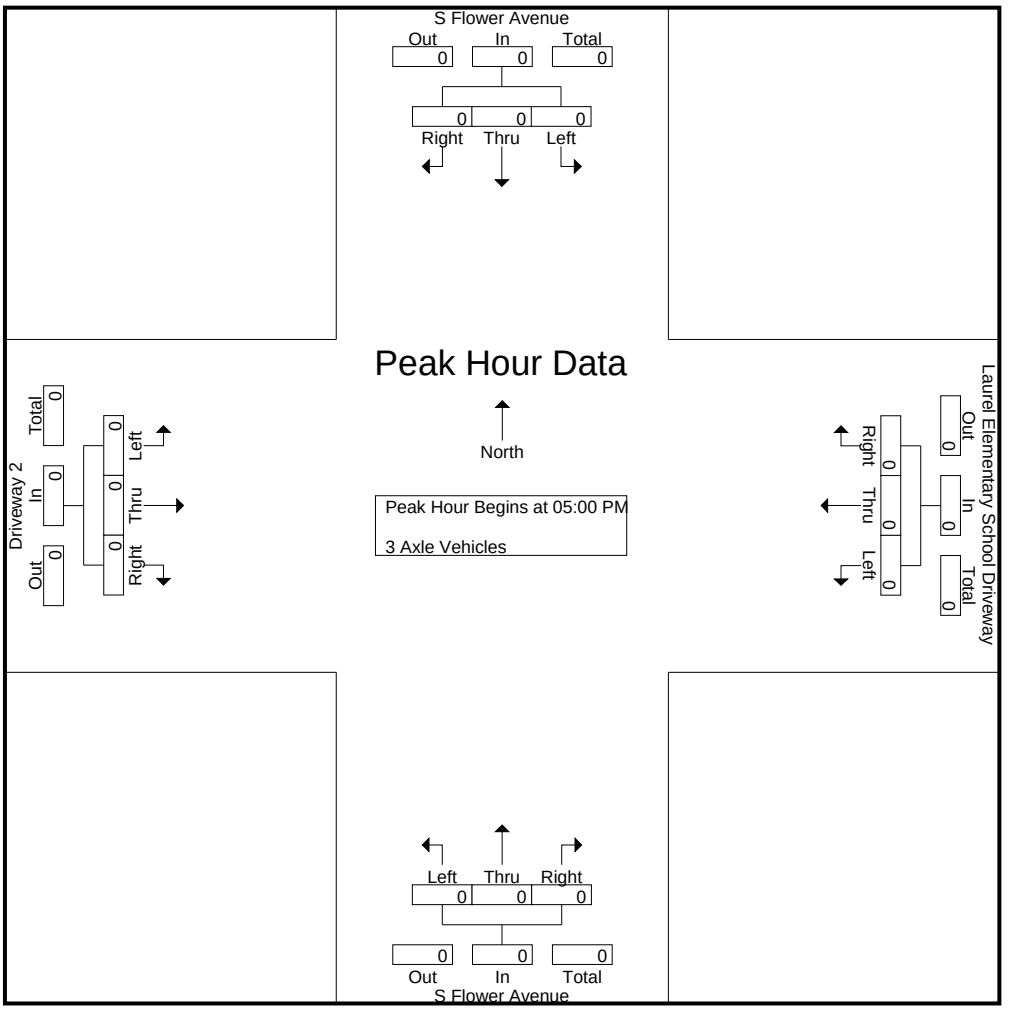
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

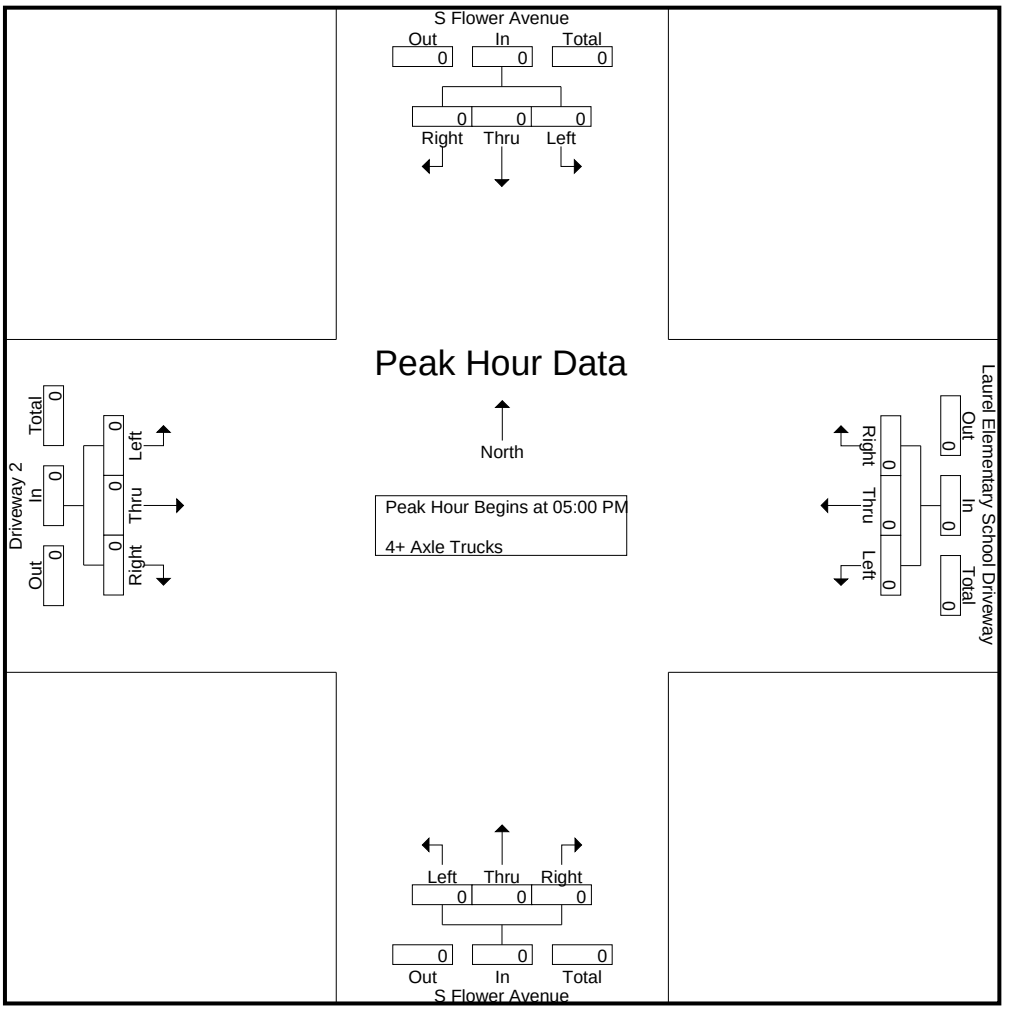
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
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File Name : 04_BRE_Flo_DW2 PM 20
Site Code : 221110
Start Date : 9/20/2022
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

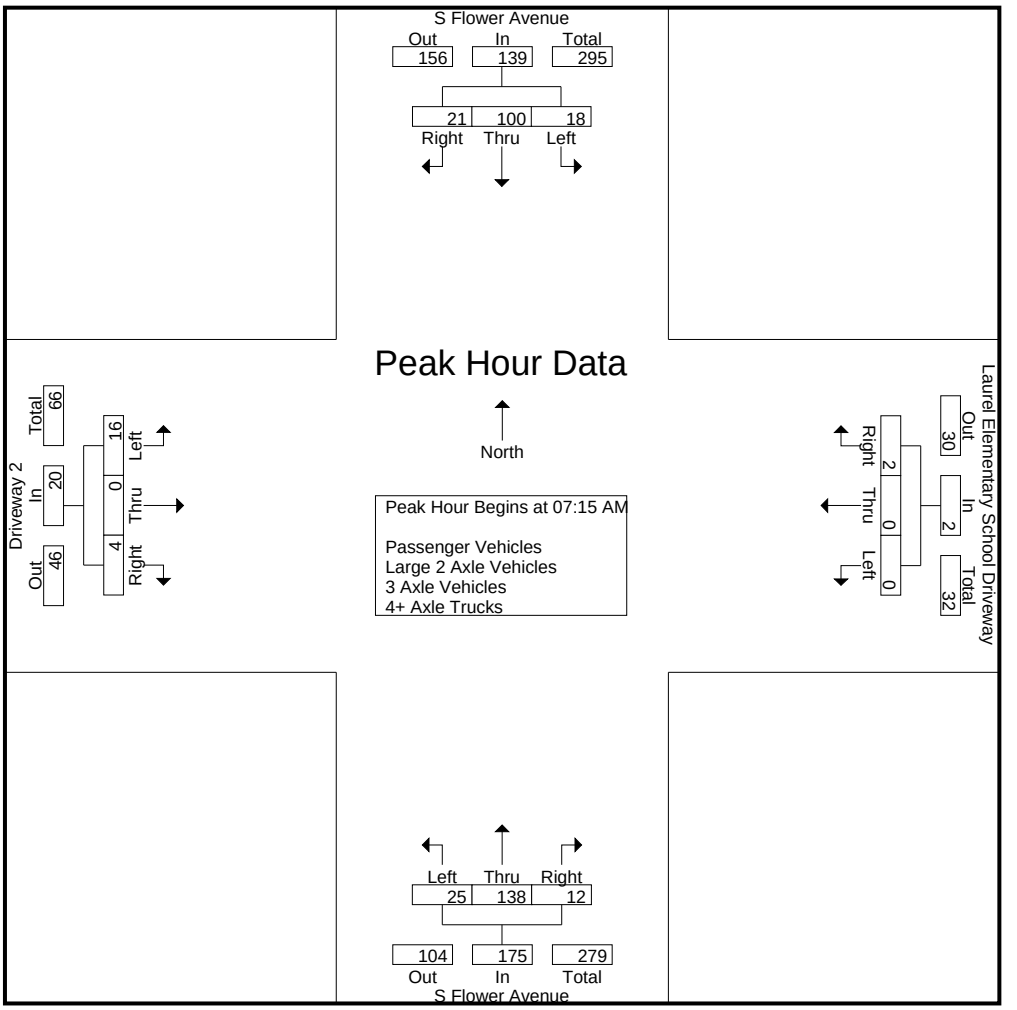
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	20	0	23	0	0	1	1	0	1	5	6	0	0	0	0	30
07:15 AM	9	30	3	42	0	0	0	0	2	15	7	24	0	0	0	0	66
07:30 AM	5	22	0	27	0	0	0	0	7	19	4	30	4	0	1	5	62
07:45 AM	2	28	15	45	0	0	0	0	10	76	1	87	9	0	1	10	142
Total	19	100	18	137	0	0	1	1	19	111	17	147	13	0	2	15	300
08:00 AM	2	20	3	25	0	0	2	2	6	28	0	34	3	0	2	5	66
08:15 AM	0	22	0	22	0	0	0	0	1	7	1	9	1	0	1	2	33
08:30 AM	0	16	1	17	0	0	0	0	2	8	0	10	1	0	0	1	28
08:45 AM	2	29	1	32	0	0	2	2	1	13	0	14	1	0	0	1	49
Total	4	87	5	96	0	0	4	4	10	56	1	67	6	0	3	9	176
Grand Total	23	187	23	233	0	0	5	5	29	167	18	214	19	0	5	24	476
Apprch %	9.9	80.3	9.9		0	0	100		13.6	78	8.4		79.2	0	20.8		
Total %	4.8	39.3	4.8	48.9	0	0	1.1	1.1	6.1	35.1	3.8	45	4	0	1.1	5	
Passenger Vehicles	22	186	23	231	0	0	3	3	29	166	18	213	19	0	5	24	471
% Passenger Vehicles	95.7	99.5	100	99.1	0	0	60	60	100	99.4	100	99.5	100	0	100	100	98.9
Large 2 Axle Vehicles	1	1	0	2	0	0	2	2	0	1	0	1	0	0	0	0	5
% Large 2 Axle Vehicles	4.3	0.5	0	0.9	0	0	40	40	0	0.6	0	0.5	0	0	0	0	1.1
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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	**9**	**30**	3	42	0	0	0	0	2	15	**7**	24	0	0	0	0	66
07:30 AM	5	22	0	27	0	0	0	0	7	19	4	30	4	0	1	5	62
07:45 AM	2	28	**15**	**45**	0	0	0	0	**10**	**76**	1	**87**	**9**	0	1	**10**	**142**
08:00 AM	2	20	3	25	0	0	**2**	**2**	6	28	0	34	3	0	**2**	5	66
Total Volume	18	100	21	139	0	0	2	2	25	138	12	175	16	0	4	20	336
% App. Total	12.9	71.9	15.1		0	0	100		14.3	78.9	6.9		80	0	20		
PHF	.500	.833	.350	.772	.000	.000	.250	.250	.625	.454	.429	.503	.444	.000	.500	.500	.592

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
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:

	07:15 AM				08:00 AM				07:15 AM				07:30 AM			
+0 mins.	**9**	**30**	3	42	0	0	**2**	**2**	2	15	**7**	24	4	0	1	5
+15 mins.	5	22	0	27	0	0	0	0	7	19	4	30	**9**	0	1	**10**
+30 mins.	2	28	**15**	**45**	0	0	0	0	**10**	**76**	1	**87**	3	0	**2**	5
+45 mins.	2	20	3	25	0	0	2	2	6	28	0	34	1	0	1	2
Total Volume	18	100	21	139	0	0	4	4	25	138	12	175	17	0	5	22
% App. Total	12.9	71.9	15.1		0	0	100		14.3	78.9	6.9		77.3	0	22.7	
PHF	.500	.833	.350	.772	.000	.000	.500	.500	.625	.454	.429	.503	.472	.000	.625	.550

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

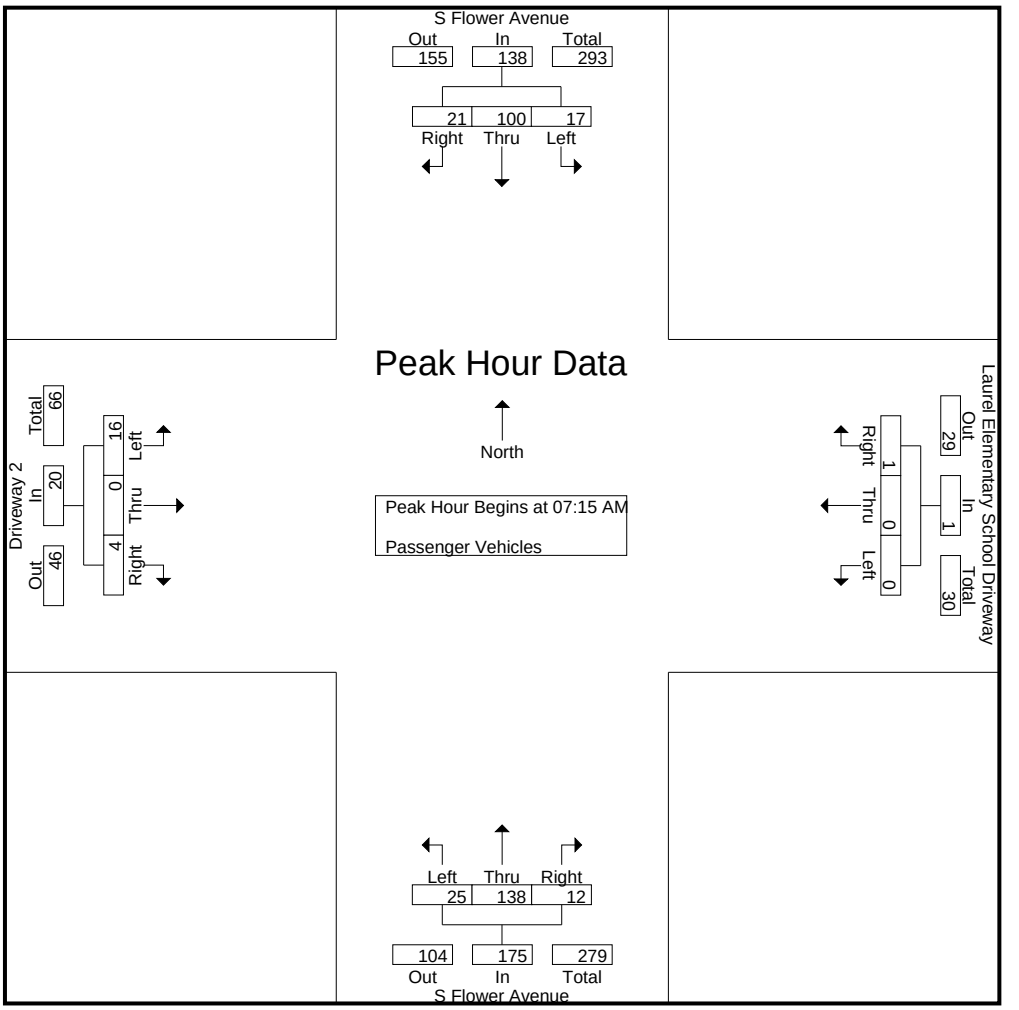
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	20	0	23	0	0	0	0	0	1	5	6	0	0	0	0	29
07:15 AM	9	30	3	42	0	0	0	0	2	15	7	24	0	0	0	0	66
07:30 AM	4	22	0	26	0	0	0	0	7	19	4	30	4	0	1	5	61
07:45 AM	2	28	15	45	0	0	0	0	10	76	1	87	9	0	1	10	142
Total	18	100	18	136	0	0	0	0	19	111	17	147	13	0	2	15	298
08:00 AM	2	20	3	25	0	0	1	1	6	28	0	34	3	0	2	5	65
08:15 AM	0	22	0	22	0	0	0	0	1	7	1	9	1	0	1	2	33
08:30 AM	0	16	1	17	0	0	0	0	2	7	0	9	1	0	0	1	27
08:45 AM	2	28	1	31	0	0	2	2	1	13	0	14	1	0	0	1	48
Total	4	86	5	95	0	0	3	3	10	55	1	66	6	0	3	9	173
Grand Total	22	186	23	231	0	0	3	3	29	166	18	213	19	0	5	24	471
Apprch %	9.5	80.5	10		0	0	100		13.6	77.9	8.5		79.2	0	20.8		
Total %	4.7	39.5	4.9	49	0	0	0.6	0.6	6.2	35.2	3.8	45.2	4	0	1.1	5.1	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**9**	**30**	3	42	0	0	0	0	2	15	**7**	24	0	0	0	0	66
07:30 AM	4	22	0	26	0	0	0	0	7	19	4	30	4	0	1	5	61
07:45 AM	2	28	**15**	**45**	0	0	0	0	**10**	**76**	1	**87**	**9**	0	1	**10**	**142**
08:00 AM	2	20	3	25	0	0	**1**	**1**	6	28	0	34	3	0	**2**	5	65
Total Volume	17	100	21	138	0	0	1	1	25	138	12	175	16	0	4	20	334
% App. Total	12.3	72.5	15.2		0	0	100		14.3	78.9	6.9		80	0	20		
PHF	.472	.833	.350	.767	.000	.000	.250	.250	.625	.454	.429	.503	.444	.000	.500	.500	.588

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	**9**	**30**	3	42	0	0	0	0	2	15	**7**	24	0	0	0	0
+15 mins.	4	22	0	26	0	0	0	0	7	19	4	30	4	0	1	5
+30 mins.	2	28	**15**	**45**	0	0	0	0	**10**	**76**	1	**87**	**9**	0	1	**10**
+45 mins.	2	20	3	25	0	0	**1**	**1**	6	28	0	34	3	0	**2**	5
Total Volume	17	100	21	138	0	0	1	1	25	138	12	175	16	0	4	20
% App. Total	12.3	72.5	15.2		0	0	100		14.3	78.9	6.9		80	0	20	
PHF	.472	.833	.350	.767	.000	.000	.250	.250	.625	.454	.429	.503	.444	.000	.500	.500

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022

Groups Printed- Large 2 Axle Vehicles

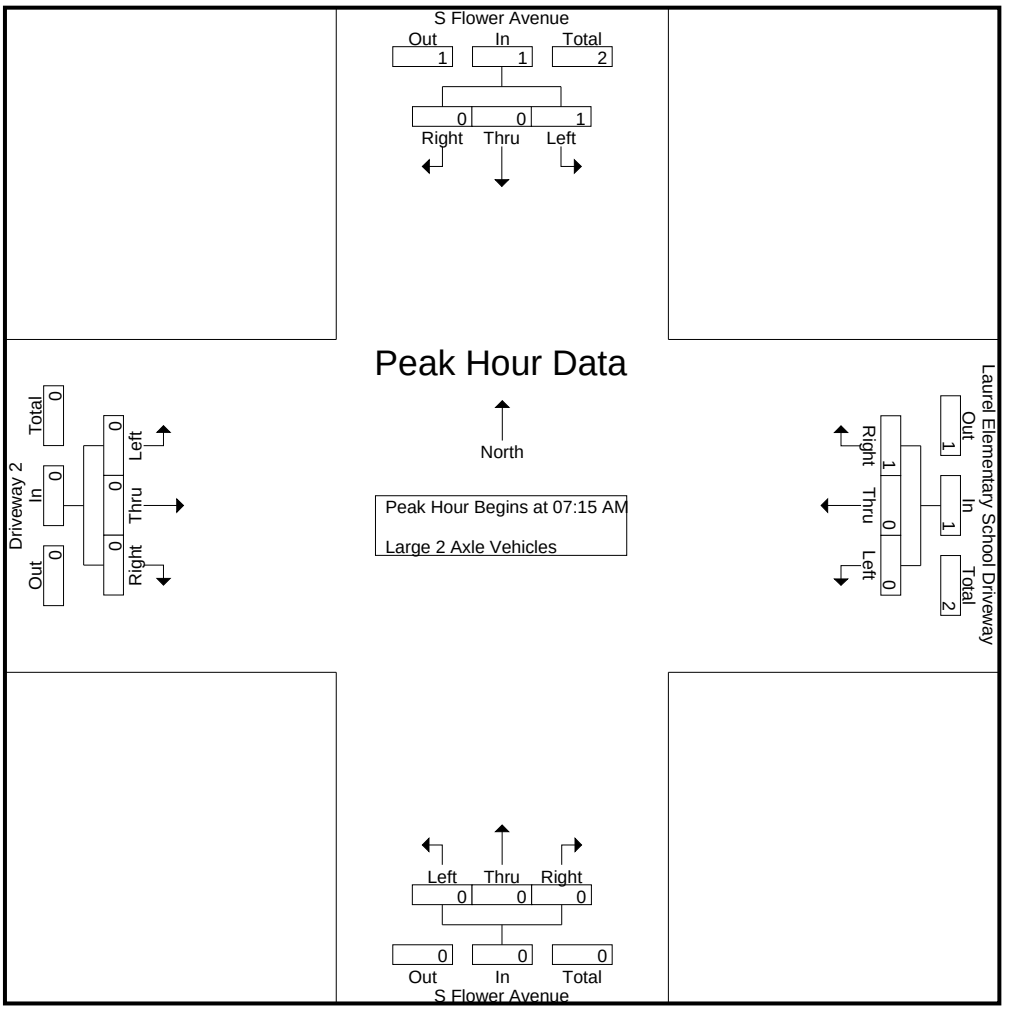
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0	3
Grand Total	1	1	0	2	0	0	2	2	0	1	0	1	0	0	0	0	5
Apprch %	50	50	0		0	0	100		0	100	0		0	0	0		
Total %	20	20	0	40	0	0	40	40	0	20	0	20	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
% App. Total	100	0	0		0	0	100		0	0	0		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.500

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
% App. Total	100	0	0		0	0	100		0	0	0		0	0	0	
PHF	.250	.000	.000	.250	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

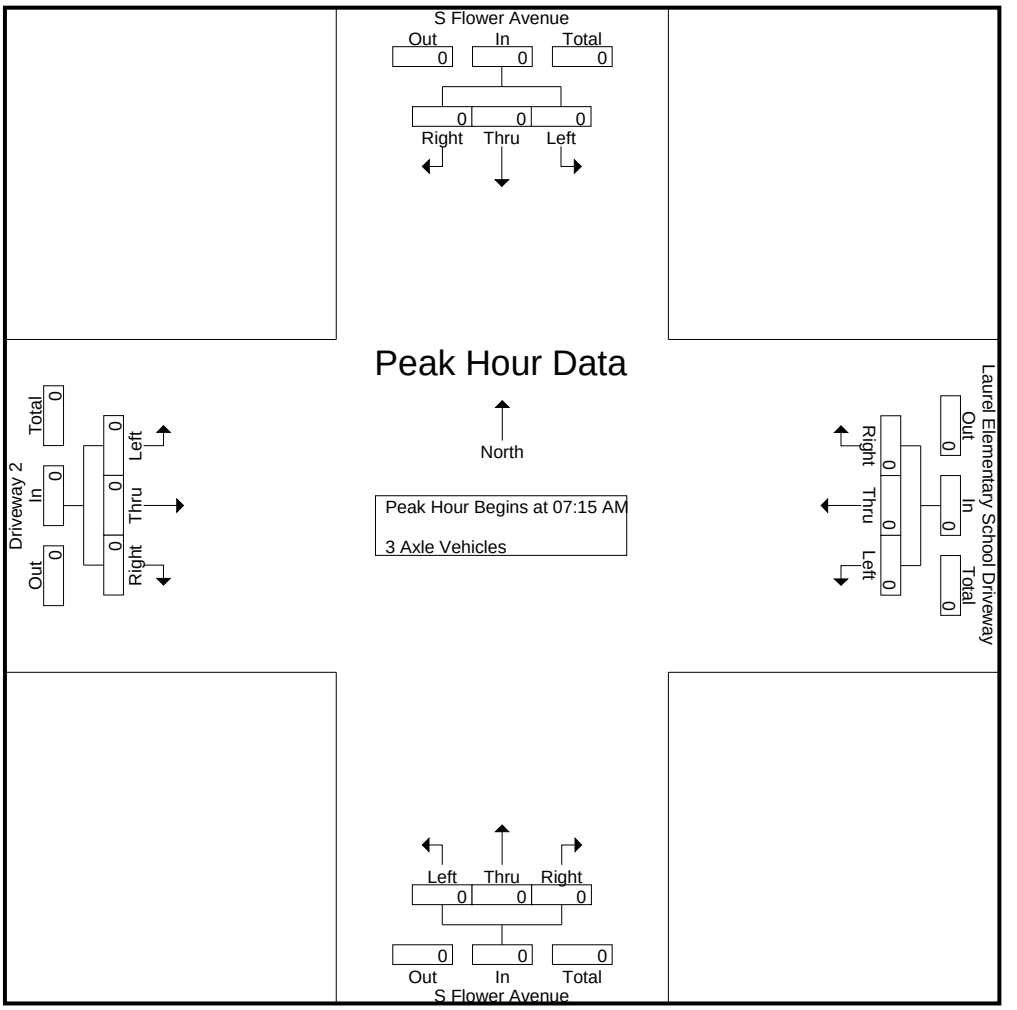
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

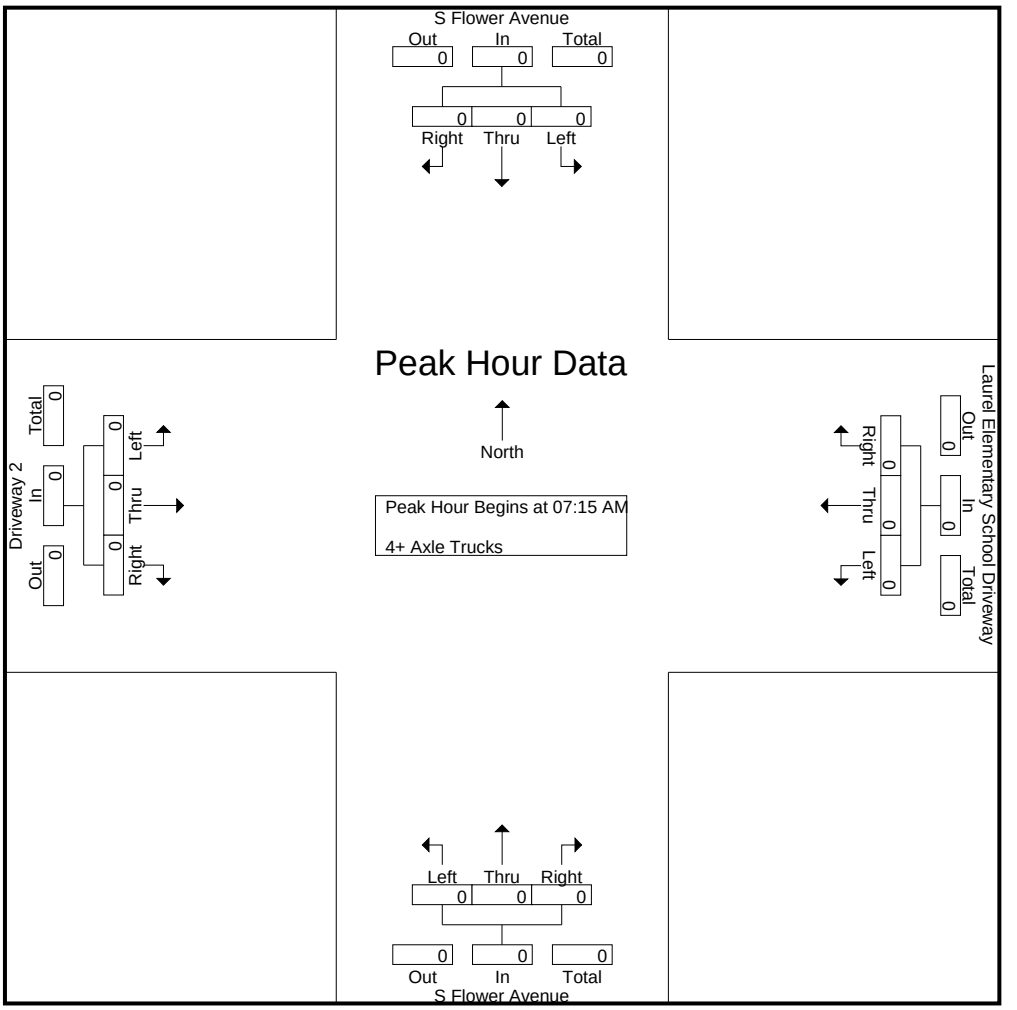
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 AM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Corona, CA 92878
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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

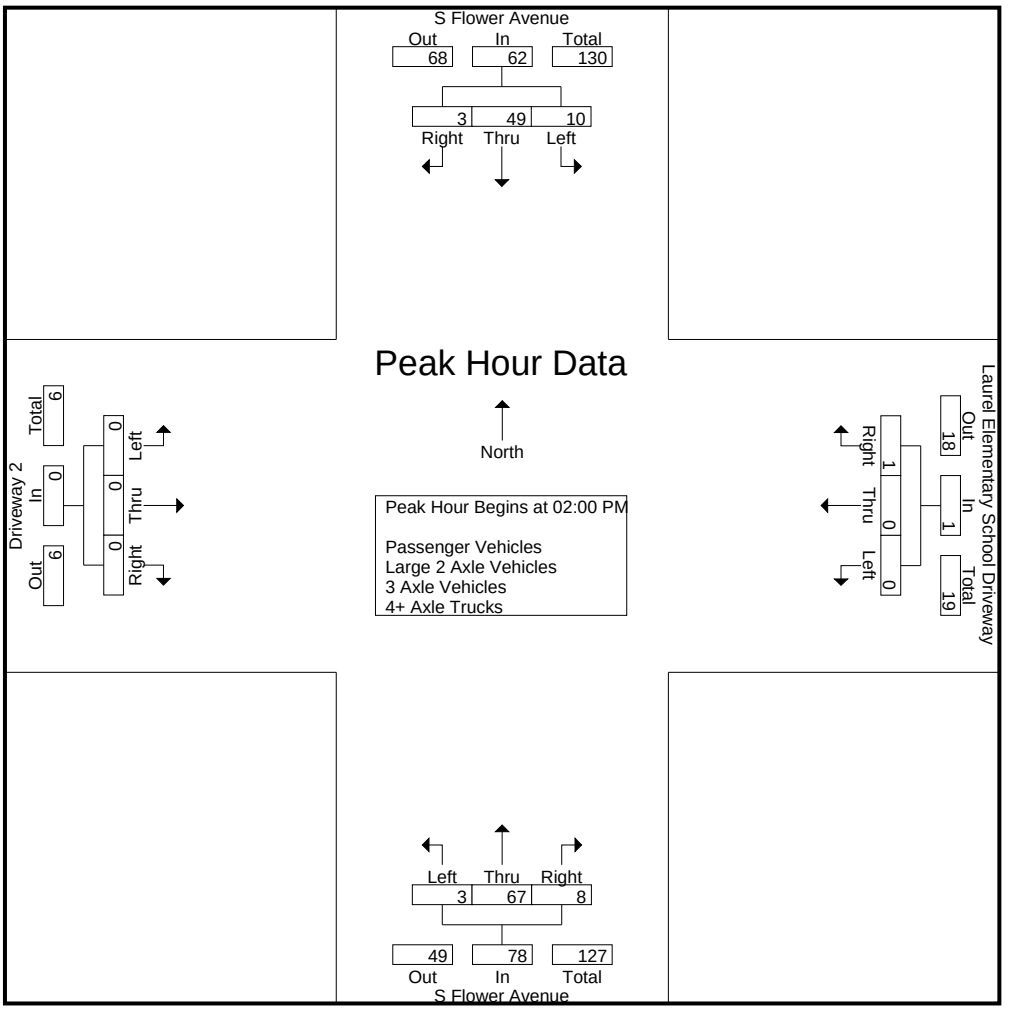
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	2	11	0	13	2	0	1	3	1	12	0	13	2	0	1	3	32
01:15 PM	2	15	0	17	1	0	0	1	1	11	0	12	1	0	5	6	36
01:30 PM	0	16	0	16	0	0	1	1	0	11	2	13	3	0	3	6	36
01:45 PM	0	17	0	17	0	0	0	0	0	9	0	9	0	0	0	0	26
Total	4	59	0	63	3	0	2	5	2	43	2	47	6	0	9	15	130
02:00 PM	2	8	2	12	0	0	0	0	0	15	0	15	0	0	0	0	27
02:15 PM	7	11	0	18	0	0	0	0	1	10	3	14	0	0	0	0	32
02:30 PM	0	18	1	19	0	0	1	1	1	21	3	25	0	0	0	0	45
02:45 PM	1	12	0	13	0	0	0	0	1	21	2	24	0	0	0	0	37
Total	10	49	3	62	0	0	1	1	3	67	8	78	0	0	0	0	141
Grand Total	14	108	3	125	3	0	3	6	5	110	10	125	6	0	9	15	271
Apprch %	11.2	86.4	2.4		50	0	50		4	88	8		40	0	60		
Total %	5.2	39.9	1.1	46.1	1.1	0	1.1	2.2	1.8	40.6	3.7	46.1	2.2	0	3.3	5.5	
Passenger Vehicles	14	106	3	123	3	0	3	6	5	109	10	124	6	0	9	15	268
% Passenger Vehicles	100	98.1	100	98.4	100	0	100	100	100	99.1	100	99.2	100	0	100	100	98.9
Large 2 Axle Vehicles	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% Large 2 Axle Vehicles	0	0.9	0	0.8	0	0	0	0	0	0.9	0	0.8	0	0	0	0	0.7
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	0.9	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0.4
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	2	8	**2**	12	0	0	0	0	0	15	0	15	0	0	0	0	27
02:15 PM	**7**	11	0	18	0	0	0	0	**1**	10	**3**	14	0	0	0	0	32
02:30 PM	0	**18**	1	**19**	0	0	**1**	**1**	1	**21**	3	**25**	0	0	0	0	**45**
02:45 PM	1	12	0	13	0	0	0	0	1	21	2	24	0	0	0	0	37
Total Volume	10	49	3	62	0	0	1	1	3	67	8	78	0	0	0	0	141
% App. Total	16.1	79	4.8		0	0	100		3.8	85.9	10.3		0	0	0		
PHF	.357	.681	.375	.816	.000	.000	.250	.250	.750	.798	.667	.780	.000	.000	.000	.000	.783

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:45 PM				01:00 PM				02:00 PM				01:00 PM			
+0 mins.	0	17	0	17	**2**	0	**1**	**3**	0	15	0	15	2	0	1	3
+15 mins.	2	8	**2**	12	1	0	0	1	**1**	10	**3**	14	1	0	**5**	**6**
+30 mins.	**7**	11	0	18	0	0	1	1	1	**21**	3	**25**	**3**	0	3	6
+45 mins.	0	**18**	1	**19**	0	0	0	0	1	21	2	24	0	0	0	0
Total Volume	9	54	3	66	3	0	2	5	3	67	8	78	6	0	9	15
% App. Total	13.6	81.8	4.5		60	0	40		3.8	85.9	10.3		40	0	60	
PHF	.321	.750	.375	.868	.375	.000	.500	.417	.750	.798	.667	.780	.500	.000	.450	.625

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

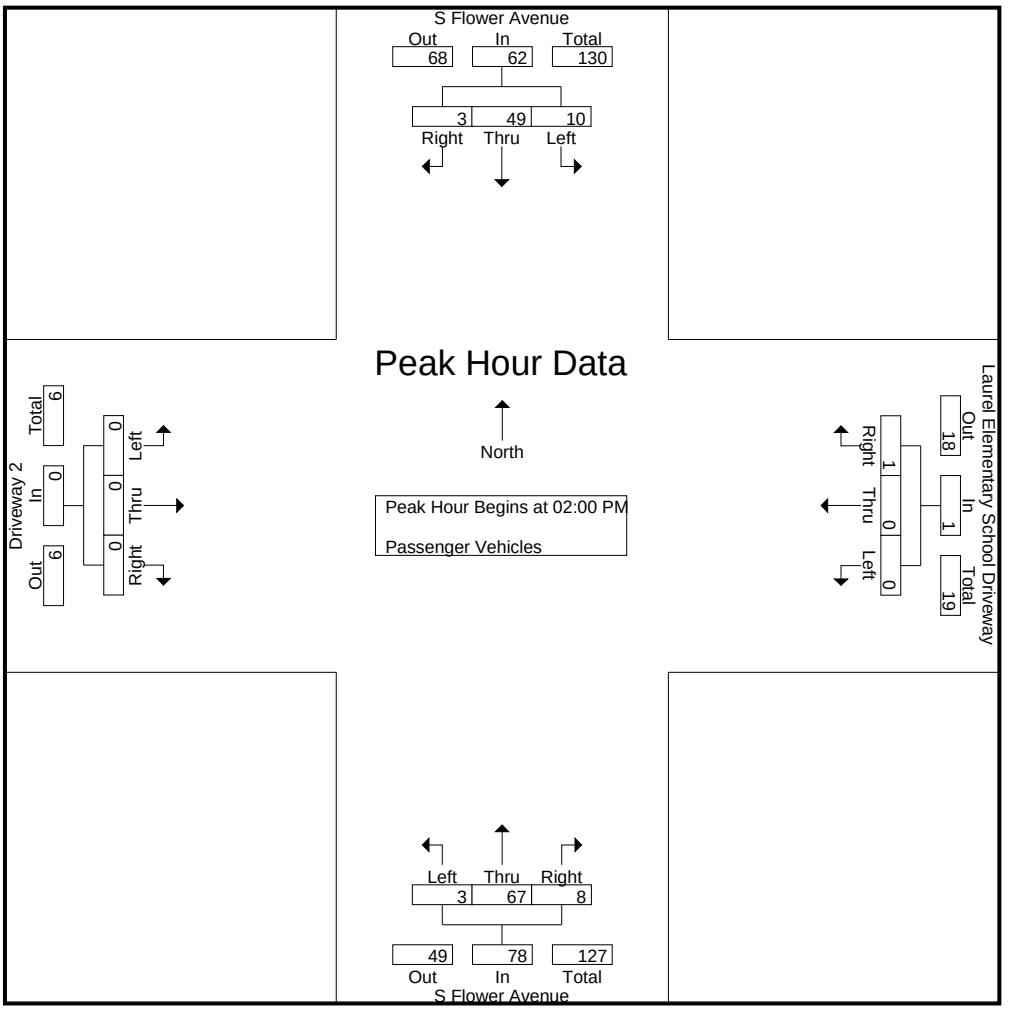
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	2	11	0	13	2	0	1	3	1	12	0	13	2	0	1	3	32
01:15 PM	2	13	0	15	1	0	0	1	1	10	0	11	1	0	5	6	33
01:30 PM	0	16	0	16	0	0	1	1	0	11	2	13	3	0	3	6	36
01:45 PM	0	17	0	17	0	0	0	0	0	9	0	9	0	0	0	0	26
Total	4	57	0	61	3	0	2	5	2	42	2	46	6	0	9	15	127
02:00 PM	2	8	2	12	0	0	0	0	0	15	0	15	0	0	0	0	27
02:15 PM	7	11	0	18	0	0	0	0	1	10	3	14	0	0	0	0	32
02:30 PM	0	18	1	19	0	0	1	1	1	21	3	25	0	0	0	0	45
02:45 PM	1	12	0	13	0	0	0	0	1	21	2	24	0	0	0	0	37
Total	10	49	3	62	0	0	1	1	3	67	8	78	0	0	0	0	141
Grand Total	14	106	3	123	3	0	3	6	5	109	10	124	6	0	9	15	268
Apprch %	11.4	86.2	2.4		50	0	50		4	87.9	8.1		40	0	60		
Total %	5.2	39.6	1.1	45.9	1.1	0	1.1	2.2	1.9	40.7	3.7	46.3	2.2	0	3.4	5.6	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	2	8	**2**	12	0	0	0	0	0	15	0	15	0	0	0	0	27
02:15 PM	**7**	11	0	18	0	0	0	0	**1**	10	**3**	14	0	0	0	0	32
02:30 PM	0	**18**	1	**19**	0	0	**1**	**1**	1	**21**	3	**25**	0	0	0	0	**45**
02:45 PM	1	12	0	13	0	0	0	0	1	21	2	24	0	0	0	0	37
Total Volume	10	49	3	62	0	0	1	1	3	67	8	78	0	0	0	0	141
% App. Total	16.1	79	4.8		0	0	100		3.8	85.9	10.3		0	0	0		
PHF	.357	.681	.375	.816	.000	.000	.250	.250	.750	.798	.667	.780	.000	.000	.000	.000	.783

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	2	8	**2**	12	0	0	0	0	0	15	0	15	0	0	0	0
+15 mins.	**7**	11	0	18	0	0	0	0	**1**	10	**3**	14	0	0	0	0
+30 mins.	0	**18**	1	**19**	0	0	**1**	**1**	1	**21**	3	**25**	0	0	0	0
+45 mins.	1	12	0	13	0	0	0	0	1	21	2	24	0	0	0	0
Total Volume	10	49	3	62	0	0	1	1	3	67	8	78	0	0	0	0
% App. Total	16.1	79	4.8		0	0	100		3.8	85.9	10.3		0	0	0	
PHF	.357	.681	.375	.816	.000	.000	.250	.250	.750	.798	.667	.780	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

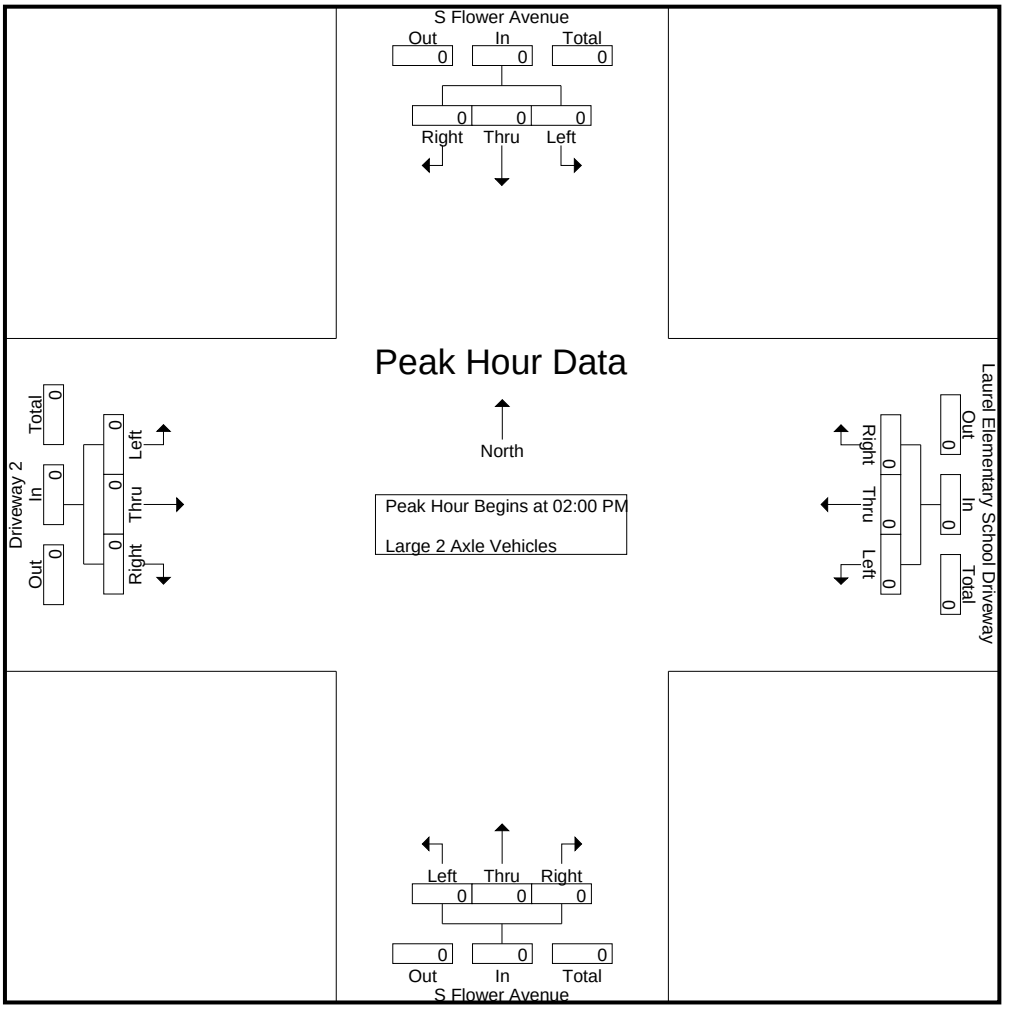
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	50	0	50	0	0	0	0	0	50	0	50	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

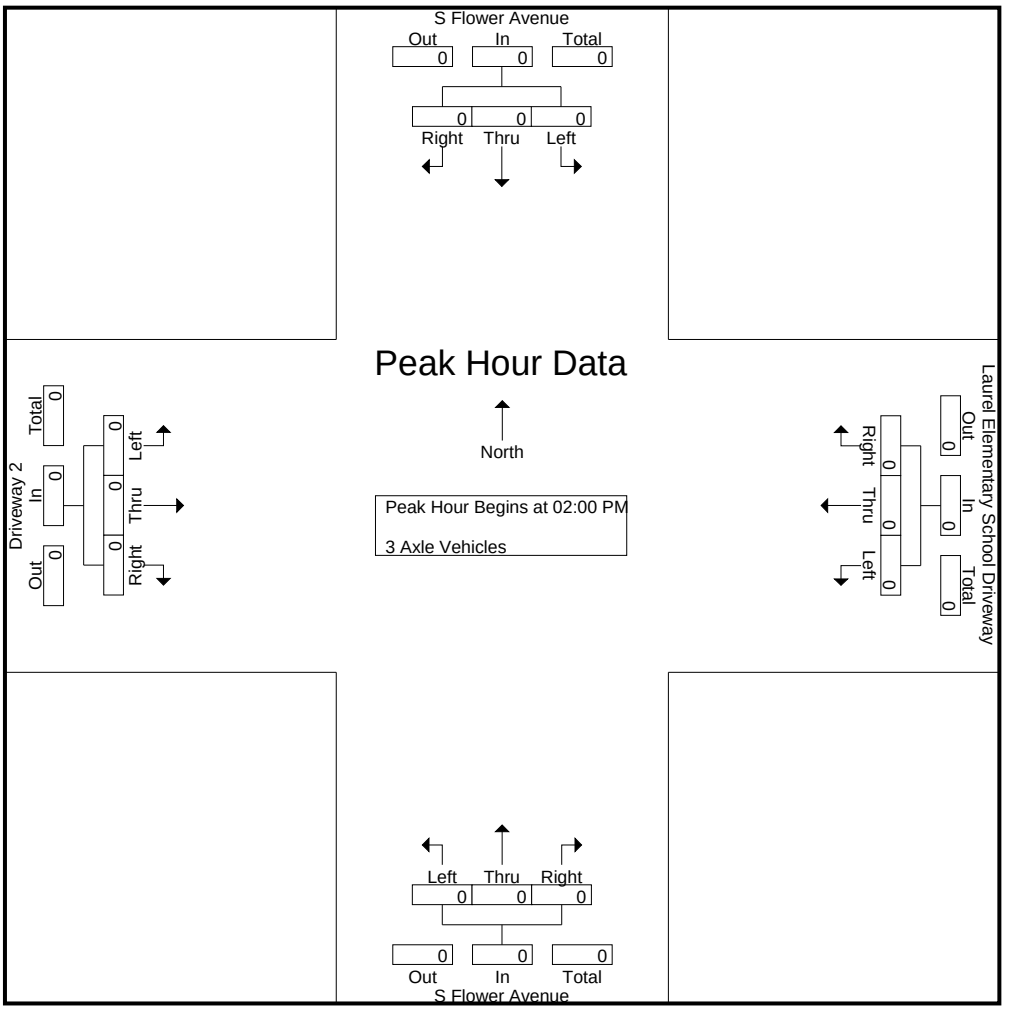
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0		
Total %	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
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File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

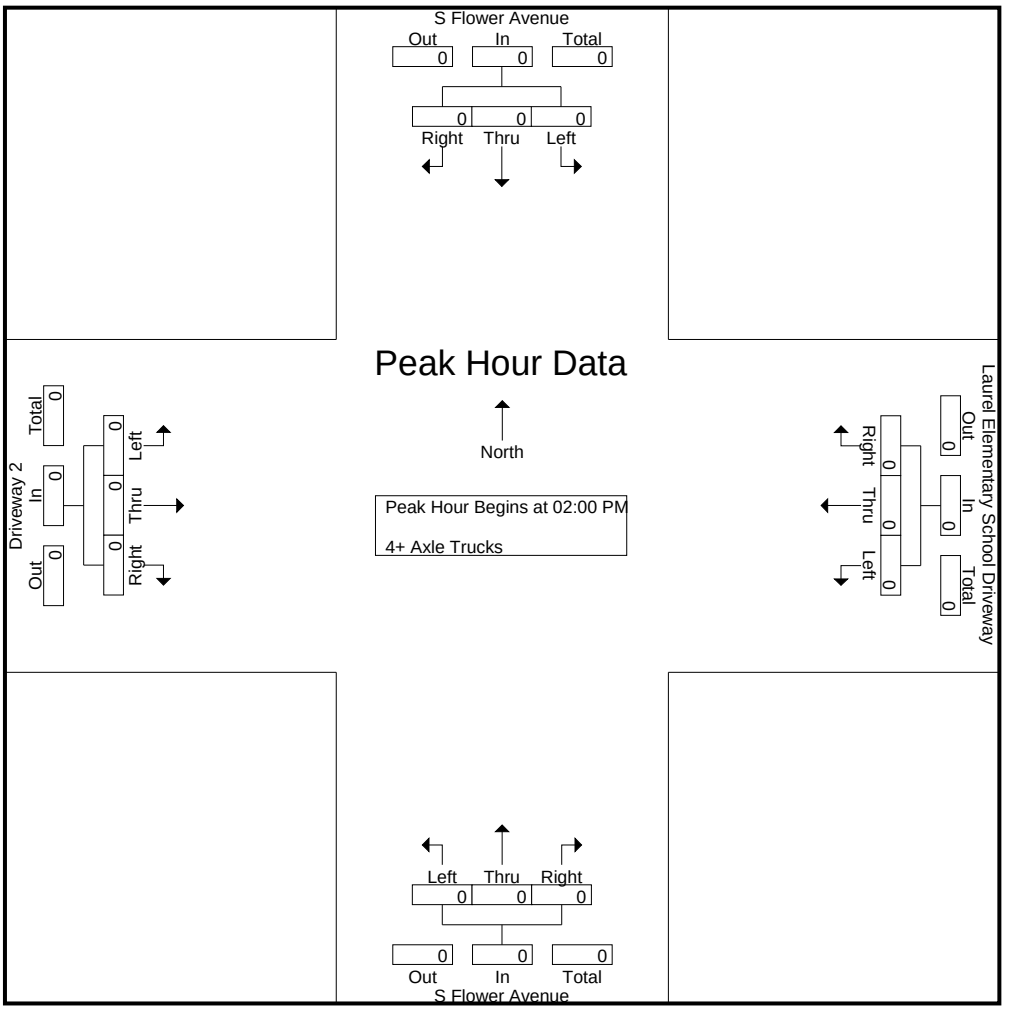
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 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 02:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 MD 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 02:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:00 PM				02:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

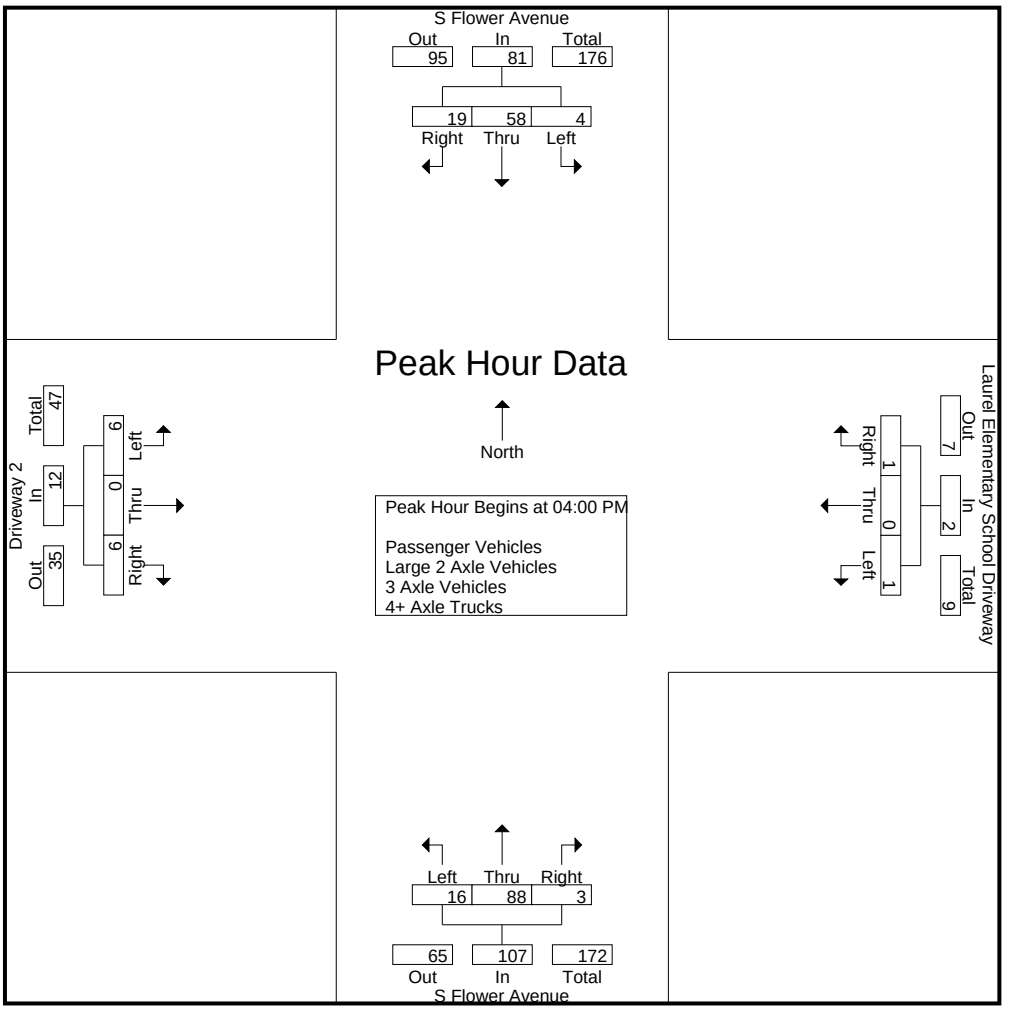
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	15	1	19	0	0	1	1	3	17	0	20	2	0	0	2	42
04:15 PM	0	11	12	23	0	0	0	0	10	20	0	30	2	0	1	3	56
04:30 PM	0	15	5	20	1	0	0	1	2	41	2	45	2	0	2	4	70
04:45 PM	1	17	1	19	0	0	0	0	1	10	1	12	0	0	3	3	34
Total	4	58	19	81	1	0	1	2	16	88	3	107	6	0	6	12	202
05:00 PM	2	13	0	15	0	0	0	0	2	14	1	17	2	0	2	4	36
05:15 PM	0	13	0	13	1	0	0	1	1	14	1	16	0	0	1	1	31
05:30 PM	1	26	1	28	0	0	3	3	0	17	0	17	0	0	0	0	48
05:45 PM	3	10	0	13	0	0	1	1	5	14	1	20	0	0	0	0	34
Total	6	62	1	69	1	0	4	5	8	59	3	70	2	0	3	5	149
Grand Total	10	120	20	150	2	0	5	7	24	147	6	177	8	0	9	17	351
Apprch %	6.7	80	13.3		28.6	0	71.4		13.6	83.1	3.4		47.1	0	52.9		
Total %	2.8	34.2	5.7	42.7	0.6	0	1.4	2	6.8	41.9	1.7	50.4	2.3	0	2.6	4.8	
Passenger Vehicles	10	116	20	146	2	0	5	7	24	146	5	175	8	0	9	17	345
% Passenger Vehicles	100	96.7	100	97.3	100	0	100	100	100	99.3	83.3	98.9	100	0	100	100	98.3
Large 2 Axle Vehicles	0	4	0	4	0	0	0	0	0	0	1	1	0	0	0	0	5
% Large 2 Axle Vehicles	0	3.3	0	2.7	0	0	0	0	0	0	16.7	0.6	0	0	0	0	1.4
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0.7	0	0.6	0	0	0	0	0.3

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**3**	15	1	19	0	0	**1**	**1**	3	17	0	20	**2**	0	0	2	42
04:15 PM	0	11	**12**	**23**	0	0	0	0	**10**	20	0	30	2	0	1	3	56
04:30 PM	0	15	5	20	**1**	0	0	1	2	**41**	**2**	**45**	2	0	2	**4**	**70**
04:45 PM	1	**17**	1	19	0	0	0	0	1	10	1	12	0	0	**3**	3	34
Total Volume	4	58	19	81	1	0	1	2	16	88	3	107	6	0	6	12	202
% App. Total	4.9	71.6	23.5		50	0	50		15	82.2	2.8		50	0	50		
PHF	.333	.853	.396	.880	.250	.000	.250	.500	.400	.537	.375	.594	.750	.000	.500	.750	.721

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
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:

	04:00 PM				05:00 PM				04:00 PM				04:15 PM			
+0 mins.	**3**	15	1	19	0	0	0	0	3	17	0	20	**2**	0	1	3
+15 mins.	0	11	**12**	**23**	**1**	0	0	1	**10**	20	0	30	2	0	2	**4**
+30 mins.	0	15	5	20	0	0	**3**	**3**	2	**41**	**2**	**45**	0	0	**3**	3
+45 mins.	1	**17**	1	19	0	0	1	1	1	10	1	12	2	0	2	4
Total Volume	4	58	19	81	1	0	4	5	16	88	3	107	6	0	8	14
% App. Total	4.9	71.6	23.5		20	0	80		15	82.2	2.8		42.9	0	57.1	
PHF	.333	.853	.396	.880	.250	.000	.333	.417	.400	.537	.375	.594	.750	.000	.667	.875

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City of Brea
N/S: S Flower Avenue
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Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Passenger Vehicles

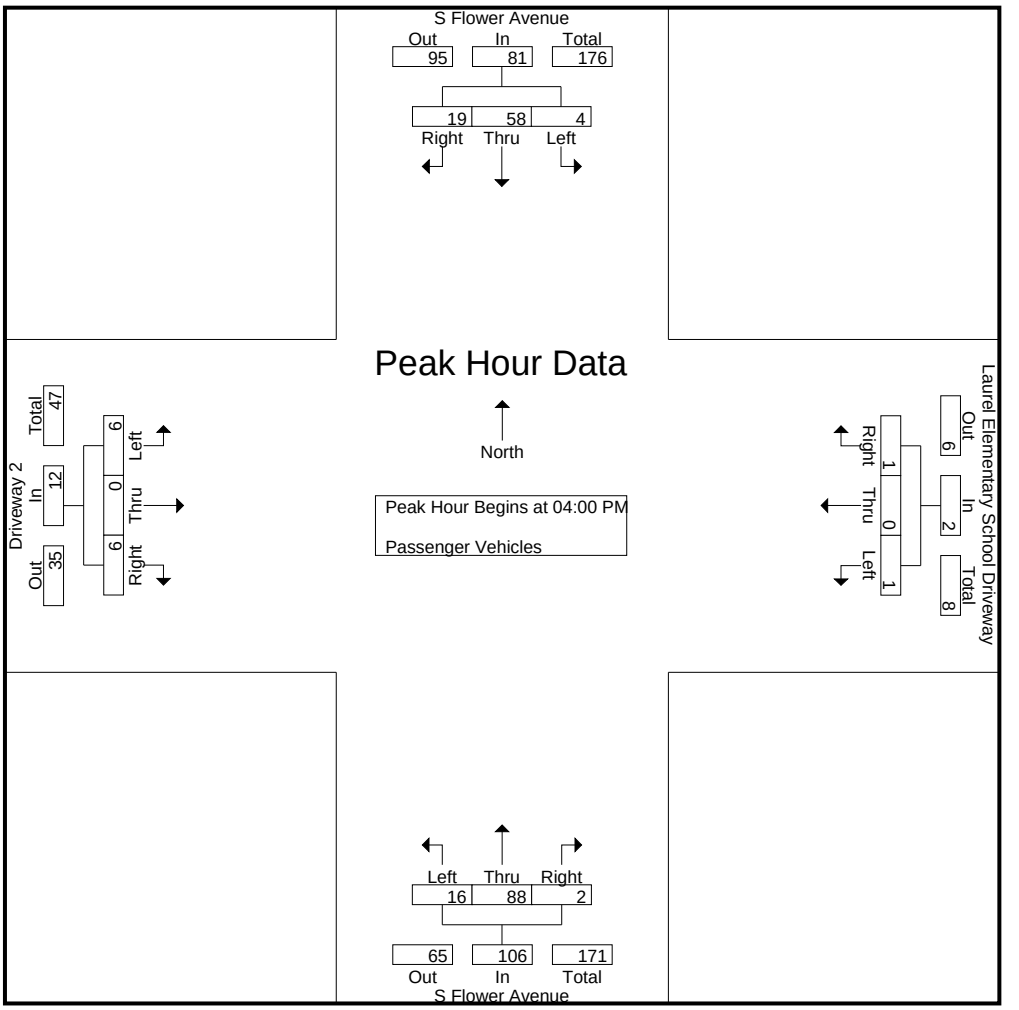
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	15	1	19	0	0	1	1	3	17	0	20	2	0	0	2	42
04:15 PM	0	11	12	23	0	0	0	0	10	20	0	30	2	0	1	3	56
04:30 PM	0	15	5	20	1	0	0	1	2	41	1	44	2	0	2	4	69
04:45 PM	1	17	1	19	0	0	0	0	1	10	1	12	0	0	3	3	34
Total	4	58	19	81	1	0	1	2	16	88	2	106	6	0	6	12	201
05:00 PM	2	12	0	14	0	0	0	0	2	14	1	17	2	0	2	4	35
05:15 PM	0	11	0	11	1	0	0	1	1	14	1	16	0	0	1	1	29
05:30 PM	1	25	1	27	0	0	3	3	0	16	0	16	0	0	0	0	46
05:45 PM	3	10	0	13	0	0	1	1	5	14	1	20	0	0	0	0	34
Total	6	58	1	65	1	0	4	5	8	58	3	69	2	0	3	5	144
Grand Total	10	116	20	146	2	0	5	7	24	146	5	175	8	0	9	17	345
Apprch %	6.8	79.5	13.7		28.6	0	71.4		13.7	83.4	2.9		47.1	0	52.9		
Total %	2.9	33.6	5.8	42.3	0.6	0	1.4	2	7	42.3	1.4	50.7	2.3	0	2.6	4.9	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**3**	15	1	19	0	0	**1**	**1**	3	17	0	20	**2**	0	0	2	42
04:15 PM	0	11	**12**	**23**	0	0	0	0	**10**	20	0	30	2	0	1	3	56
04:30 PM	0	15	5	20	**1**	0	0	1	2	**41**	**1**	**44**	2	0	2	**4**	**69**
04:45 PM	1	**17**	1	19	0	0	0	0	1	10	1	12	0	0	**3**	3	34
Total Volume	4	58	19	81	1	0	1	2	16	88	2	106	6	0	6	12	201
% App. Total	4.9	71.6	23.5		50	0	50		15.1	83	1.9		50	0	50		
PHF	.333	.853	.396	.880	.250	.000	.250	.500	.400	.537	.500	.602	.750	.000	.500	.750	.728

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**3**	15	1	19	0	0	**1**	**1**	3	17	0	20	**2**	0	0	2
+15 mins.	0	11	**12**	**23**	0	0	0	0	**10**	20	0	30	2	0	1	3
+30 mins.	0	15	5	20	**1**	0	0	1	2	**41**	**1**	**44**	2	0	2	**4**
+45 mins.	1	**17**	1	19	0	0	0	0	1	10	1	12	0	0	**3**	3
Total Volume	4	58	19	81	1	0	1	2	16	88	2	106	6	0	6	12
% App. Total	4.9	71.6	23.5		50	0	50		15.1	83	1.9		50	0	50	
PHF	.333	.853	.396	.880	.250	.000	.250	.500	.400	.537	.500	.602	.750	.000	.500	.750

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

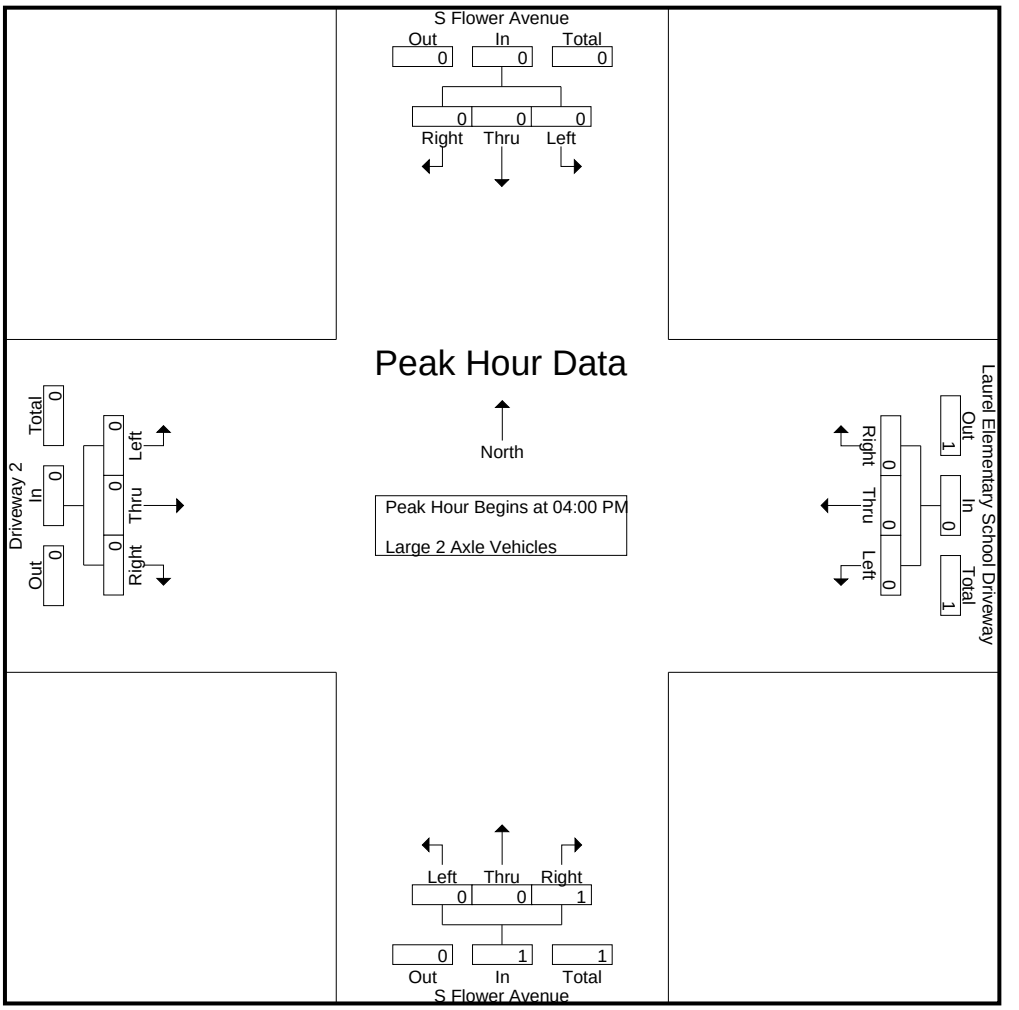
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
Grand Total	0	4	0	4	0	0	0	0	0	0	1	1	0	0	0	0	5
Apprch %	0	100	0		0	0	0		0	0	100		0	0	0		
Total %	0	80	0	80	0	0	0	0	0	0	20	20	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

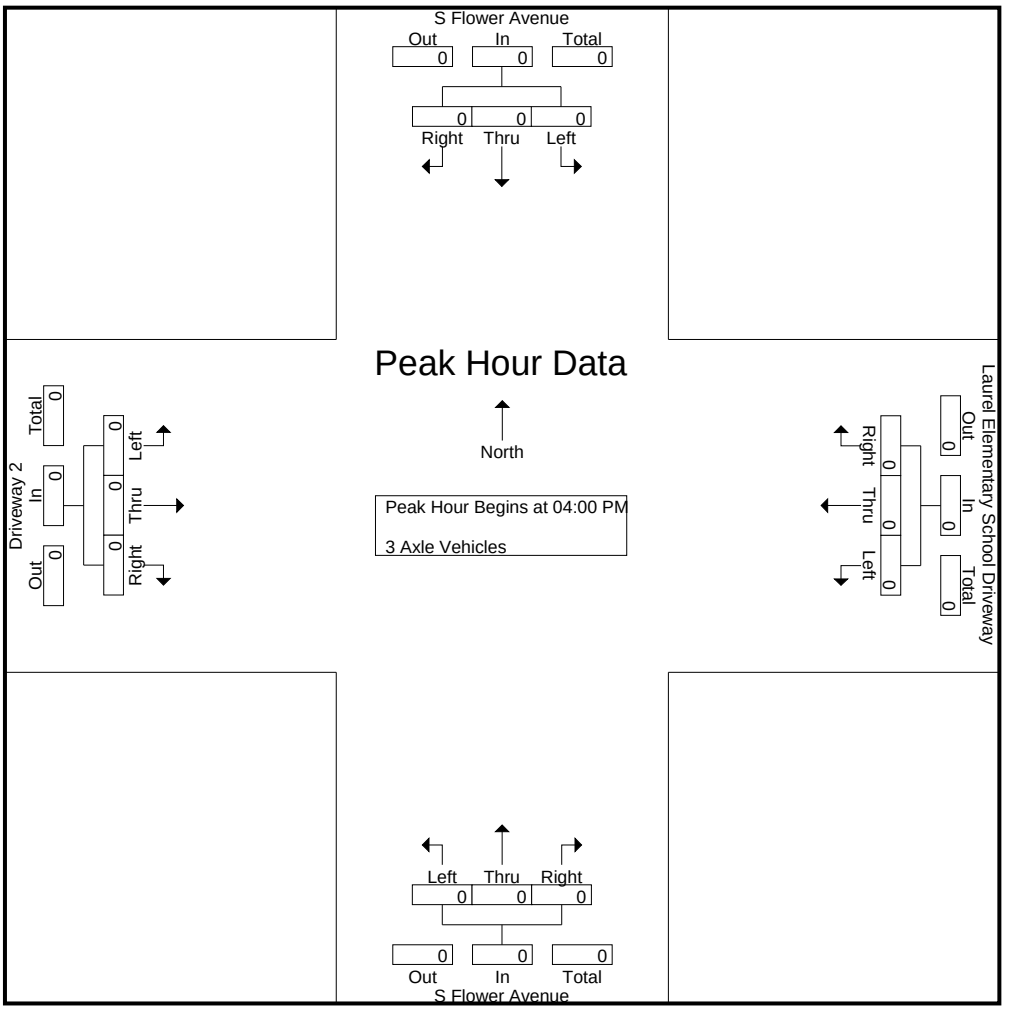
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
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Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

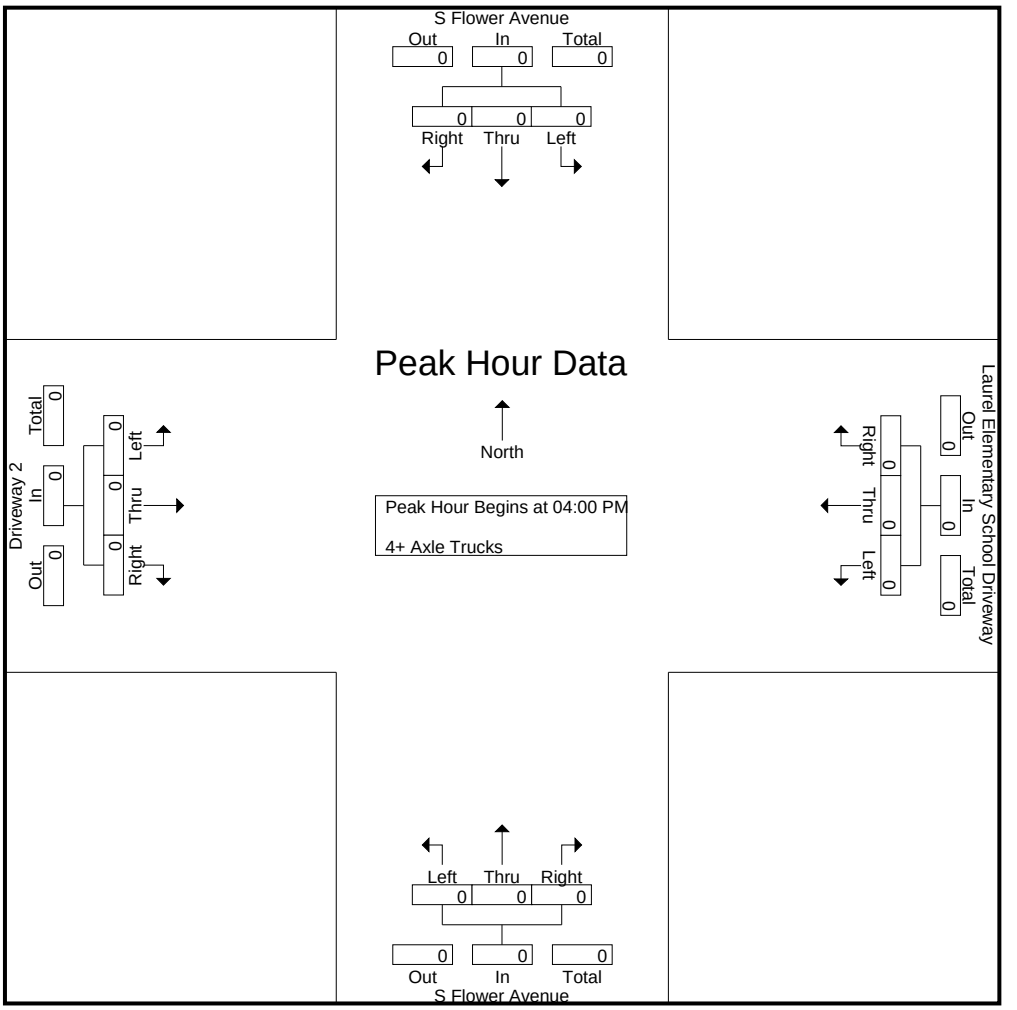
	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	S Flower Avenue Southbound				Laurel Elementary School Driveway Westbound				S Flower Avenue Northbound				Driveway 2 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Brea
N/S: S Flower Avenue
E/W: Driveway 2
Weather: Clear

File Name : 04_BRE_Flo_DW2 PM 21
Site Code : 221110
Start Date : 9/21/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Brea
N/S: S Flower Avenue
E/W: Driveway 2

Date: 9/20/2022
Day: Tuesday

PEDESTRIANS

	North Leg S Flower Avenue	East Leg Laural Elementary DW	South Leg S Flower Avenue	West Leg Driveway 2	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	1	1
7:30 AM	4	13	17	0	34
7:45 AM	28	16	25	0	69
8:00 AM	11	7	17	0	35
8:15 AM	0	1	1	0	2
8:30 AM	3	1	1	0	5
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	46	38	62	1	147

	North Leg S Flower Avenue	East Leg Laural Elementary DW	South Leg S Flower Avenue	West Leg Driveway 2	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
1:00 PM	0	3	0	0	3
1:15 PM	1	0	0	0	1
1:30 PM	0	0	0	0	0
1:45 PM	2	0	1	0	3
2:00 PM	51	1	14	9	75
2:15 PM	17	5	13	5	40
2:30 PM	0	0	0	0	0
2:45 PM	1	0	2	0	3
TOTAL VOLUMES:	72	9	30	14	125

	North Leg S Flower Avenue	East Leg Laural Elementary DW	South Leg S Flower Avenue	West Leg Driveway 2	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
4:15 PM	0	1	0	0	1
4:30 PM	0	0	0	1	1
4:45 PM	0	1	0	0	1
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	2	0	2	4

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Location: Brea
N/S: S Flower Avenue
E/W: Driveway 2

Date: 9/20/2022
Day: Tuesday

BICYCLES

	Southbound S Flower Avenue			Westbound Laural Elementary DW			Northbound S Flower Avenue			Eastbound Driveway 2			
	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 Flower Avenue			Westbound Laural Elementary DW			Northbound S Flower Avenue			Eastbound Driveway 2			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	1	0	0	1	0	0	0	0	2

	Southbound S Flower Avenue			Westbound Laural Elementary DW			Northbound S Flower Avenue			Eastbound Driveway 2			
	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	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

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951-268-6268

Location: Brea
N/S: S Flower Avenue
E/W: Driveway 2

Date: 9/21/2022
Day: Wednesday

PEDESTRIANS

	North Leg S Flower Avenue	East Leg Laural Elementary DW	South Leg S Flower Avenue	West Leg Driveway 2	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	1	1
7:15 AM	0	1	0	2	3
7:30 AM	3	13	11	1	28
7:45 AM	38	21	29	1	89
8:00 AM	15	9	12	5	41
8:15 AM	1	0	0	0	1
8:30 AM	3	1	0	1	5
8:45 AM	1	0	0	0	1
TOTAL VOLUMES:	61	45	52	11	169

	North Leg S Flower Avenue	East Leg Laural Elementary DW	South Leg S Flower Avenue	West Leg Driveway 2	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
1:00 PM	0	1	1	0	2
1:15 PM	54	14	37	3	108
1:30 PM	34	28	18	14	94
1:45 PM	1	1	0	0	2
2:00 PM	0	0	0	1	1
2:15 PM	6	6	0	0	12
2:30 PM	0	5	0	0	5
2:45 PM	0	0	0	0	0
TOTAL VOLUMES:	95	55	56	18	224

	North Leg S Flower Avenue	East Leg Laural Elementary DW	South Leg S Flower Avenue	West Leg Driveway 2	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	1

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Location: Brea
N/S: S Flower Avenue
E/W: Driveway 2

Date: 9/21/2022
Day: Wednesday

BICYCLES

	Southbound S Flower Avenue			Westbound Laural Elementary DW			Northbound S Flower Avenue			Eastbound Driveway 2			
	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 Flower Avenue			Westbound Laural Elementary DW			Northbound S Flower Avenue			Eastbound Driveway 2			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	1	0	0	0	0	2

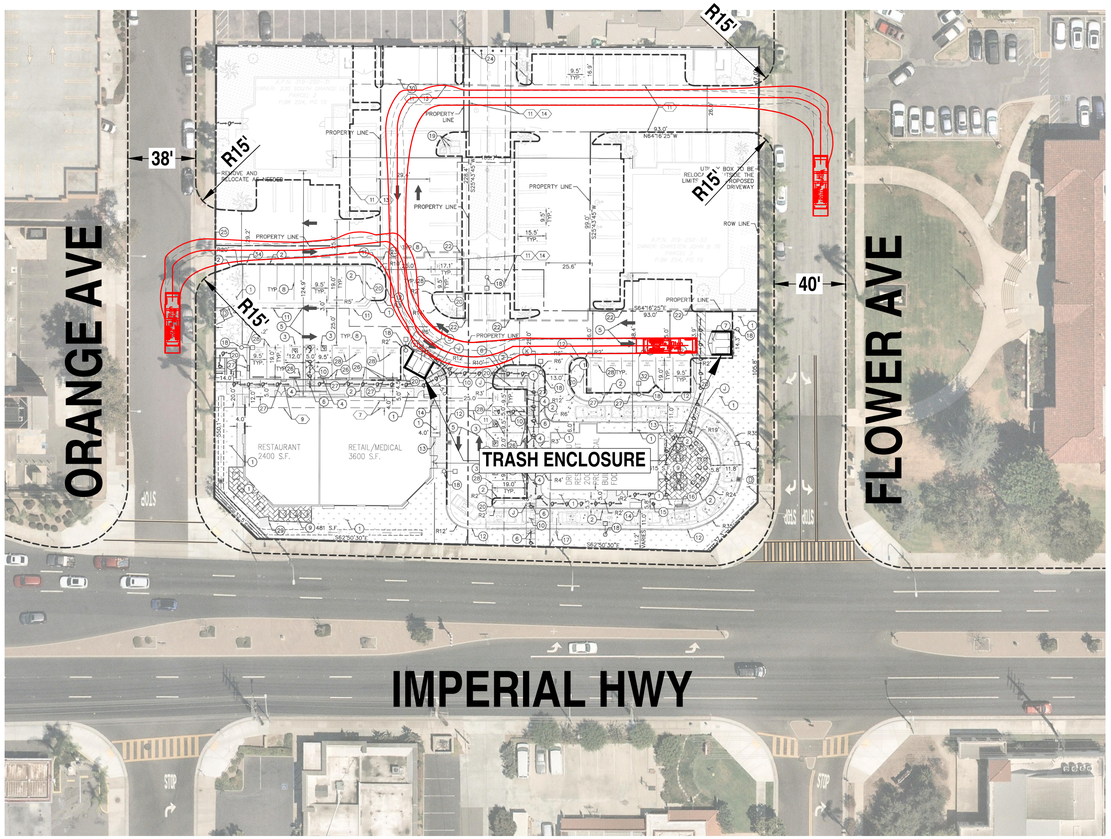
	Southbound S Flower Avenue			Westbound Laural Elementary DW			Northbound S Flower Avenue			Eastbound Driveway 2			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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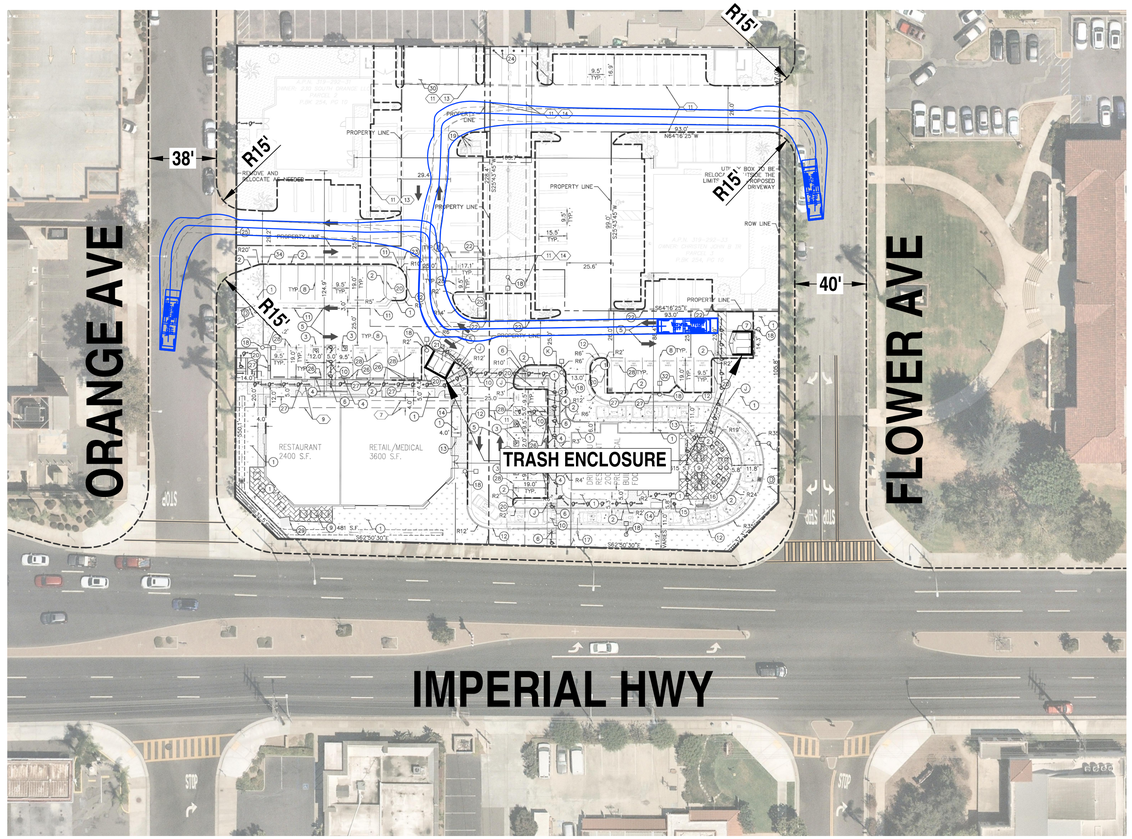
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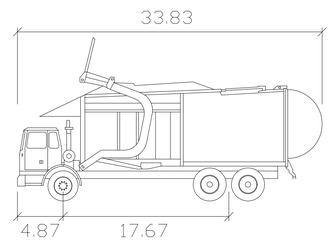
VEHICLE TURNING TEMPLATES

INBOUND FRONT-LOAD GARBAGE TRUCK



OUTBOUND FRONT-LOAD GARBAGE TRUCK





Wayne Titan

	feet
Width	: 8.46
Track	: 8.00
Lock to Lock Time	6.0
Steering Angle	: 45.0

SCALE: 1" = 40' (ON 24" x 36" SHEET)

0 20 40 80 120 160

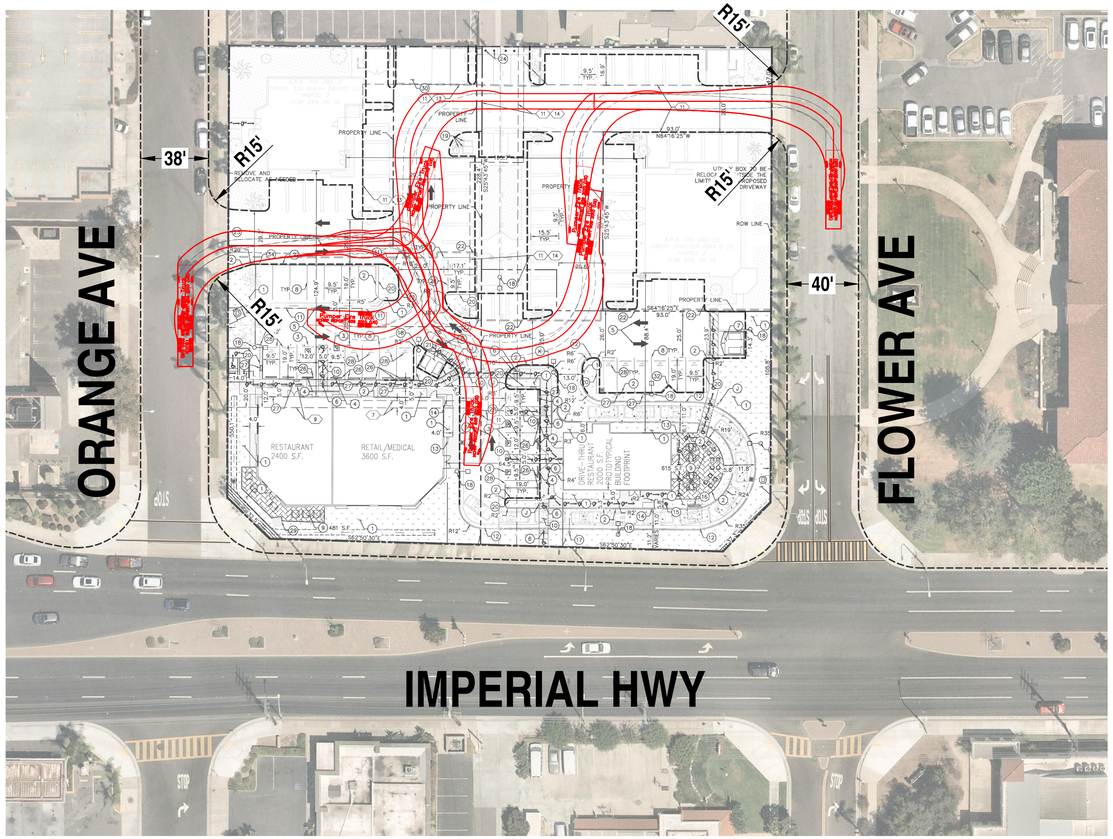
EXHIBIT A: TRUCK TURNING TEMPLATE

URBAN CROSSROADS

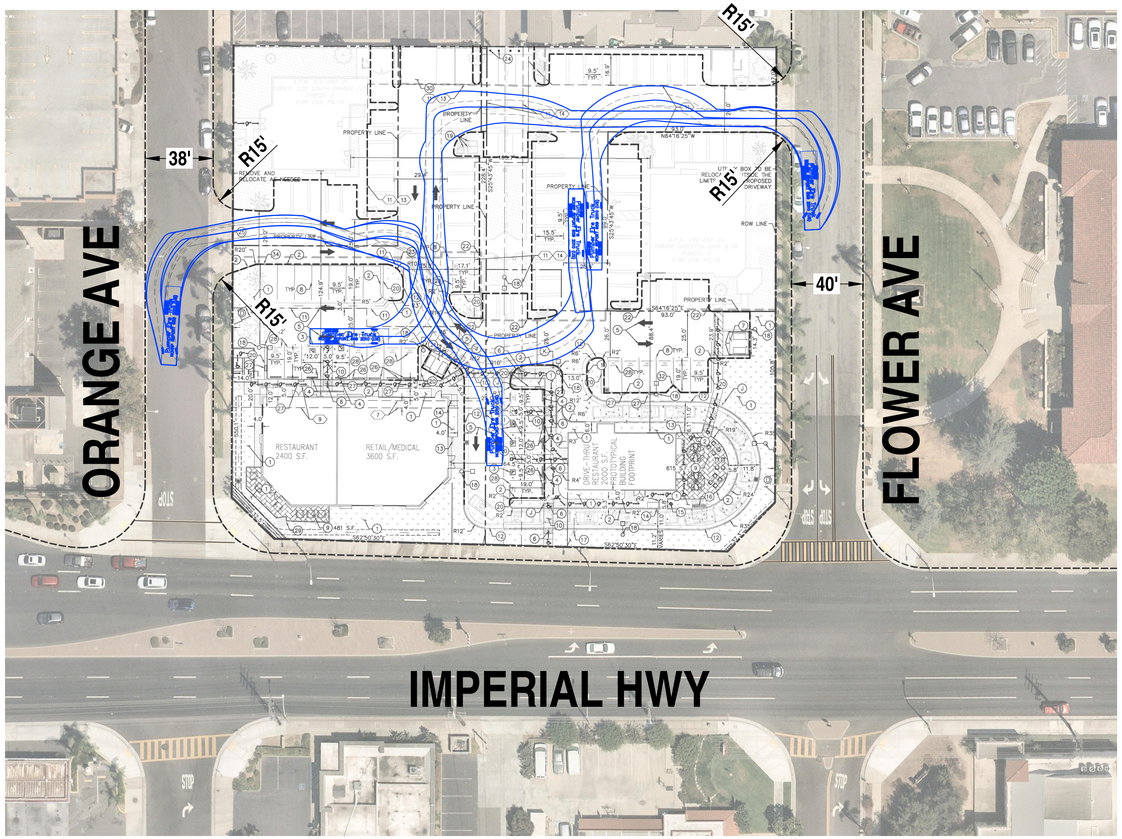
WWW.URBANXROADS.COM
TELEPHONE # 949-660-1994

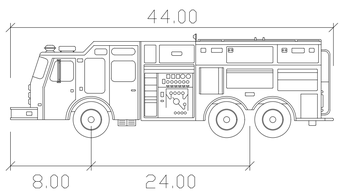
14783 - ACAD\14783-TruckTurns_A.dwg - 1/9/23 - OD

INBOUND FIRE TRUCK



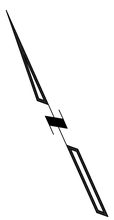
OUTBOUND FIRE TRUCK





Pumper Fire Truck

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 37.8



SCALE: 1" = 40' (ON 24" x 36" SHEET)

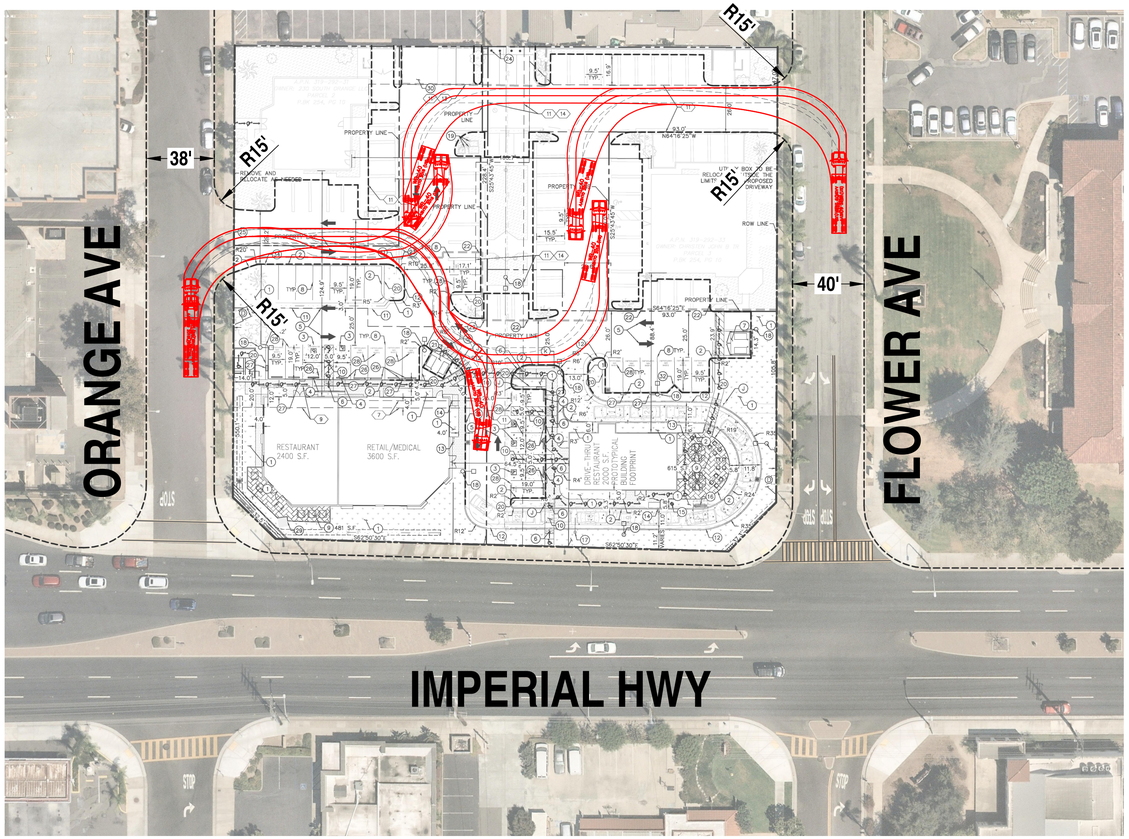
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EXHIBIT A: TRUCK TURNING TEMPLATE

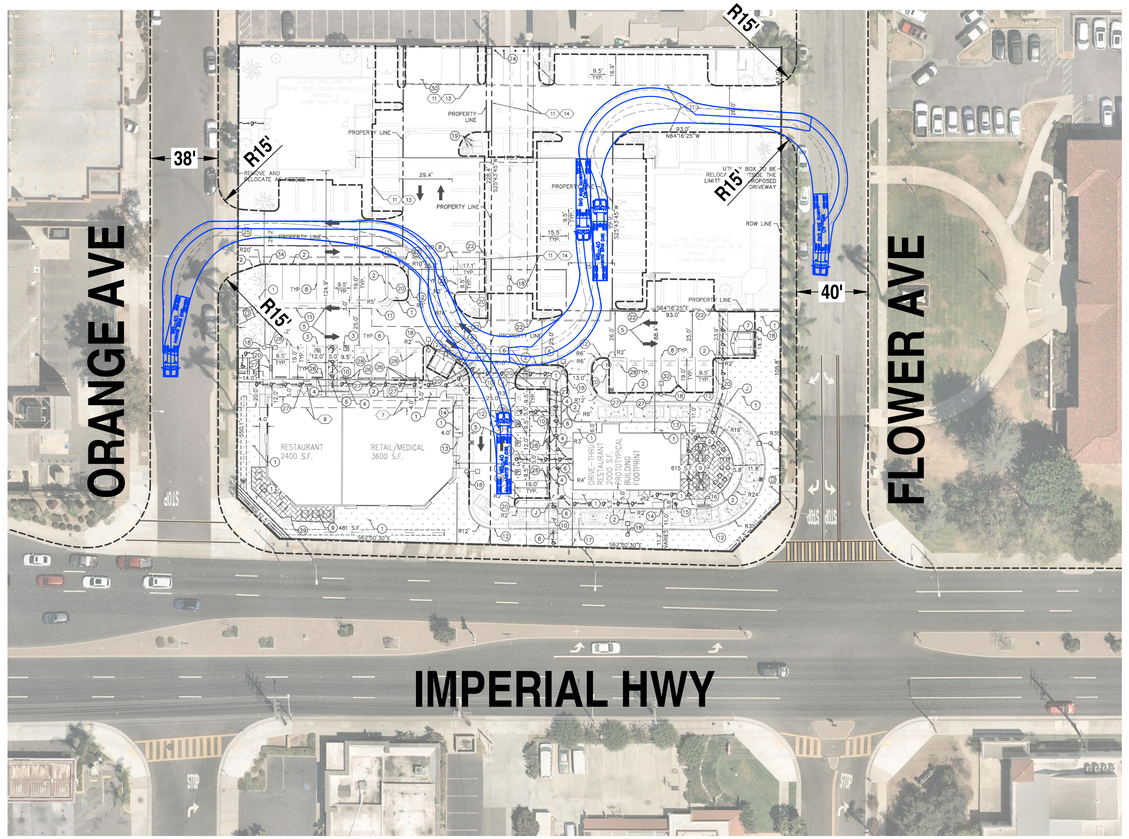
URBAN CROSSROADS
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TELEPHONE # 949-660-1994

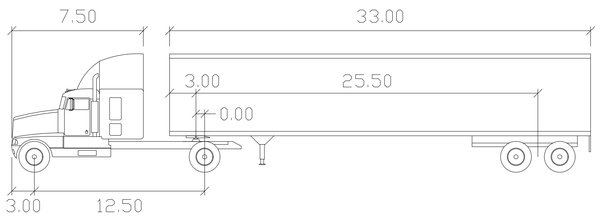
14783 - ACAD\14783-TruckTurns_A.dwg - 1/9/23 - OD

INBOUND WB-40 TRUCK



OUTBOUND WB-40 TRUCK





WB-40

	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 20.3
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.00		



SCALE: 1" = 40' (ON 24" x 36" SHEET)

0 20 40 80 120 160

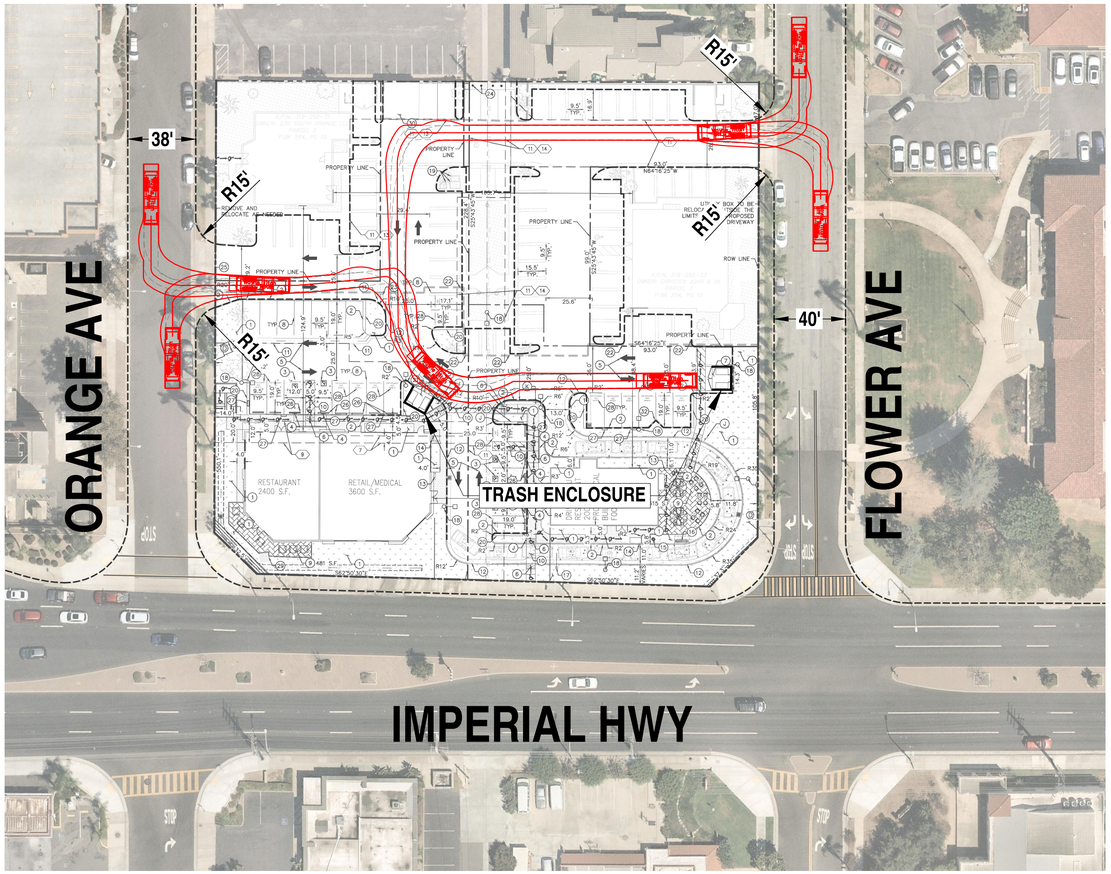
EXHIBIT A: TRUCK TURNING TEMPLATE

URBAN CROSSROADS

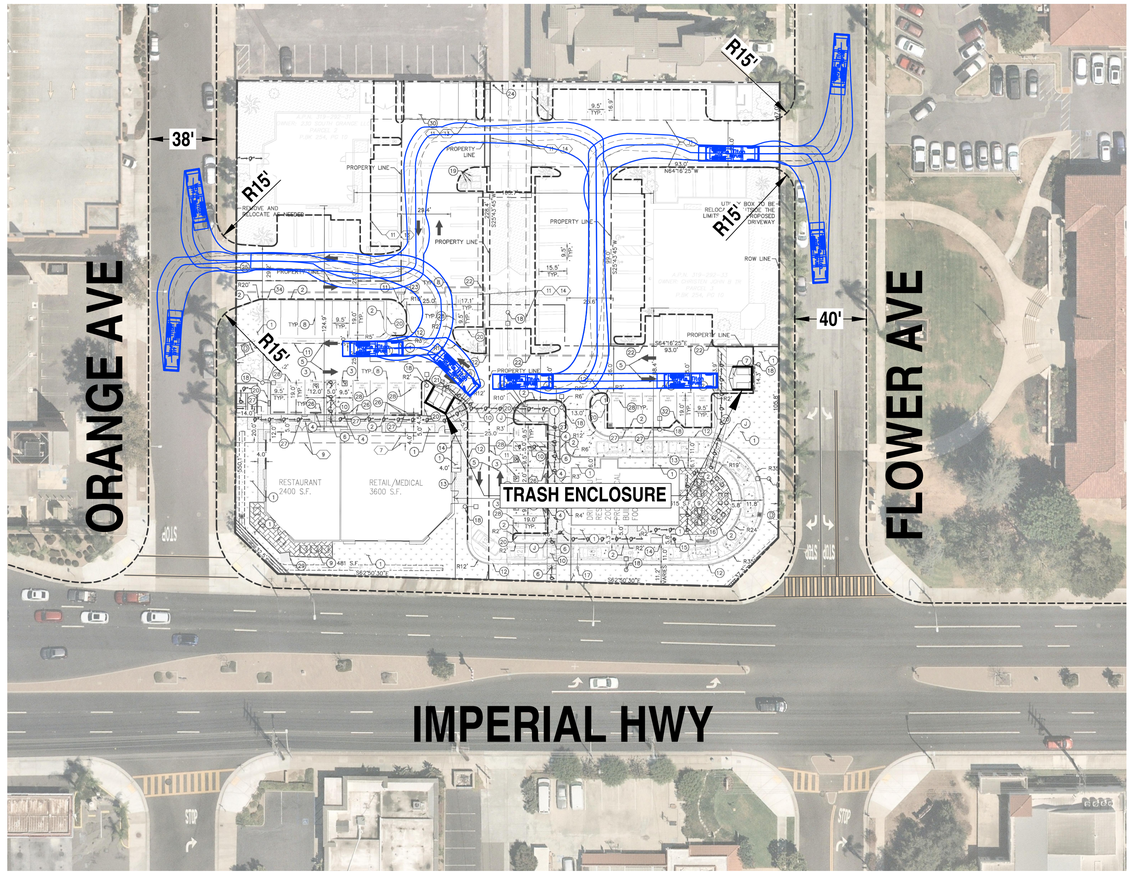
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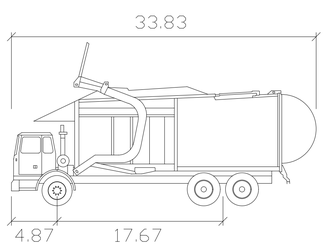
14783 - ACAD\14783-TruckTurns_A.dwg - 1/9/23 - OD

INBOUND FRONT-LOAD GARBAGE TRUCK



OUTBOUND FRONT-LOAD GARBAGE TRUCK





Wayne Titan

	feet
Width	: 8.46
Track	: 8.00
Lock to Lock Time	6.0
Steering Angle	: 45.0

SCALE: 1" = 40' (ON 24" x 36" SHEET)

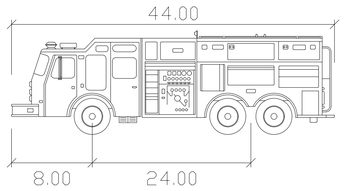
0 20 40 80 120 160

EXHIBIT A: GARBAGE TRUCK TURNING TEMPLATE

URBAN CROSSROADS

WWW.URBANXROADS.COM
TELEPHONE # 949-660-1994

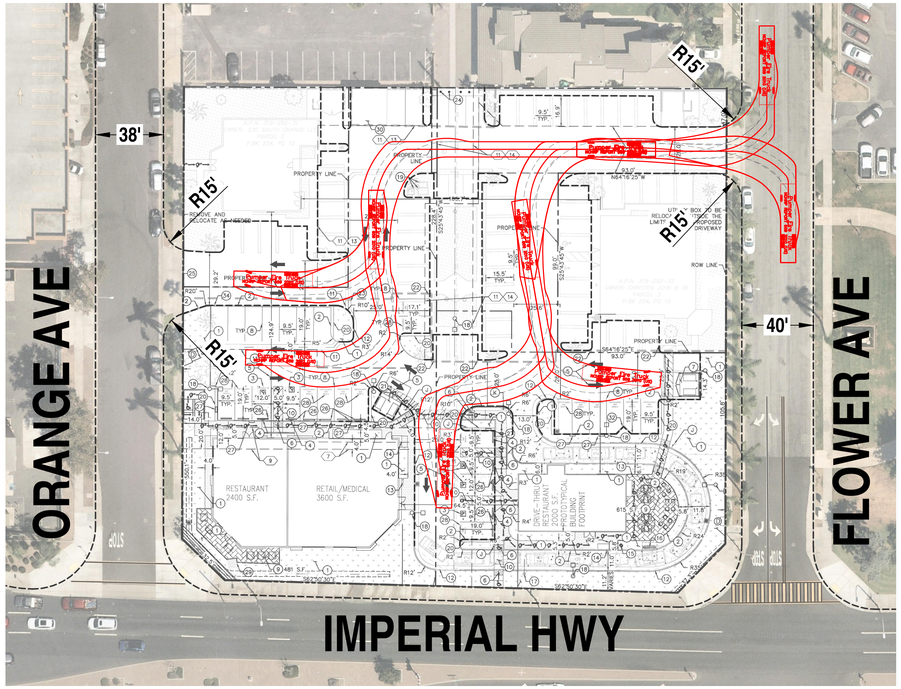
14783 - ACAD\14783-TruckTurns_A2.dwg - 1/9/23 - OD



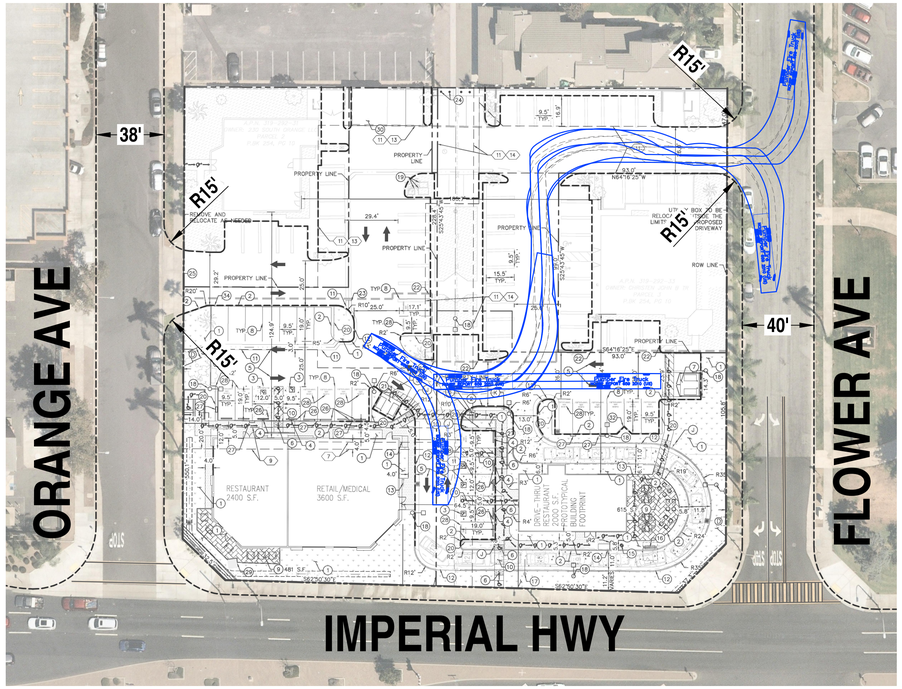
Pumper Fire Truck

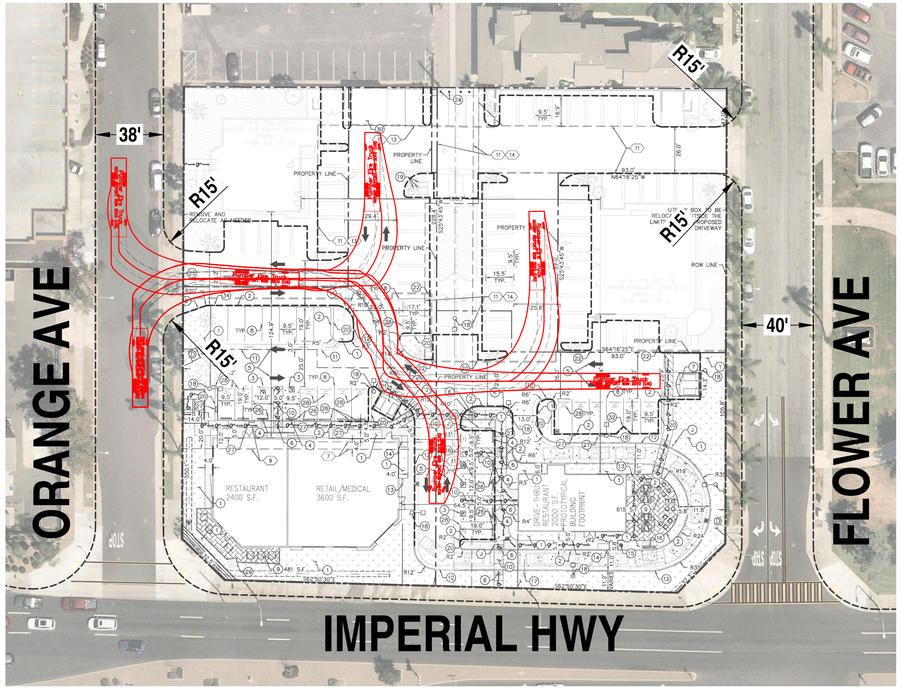
	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 37.8

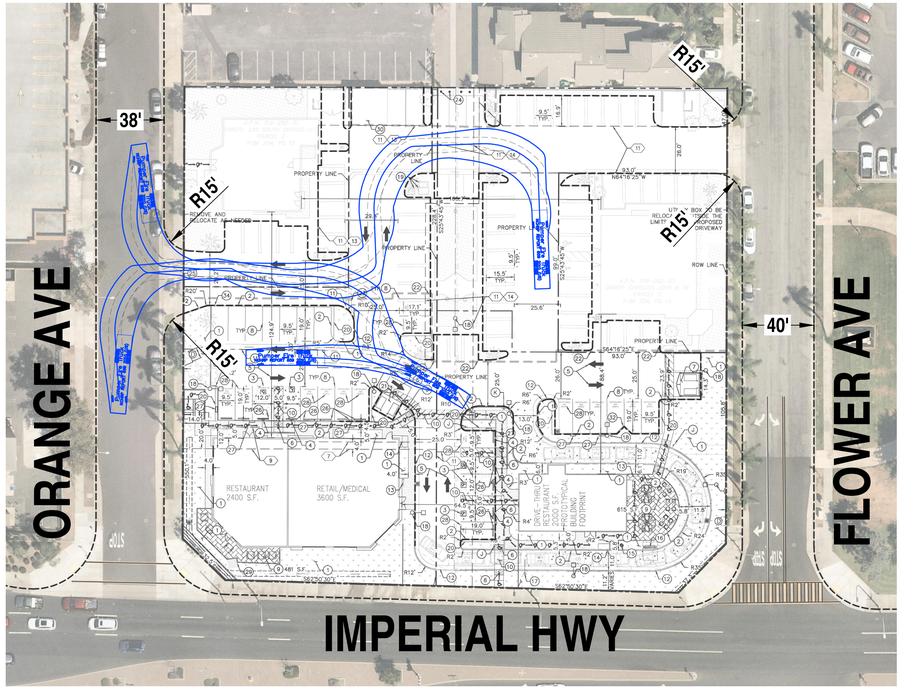
INBOUND FIRE TRUCK



OUTBOUND FIRE TRUCK







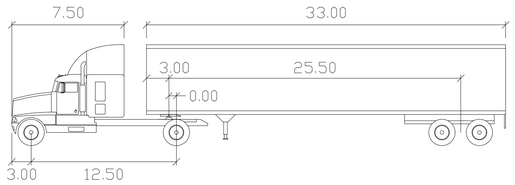
SCALE: 1" = 40' (ON 24" x 36" SHEET)

0 20 40 80 120 160

EXHIBIT A: FIRE TRUCK TURNING TEMPLATE

URBAN CROSSROADS
WWW.URBANXROADS.COM
TELEPHONE # 949-660-1994

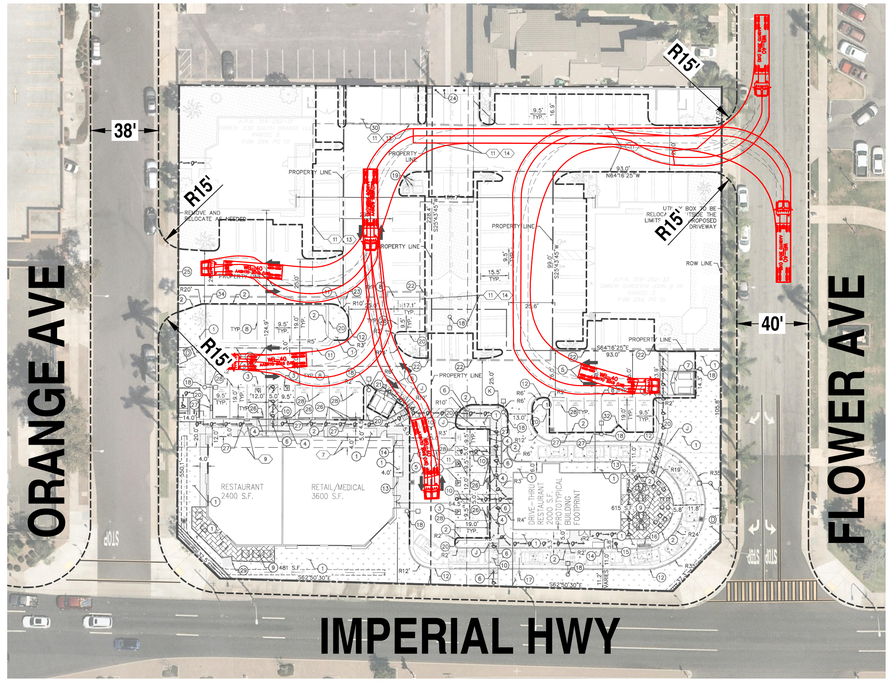
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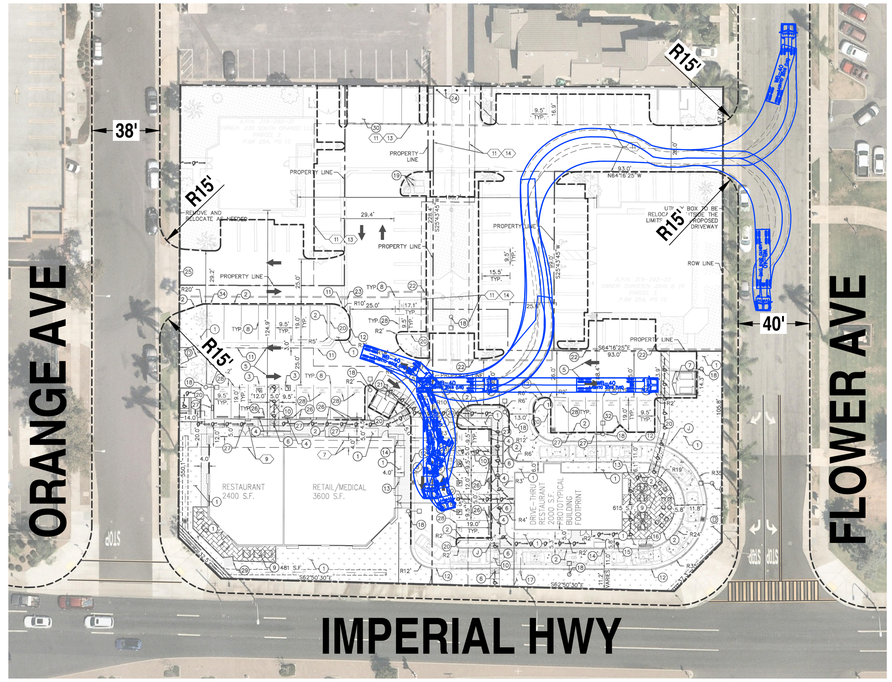
WB-40

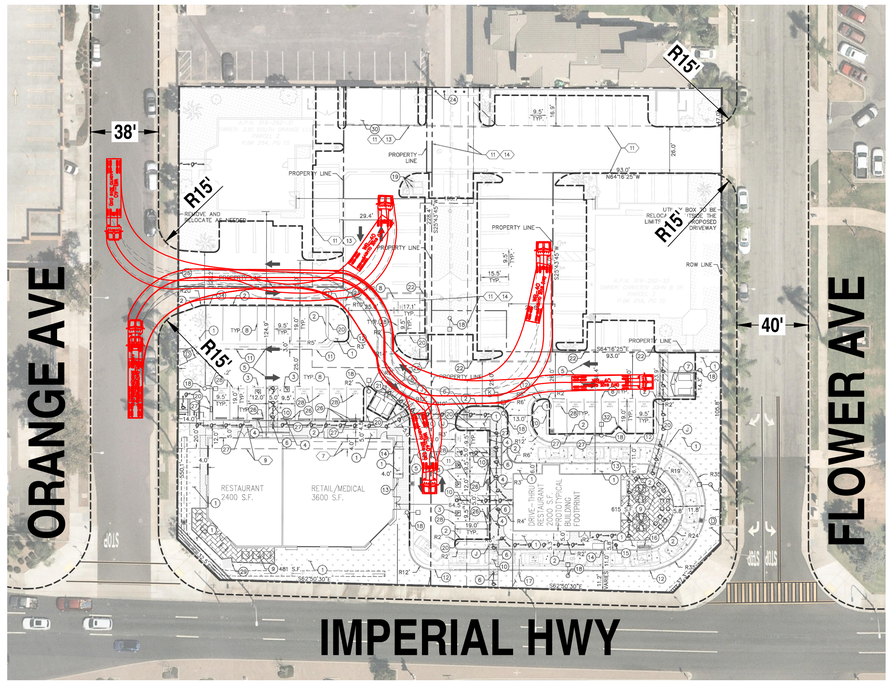
	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 20.3
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.00		

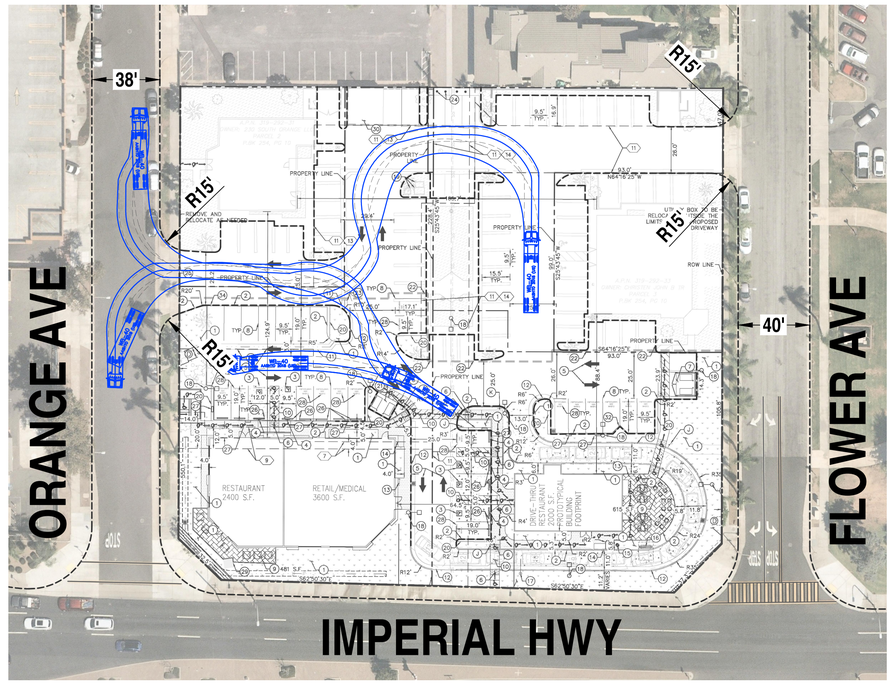
INBOUND WB-40 TRUCK



OUTBOUND WB-40 TRUCK







SCALE: 1" = 40' (ON 24" x 36" SHEET)

0 20 40 80 120 160

EXHIBIT A: WB-40 TRUCK TURNING TEMPLATE

URBAN CROSSROADS
WWW.URBANXROADS.COM
TELEPHONE # 949-660-1994

14783 - ACAD\14783-TruckTurns_A2.dwg - 1/9/23 - OD

Kimley»Horn

December 8, 2022

City of Brea – Public Works Department
1 Civic Center Circle
Brea, CA 92821

Subject: ***Sewer Capacity Memorandum for a proposed drive-thru restaurant and a retail/medical office and restaurant building at 255 East Imperial Highway and the NEC of East Imperial Highway & Orange Avenue.***

Kimley-Horn and Associates, Inc. has been retained to prepare a sewer capacity memorandum analyzing the existing sewer main (pipe ID B1103-B1102) to ultimately demonstrate that the proposed development, a drive-thru restaurant and a retail/medical office and restaurant building at 255 East Imperial Highway and the north-east corner of East Imperial Highway & Orange Avenue, does not negatively impact the existing sewer system.

Project Description

The applicant proposes to construct a 2,000 S.F. drive-thru restaurant at 255 East Imperial Highway, and a 6,000 S.F. building consisting of a 2,400 S.F. restaurant and 3,600 S.F of retail or medical office space at the north-east corner of East Imperial Highway and Orange Avenue. The facility will be built on an existing site, composed of two (2) parcels, currently occupied by 4 existing multi-tenant office buildings totaling 18,873 S.F., that are to be demolished for the proposed development. Currently serving the site is an existing 8" VCP sewer main that will also serve the proposed development.

Sewer Demands

Based on the site use described above, the existing and proposed Average Dry Weather Flow (Q_{ADWF}) flow, was generated using the Table 3-2 – Sewer Unit Flow Factors on page 3-6 of the current City of Brea Sewer Master Plan, dated November 2021. The Peak Dry Weather Flow (PDWF) was then calculated using the Peaking formulas found on page 3-8:

$$Q_{PDWF}\ (mgd) = 1.777 \times Q_{ADWF}\ (mgd)^{0.92}$$

The flow monitoring effort for the City of Brea Sewer Master Plan, dated November 2021, did not cover a wet weather period, which is rainfall dependent and includes inflow/infiltration (I/I). Therefore, the City of Brea Sewer Master Plan, dated November 2021 recommends that the Peak Wet Weather Flow (PWWF) be used for capacity analysis and can be estimated utilizing the following equation also found on page 3-8.

$$Q_{PWWF}\ (mgd) = 1.25 \times Q_{PDWF}\ (mgd)$$

The table below displays the above-mentioned existing and proposed flow demands calculated.

Table 1

Existing vs. Proposed Site Flow							
Land Use	**Unit Flow Factor Flow (gpd)**	**Unit (sf)**	**Total Building Square Footage**	**ADWF (gpd)**	**ADWF (mgd)**	**PDWF (mgd)**	**PWWF (mgd)**
Proposed Project Site							
Restaurant	1575	1000	4,400	6,930.0	0.00693	0.01833	0.02291
Administrative & Professional Office (C-P)	73.5	1000	3,600	264.6	0.00026	0.00091	0.00114
Existing Site							
Administrative & Professional Office (C-P)	73.5	1000	18,873	1,387.2	0.00138	0.00417	0.00522
			Project Flow Surplus:	**+5,807.4**	**+0.00581**	**+0.01507**	**+0.01883**

Per the City of Brea Sewer Master Plan, dated November 2021, analysis of the public sewer main is based on a maximum depth to diameter ratio (d/D) of 0.64 for PDWF, and 0.75 for PWWF. The sewer main (pipe ID B1103-B1102) capacity and flow data was obtained from page 10 of Appendix 7.1 (Infosewer Model Results) in the City of Brea Sewer Master Plan, dated November 2021. It was found that in the existing condition, the pipe segment slope is 0.0072 ft/ft, with a PDWF water depth of 0.15 feet (1.80 inches), where d/D = 0.22. A Manning's friction factor of n = 0.013 for vitrified clay pipe (VCP) was used as well. Refer to data sheet attachment for more information.

Per the attached Infosewer Model Results for pipe B1103-B1102 and the criteria set forth in the City of Brea Sewer Master Plan, dated November 2021, the maximum design capacity of the existing 8" VCP sewer main, at PDWF is **0.4904 mgd**. The PDWF for the proposed and existing conditions are 0.01924 mgd and 0.00417 mgd respectively, an increase of 0.01507 mgd. The PWWF for the proposed and existing conditions are 0.02405 mgd and 0.00522 mgd respectively, an increase of 0.01883 mgd. Given the calculated PDWF of 0.07064 mgd, per the Infosewer Model Results for pipe B1103-B1102, the normal depth increases from 0.15 ft to 0.16 ft and the D/d increases from 0.22 to 0.24. Refer to Table 2 for calculated flow quantities and the attached Worksheet for Proposed Condition for depth calculations.

Table 2

Existing vs. Proposed Pipe Flow					
8" VCP Pipe (ID B1103-B1102)	**Average Dry Weather Flow (mgd)**	**Peak Dry Weather Flow (mgd)**	**Peak Wet Weather Flow (mgd)**	**Normal Depth (ft)**	**D/d**
Existing Pipe Flow	0.030034	0.070647	0.08831	0.15	0.22
**Proposed Pipe Flow*	0.035844	0.085717	0.10714	0.16	0.24

** Proposed Pipe Flow is calculated by adding the existing pipe flow data in Table 2 to the Project Flow Surplus data from Table 1.*

Conclusions and Recommendations

Based on the peak flow by use calculations shown in Table 1, the existing site contributes a peak wet weather demand of 0.00522 mgd, and the proposed development contributes 0.02405 mgd. The existing site also contributes a peak dry weather demand of 0.00417 mgd, and the proposed development contributes 0.01924 mgd. A PDWF surplus of 0.01507 mgd is created, which added to the existing peak pipe flow noted in the attached Infosewer Model Results for pipe B1103-B1102 (0.070647), the calculated proposed peak wet weather flow of **0.10714 mgd**, 21.8% of the 8" VCP sewer pipe maximum capacity. Additionally, the depth to diameter ratio (D/d) for the existing and proposed conditions are 0.15 and 0.16 respectively, which is well below the maximum D/d of 0.75 per the City of Brea Sewer Master Plan criteria. Therefore, based on the calculations and analysis given for the existing and proposed peak flow and D/d values, the proposed development, will not negatively impact the existing sewer system and the 8" VCP sewer pipe will have the capacity to convey the added peak flows.

Should you have any questions regarding this memorandum or these conclusions, please do not hesitate to contact me at 951-346-2807.

Sincerely,





John A. Pollock, P.E
R.C.E 86160

TITLE REPORT EXCEPTIONS

BASED UPON TITLE REPORT NO. 19000090277, DATED NOVEMBER 21, 2019 AS PREPARED BY STEWART TITLE COMPANY.

(7) AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED OCTOBER 8, 1985 AS INSTRUMENT NO. 85–385428 OF OFFICIAL RECORDS (PLOTTED HEREON). TO BE QUITCLAIMED.

(9) AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED AUGUST 9, 1988 AS INSTRUMENT NO. 88–390076; THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "QUITCLAIM OF EASEMENT" RECORDED SEPTEMBER 20, 1988 AS INSTRUMENT NO. 88–476713 BOTH OFFICIAL RECORDS (PLOTTED HEREON). TO BE QUITCLAIMED.

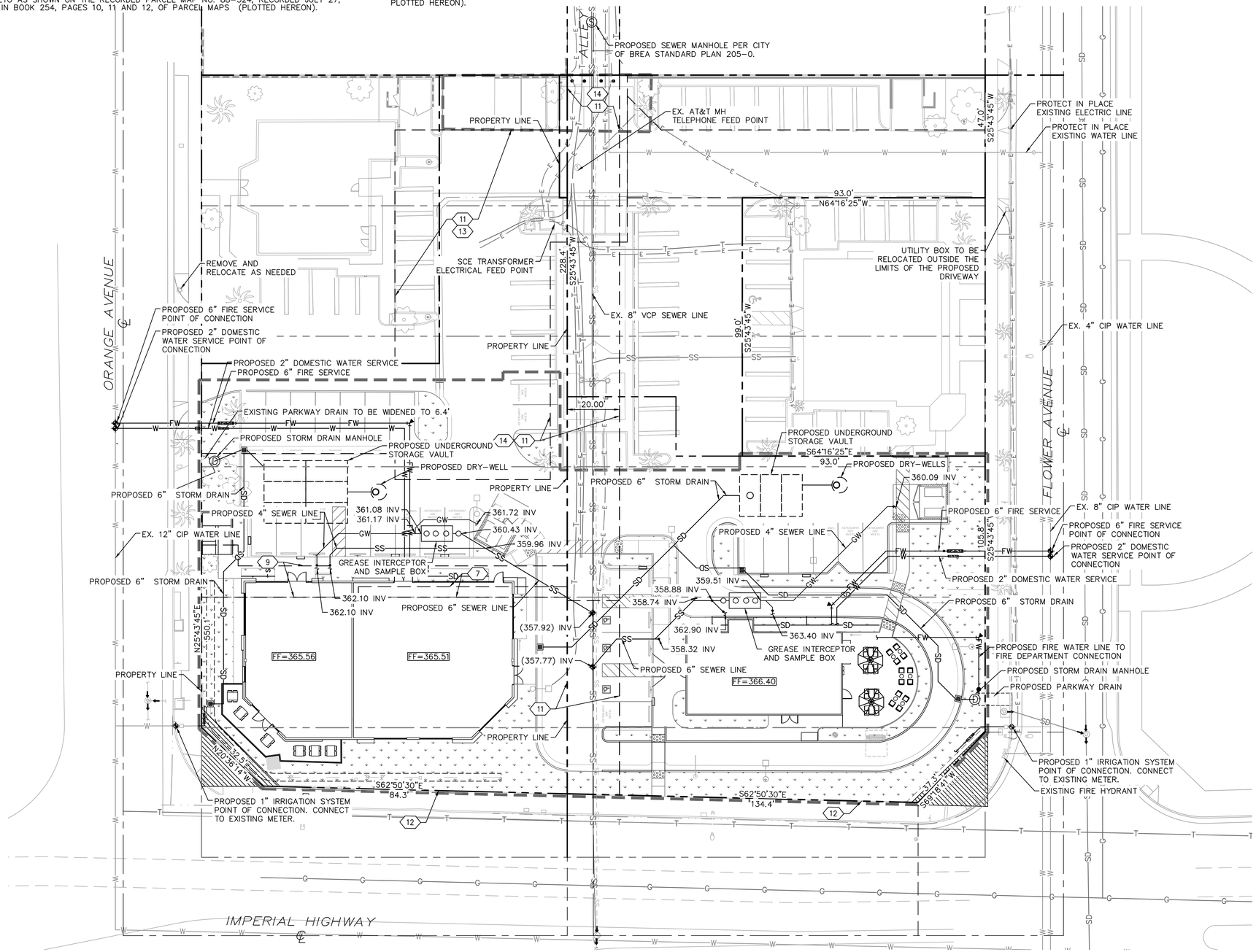
(11) AN EASEMENT OR OTHER PROVISIONS FOR THE PURPOSE OF PRIVATE DRAINAGE, PUBLIC UTILITY, SEWER, ALLEY, EMERGENCY INGRESS AND EGRESS AND RIGHTS INCIDENTAL THERETO AS SHOWN ON THE RECORDED PARCEL MAP NO. 88–324, RECORDED JULY 27, 1990 IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS (PLOTTED HEREON).

(12) THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE PUBLIC STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED OR SEVERED BY [THE MAP OF SAID PARCEL MAP NO. 88–324], WHICH AFFECTS IMPERIAL HWY. (PLOTTED HEREON).

(13) PROVISIONS, HEREIN RECITED, OF THE DEDICATION STATEMENT ON THE MAP OF THE TRACT SHOWN ON PARCEL MAP NO. 88–324 PROVISIONS: AS FOLLOWS: WE ALSO HEREBY RESERVE TO OURSELVES, OUR HEIRS, AND ASSIGNS: 1) A RECIPROCAL INGRESS, EGRESS EASEMENT FOR VEHICLES AND PEDESTRIANS BETWEEN PARCELS 1, 2, 3 & 4. 2) A RECIPROCAL PRIVATE DRAINAGE EASEMENT BETWEEN PARCELS 1, 2, 3 & 4 AND THE ALLEY (RECIPROCAL INGRESS/EGRESS EASEMENT BLANKET IN NATURE OVER PARCELS 1–4, RECIPROCAL PRIVATE DRAINAGE EASEMENT PLOTTED HEREON).

(14) AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF PACIFIC BELL, ITS SUCCESSORS AND ASSIGNS AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 4, 1990 AS INSTRUMENT 90–469325, AFFECTS AS DESCRIBED THEREIN (PLOTTED HEREON).

(15) THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED " RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTR. # 91–24934, OF OFFICIAL RECORDS. SAID DOCUMENT WAS MODIFIED BY AN INSTRUMENT RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099351, OF OFFICIAL RECORDS (BLANKET IN NATURE OVER ALL PARKING AREAS WITHIN PARCEL 1, 2, 3, AND 4 OF PARCEL MAP NO. 88–324).



LEGEND

- CENTER LINE
- PROPERTY LINE
- EASEMENT LINE
- RIGHT–OF–WAY LINE
- APPROXIMATE LIMIT OF WORK LINE
- W — EXISTING WATER LINE
- SS — EXISTING SANITARY SEWER LINE
- G — EXISTING GAS LINE
- E — E — EXISTING UNDERGROUND ELECTRICAL LINE
- T — EXISTING UNDERGROUND TELECOMMUNICATIONS LINE
- SD — EXISTING STORM DRAIN LINE
- W — PROPOSED WATER LINE
- FW — PROPOSED FIRE WATER LINE
- SS — PROPOSED SANITARY SEWER LINE
- GW — PROPOSED GREASE WASTE LINE
- SD — PROPOSED STORM DRAIN LINE
- GREASE WASTE INTERCEPTOR

GENERAL NOTES

1. THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. A TOPOGRAPHICAL AND UNDERGROUND SURVEY WILL BE REQUIRED TO DETERMINE THE FINAL LOCATION OF ALL EXISTING AND PROPOSED UTILITY ROUTINGS.

2. COORDINATION WITH UTILITY PURVEYORS WILL BE REQUIRED TO DETERMINE FINAL LOCATION OF ALL PROPOSED CONNECTIONS TO PUBLIC MAIN LINES.

3. ALL DRY AND WET UTILITY CROSSING SHALL HAVE MIN. 12" VERTICAL CLEARANCE.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

Drawing name: \\orsfp01\co_ora\ORA_LDEV\1944400001 – Brea Gaslight Square\CAD\Exhibits\Planning\C4.0 – Preliminary Utility Plan.dwg C4.1 – Preliminary Utility Plan Dec 08, 2022 1:59pm by: tatiana.braun
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley–Horn and Associates, Inc. shall be without liability to Kimley–Horn and Associates, Inc.

811 Know what's below. Call before you dig.

ISSUE	DATE	DESCRIPTION

DRAWN BY: TB
CHECKED BY: JP
RECOMMENDED: TH

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER JOHN K. POLLOCK No. 86160 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
1100 TOWN & COUNTRY RD, SUITE 700
ORANGE, CA 92868
(714) 939-1030

PREPARED UNDER THE DIRECT SUPERVISION OF:
JOHN POLLOCK R.C.E. NO. 86160
DATE: 12/8/2022
EXP. 12/31/2022

BREA GASLIGHT SQUARE
255 E. IMPERIAL HIGHWAY
BREA, CA 92821

CITY OF BREA

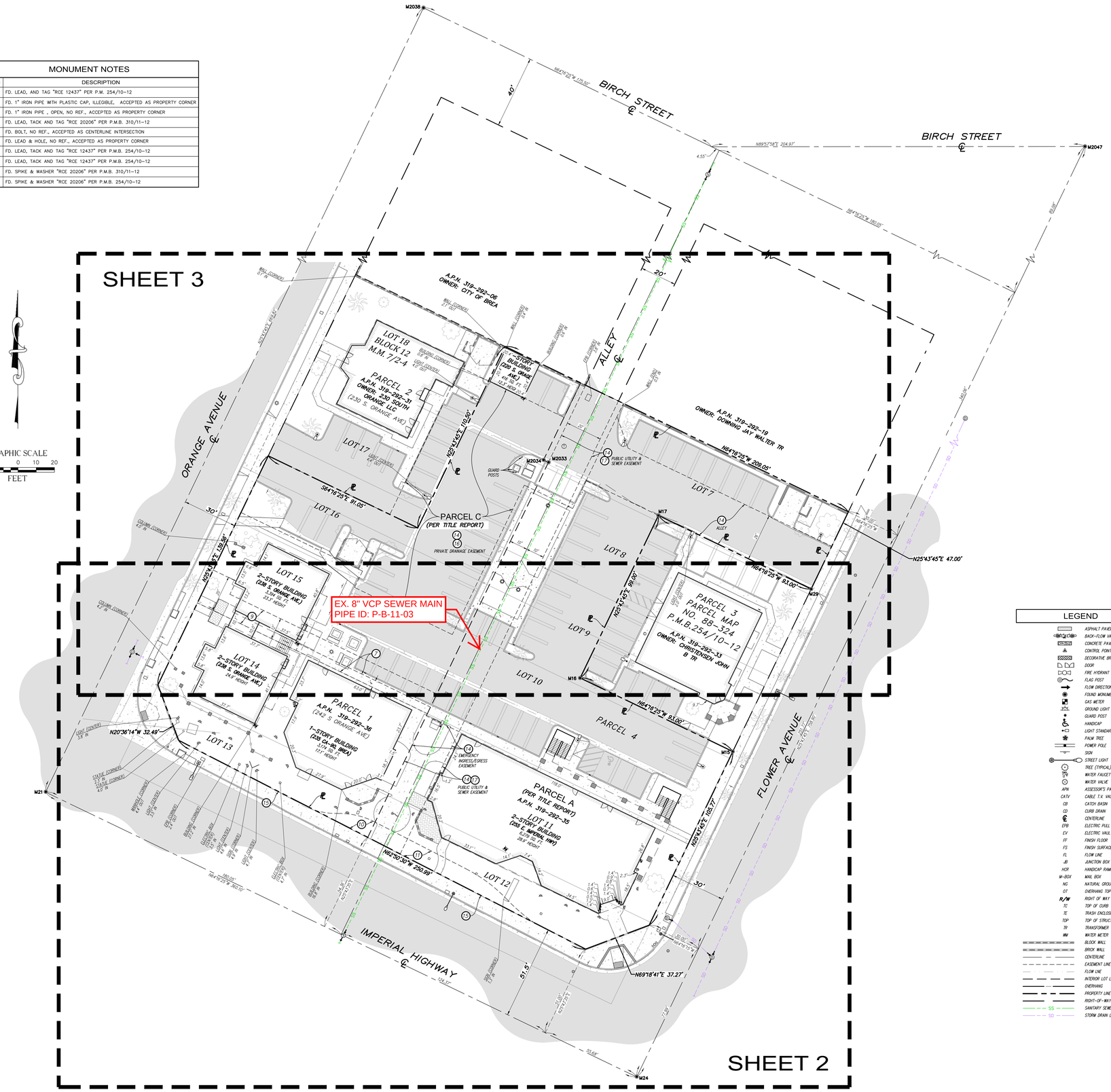
PRELIMINARY UTILITY PLAN

C4.0

A.L.T.A./N.S.P.S. LAND TITLE SURVEY

230 & 242 S. ORANGE AVE., 255 E. IMPERIAL HWY., BREA, CA 92821

MONUMENT NOTES	
MON.#	DESCRIPTION
M15	FD. LEAD, AND TAG "RCE 12437" PER P.M. 254/10–12
M16	FD. 1" IRON PIPE WITH PLASTIC CAP, ILLEGIBLE, ACCEPTED AS PROPERTY CORNER
M17	FD. 1" IRON PIPE , OPEN, NO REF., ACCEPTED AS PROPERTY CORNER
M21	FD. LEAD, TACK AND TAG "RCE 20206" PER P.M.B. 310/11–12
M24	FD. BOLT, NO REF., ACCEPTED AS CENTERLINE INTERSECTION
M29	FD. LEAD & HOLE, NO REF., ACCEPTED AS PROPERTY CORNER
M2033	FD. LEAD, TACK AND TAG "RCE 12437" PER P.M.B. 254/10–12
M2034	FD. LEAD, TACK AND TAG "RCE 12437" PER P.M.B. 254/10–12
M2038	FD. SPIKE & WASHER "RCE 20206" PER P.M.B. 310/11–12
M2047	FD. SPIKE & WASHER "RCE 20206" PER P.M.B. 254/10–12



GRAPHIC SCALE
20 0 10 20
FEET

VICINITY MAP



ZONING RESTRICTIONS

NOTE: INDICATED ZONING INFORMATION IS FROM THE CITY OF BREA ZONING ORDINANCES IN EFFECT AS OF THE DATE OF THIS SURVEY. ZONING AND RESTRICTIONS SHOWN HEREON WERE OBTAINED BY A GENERAL REQUEST AT THE PUBLIC COUNTER OF THE ABOVE NAMED DEPARTMENT. NO REPRESENTATION IS MADE FOR THE ACCURACY OR COMPLETENESS OF SAID THIRD PARTY INFORMATION. THIS FIRM IS NOT AN EXPERT IN THE REPRESENTATION OF COMPLEX ZONING ORDINANCES. COMPLIANCE IS BEYOND THE SCOPE OF THIS SURVEY. ANY USER OF SAID INFORMATION IS URGED TO CONTACT THE LOCAL AGENCY DIRECTLY.

ZONE: C–P (COMMERCIAL, ADMINISTRATIVE AND PROFESSIONAL OFFICE ZONE)

MINIMUN SETBACKS: FRONT: 15 FEET
SIDE: 15 FEET
REAR: NONE

HEIGHT RESTRICTIONS: 30 FEET

POSSIBLE ENCROACHMENT NOTES

THIS IS A LISTING OF OBSERVED IMPROVEMENTS THAT CROSS PROPERTY LINES. STATEMENT OF OWNERSHIP OR POSSESSION IS NOT THE INTENT OF THIS LISTING.

NO APPARENT ENCROACHMENTS

ITEMS CORRESPONDING TO TABLE A ITEMS

– ITEM 6(a)
NO ZONING REPORT OR LETTER PROVIDED BY CLIENT.

– ITEM 16
THE NEAREST INTERSECTING STREET TO THE PROPERTY IS IMPERIAL (TO THE SOUTH AS SHOWN HEREON) AND IT IS ±51 FEET.

– ITEM 16
NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

– ITEM 17
NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

SURVEYOR'S NOTES

– THE UTILITIES SHOWN HEREON ARE BASED ON OBSERVED EVIDENCE ONLY. THIS SURVEY WOULD NOT SHOW UTILITIES COVERED BY CARS/TRUCKS OR RECENTLY PAVED ASPHALT/CONCRETE OR OVERGROWN BRUSH, TREES AND SHRUBS.

– THIS SURVEY HAS BEEN PREPARED FOR TITLE INSURANCE PURPOSES ONLY. THIS SURVEY DOES NOT CONTAIN SUFFICIENT DETAIL FOR DESIGN PURPOSES. THE BOUNDARY DATA AND TITLE MATTERS AS SHOWN HEREON HAVE BEEN DEVELOPED FROM THE REFERENCED TITLE REPORT.

– UNLESS THIS PLAN HAS THE SEAL AND SIGNATURE OF THE SURVEYOR AND/OR ENGINEER RESPONSIBLE FOR ITS PREPARATION, THIS IS NOT AN AUTHENTIC COPY OF THE ORIGINAL SURVEY AND SHALL NOT BE DEEMED RELIABLE.

LEGEND

- ASPHALT PAVEMENT
- BACK–FLOW VALVE
- CONCRETE PAVEMENT
- CONTROL POINT
- DECORATIVE BRICK
- DOOR
- FIRE HYDRANT
- FLAG POST
- FLOW DIRECTION
- FOUND MONUMENT AS NOTED
- GAS METER
- GROUND LIGHT
- GUARD POST
- HANDICAP
- LIGHT STANDARD
- PALM TREE
- POWER POLE
- SIGN
- STREET LIGHT
- TREE (TYPICAL)
- WATER FAUCET
- WATER VALVE
- APN ASSESSOR'S PARCEL NUMBER
- CATV CABLE T.V. VAULT
- CB CATCH BASIN
- CD CURB DRAIN
- CL CENTERLINE
- EPB ELECTRIC PULL BOX
- EV ELECTRIC VAULT
- FF FINISH FLOOR
- FS FINISH SURFACE
- FL FLOW LINE
- JB JUNCTION BOX
- HCR HANDICAP RAMP
- M–BOX MAIL BOX
- NG NATURAL GROUND
- OT OVERHANG TOP
- R/W RIGHT OF WAY
- TC TOP OF CURB
- TE TRASH ENCLOSURE
- TOP TOP OF STRUCTURE
- TR TRANSFORMER
- WM WATER METER
- BLOCK WALL
- BRICK WALL
- CENTERLINE
- EASEMENT LINE
- FLOW LINE
- INTERIOR LOT LINE
- OVERHANG
- PROPERTY LINE
- RIGHT–OF–WAY
- SS SANITARY SEWER LINE
- SD STORM DRAIN LINE

FLOOD NOTE: BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, PANEL NO. 06059C0042J, PANEL DATED 12/3/2009. THIS PROPERTY IS NOT LOCATED IN AN AREA WHERE FLOOD HAZARDS EXIST AS DETERMINED BY FEMA. BY TELEPHONE CALL TO THE NATIONAL FLOOD INSURANCE PROGRAM (800–638–6620) WE HAVE LEARNED THIS COMMUNITY DOES CURRENTLY PARTICIPATE IN THE PROGRAM. NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN CITY OF BREA IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND DESCRIBED AS FOLLOWS:

PARCEL A:
PARCELS 1 AND 4 OF PARCEL MAP NO. 88–324, IN THE CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS AMENDED BY CERTIFICATE OF CORRECTION RECORDED JULY 30, 1991 AS INSTRUMENT NO. 91–401275 OF OFFICIAL RECORDS.

EXCEPT THOSE PORTIONS OF PARCELS 1 AND 4 AS CONVEYED TO THE CITY OF BREA BY THE DEED RECORDED NOVEMBER 29, 1990 AS INSTRUMENT NO. 90–629407 OF OFFICIAL RECORDS.

ALSO EXCEPT ALL COAL, LIGNITE, COAL OIL, PETROLEUM, NAPTHA, ASPHALTUM, BREA, BITUMEN, NATURAL GAS AND OTHER HYDROCARBONS AND LIKE SUBSTANCES WHICH NOW EXIST UPON, IN OR UNDER SAID LOTS, BUT WITH NO RIGHT OF ENTRY UPON THE SURFACE OF SAID LOTS FOR THE TAKING AND DEVELOPING OF SAID SUBSTANCES, AS RESERVED AND EXCEPTED IN DEEDS OF RECORD.

PARCEL B:
A RECIPROCAL NON–EXCLUSIVE EASEMENT FOR PEDESTRIAN AND VEHICULAR TRAFFIC AND FOR THE PARKING OF AUTOMOBILES OVER AND ACROSS THOSE PORTIONS OF PARCELS 2 AND 3 OF SAID PARCEL MAP NO. 88–324 SHOWN AS PARKING AREAS ON EXHIBIT NO. 2 ATTACHED TO DOCUMENT ENTITLED "RECIPROCAL COVENANTS CONDITIONS RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTRUMENT NO. 91–24934 OF OFFICIAL RECORDS OF THE COUNTY OF ORANGE, AND AN AMENDMENT TO RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING, RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099351, OF OFFICIAL RECORDS **(BLANKET IN NATURE OVER ALL PARKING AREAS)**

PARCEL C:
A RECIPROCAL NON–EXCLUSIVE PRIVATE DRAINAGE EASEMENT AS SHOWN ON SAID PARCEL MAP 88–324, OVER THOSE PORTIONS OF PARCELS 2 AND 3 DESIGNATED THEREON.

SCHEDULE B ITEMS

BASED UPON TITLE REPORT NO. 997–3008610–154, DATED JANUARY 28, 2022 AS PREPARED BY FIDELITY NATIONAL TITLE COMPANY.

1. – WATER RIGHTS, CLAIMS OR TITLE TO WATER IN OR UNDER SAID LAND, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS **(NOT A SURVEY MATTER)**.
2. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED NOVEMBER 28, 1910 IN BOOK 194, PAGE 243 OF DEEDS **(NOT A SURVEY MATTER)**.
3. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED JULY 24, 1911 IN BOOK 198, PAGE 55 OF DEEDS **(NOT A SURVEY MATTER)**.
4. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED APRIL 16, 1912 IN BOOK 210, PAGE 210 PAGE 342 OF DEEDS **(NOT A SURVEY MATTER)**.
5. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MARCH 26, 1921 IN BOOK 241, PAGE 109 OF DEEDS **(NOT A SURVEY MATTER)**.
6. – THE FACT THAT SAID LAND IS INCLUDED WITHIN A PROJECT AREA OF THE AB REDEVELOPMENT AGENCY AS DISCLOSED BY A DOCUMENT RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83–592126 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
7. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED OCTOBER 8, 1985 AS INSTRUMENT NO. 85–365428 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
8. – AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED JUNE 20, 1988 AS INSTRUMENT NO. 88–291630, DOCUMENT ENTITLED "QUITCLAIM OF EASEMENT" RECORDED SEPTEMBER 20, 1988 AS INSTRUMENT NO. 88–475713 BOTH OFFICIAL RECORDS **(NOT PLOTTED, QUITCLAIMED TO OWNER)**.
9. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED AUGUST 9, 1988 AS INSTRUMENT NO. 88–390076 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
10. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516400 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
11. QUITCLAIM RESERVING EASEMENT FOR PUBLIC SERVICES RECORDED SEPTEMBER 26, 1989 AS INSTRUMENT NO. 89–516401 OF OFFICIAL RECORDS **(PLOTTED HEREON)**.
12. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "DISPOSITION AND DEVELOPMENT AGREEMENT" RECORDED OCTOBER 26, 1989 AS INSTRUMENT NO. 89–577329 AND INSTRUMENT NO. 89–617773 BOTH OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
13. – COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH IN AN INSTRUMENT RECORDED MAY 3, 1990 AS INSTRUMENT NO. 90–234461 OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
14. AN EASEMENT OR OTHER PROVISIONS FOR THE PURPOSE OF PRIVATE DRAINAGE, PUBLIC UTILITY, SEWER, ALLEY, EMERGENCY INGRESS AND EGRESS AND RIGHTS INCIDENTAL THERETO AS SHOWN ON THE RECORDED PARCEL MAP NO. 88–324, RECORDED JULY 27, 1990 IN BOOK 254, PAGES 10, 11 AND 12, OF PARCEL MAPS **(PLOTTED HEREON)**.
15. THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE PUBLIC STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED OR SEVERED BY THE MAP OF SAID PARCEL MAP NO. 88–324, WHICH AFFECTS IMPERIAL HWY. **(PLOTTED HEREON)**.
16. PROVISIONS, HEREIN RECITED, OF THE DEDICATION STATEMENT ON THE MAP OF THE TRACT SHOWN ON PARCEL MAP NO. 88–324 PROVISIONS AS FOLLOWS:
WE ALSO HEREBY RESERVE TO OURSELVES, OUR HEIRS, AND ASSIGNS: 1) A RECIPROCAL INGRESS, EGRESS EASEMENT FOR VEHICLES AND PEDESTRIANS BETWEEN PARCELS 1, 2, 3 & 4; 2) A RECIPROCAL PRIVATE DRAINAGE EASEMENT BETWEEN PARCELS 1, 2, 3 & 4 AND THE ALLEY **(RECIPROCAL INGRESS/EGRESS EASEMENT BLANKET IN NATURE OVER PARCELS 1–4, RECIPROCAL PRIVATE DRAINAGE EASEMENT PLOTTED HEREON)**.
17. AN EASEMENT FOR PUBLIC UTILITIES AND RIGHTS INCIDENTAL THERETO IN FAVOR OF PACIFIC BELL, ITS SUCCESSORS AND ASSIGNS AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 4, 1990 AS INSTRUMENT 90–469325, AFFECTS AS DESCRIBED THEREIN **(PLOTTED HEREON)**.
18. – THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED " RECIPROCAL COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENT FOR PARKING" RECORDED JANUARY 17, 1991 AS INSTR. # 91–24934, OF OFFICIAL RECORDS.
SAID DOCUMENT WAS MODIFIED BY AN INSTRUMENT RECORDED MARCH 5, 1991 AS INSTRUMENT NO. 91–099351, OF OFFICIAL RECORDS **(BLANKET IN NATURE OVER ALL PARKING AREAS WITHIN PARCEL 1, 2, 3, AND 4 OF PARCEL MAP NO. 88–324)**.
19. – DEED OF TRUST **(NOT A SURVEY MATTER)**.
20. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001309662, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120063506, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301658, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
21. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001309663, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120063506, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301657, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
22. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20140001317772, DEED OF TRUST AND ASSIGNMENT OF RENTS AND LEASES RECORDED OCTOBER 18, 2012 AS INSTRUMENT NO. 20120063506, RELEASED APRIL 23, 2019 AS INSTRUMENT NO. 20190001301166, ALL OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
23. – DEED OF TRUST **(NOT A SURVEY MATTER)**.
24. – SUBORDINATION, NONDISTURBANCE AND ATTORNMENT AGREEMENT RECORDED APRIL 8, 2014 AS INSTRUMENT 20200000250717, DEED OF TRUST RECORDED JANUARY 31, 2020 AS INSTRUMENT NO. 20200000413404, BOTH OF OFFICIAL RECORDS **(NOT A SURVEY MATTER)**.
25. – DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS WHICH A CORRECT SURVEY WOULD DISCLOSE AND WHICH ARE NOT SHOWN BY THE PUBLIC RECORDS.
IN ORDER TO DELETE THE SURVEY EXCEPTION SHOWN ABOVE, A SATISFACTORY SURVEY OF THE SUBJECT LAND, WHICH COMPLIES WITH THE MINIMUM STANDARDS FOR LAND SURVEYS MADE FOR TITLE INSURANCE PURPOSES, IS TO BE FURNISHED TO THE COMPANY.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS AS DISCLOSED BY THE SURVEY, OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.
26. – ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.
27. – MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.
28. – ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS. **(NOT A SURVEY MATTER)**.
29. – THE TRANSACTION CONTEMPLATED IN CONNECTION WITH THIS REPORT IS SUBJECT TO THE REVIEW AND APPROVAL OF THE COMPANY'S CORPORATE UNDERWRITING DEPARTMENT. THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER SUCH REVIEW. **(NOT A SURVEY MATTER)**.

SURVEYOR'S CERTIFICATE

TO ONE BERRY, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY AND FIDELITY NATIONAL TITLE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 6(a), 7(a), 7(b)(1), 7(c), 8, 9, 10, 13, 14, 16 AND 17 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON FEBRUARY 3, 2022.

DATE OF PLAT OR MAP: FEBRUARY 22, 2022

REVISIONS			
NO.	DATE	REVISIONS	BY
0	12/18/19	SUBMITTAL	AA
1	11/11/20	ADDITIONAL TOPO	CE
2	02/03/22	ADDITIONAL TOPO	VG
3	02/25/22	UPDATED TITLE REPORT	RAS

UTILITY STATEMENT

BURIED UTILITIES AND/OR PIPELINES SHOWN HEREON ARE PER VISIBLE AND APPARENT SURFACE EVIDENCE, RECORD DRAWINGS OF THE CONSTRUCTED UTILITY LINES OBTAINED FROM RELIABLE AND RESPONSIBLE SOURCES NOT CONNECTED WITH CALVADA SURVEYING, INC. OR MARKINGS PROVIDED BY AN INDEPENDENT LOCATING CONTRACTOR. NO GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY OR THOROUGHNESS OF SUCH INFORMATION. IF MORE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES OR PIPE LINES ARE REQUIRED, THE UTILITY OR PIPELINE WILL HAVE TO BE VERIFIED BY FIELD POTHOLING. CALVADA SURVEYING, INC. AND THE SURVEYOR OF RECORD SHALL NOT BE HELD LIABLE FOR THE LOCATION OF OR THE FAILURE TO NOTE THE LOCATION OF NON–VISIBLE UTILITIES OR PIPELINES.

Underground Service Alert
Call: TOLL FREE
1–800
227–2600
TWO WORKING DAYS BEFORE YOU DIG

PREPARED FOR

KIMLEY–HORN (ORANGE)
765 THE CITY DRIVE SOUTH, SUITE 200
ORANGE, CA 92868
PHONE: (714) 705–1347

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED UPON THE CENTERLINE OF FLOWER AVENUE, BEING N25°43'45"E PER PARCEL MAP NO. 88–324, RECORDED IN BOOK 254 PAGES 10 THROUGH 12 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.

SITE INFORMATION

SITE NAME: BREA GASLAMP SQUARE
SITE ADDRESS: 230 & 242 S. ORANGE AVE.
255 E. IMPERIAL HWY. BREA, CA 92821

PROPERTY AREA: 1.443 AC. OR 62,843 SQ. FT.

TOTAL GROUND FLOOR AREA OF BUILDINGS: 13,263 SQ. FT.

PARKING COUNT: 55 REGULAR PARKING STALLS
1 HANDICAP PARKING STALLS
56 TOTAL PARKING STALLS

ASSESSOR'S PARCEL NO.: 319–292–35 & 36

SURVEYOR OF RECORD

FIELD COMPLETION DATE: FEBRUARY 3, 2022

REGISTERED LAND SURVEYOR — L.S. 7760 — Date Signed 02/25/2022 — STATE OF CALIFORNIA

Armando D. DuPont
Registration No. 7780

CAL VADA SURVEYING, INC.
411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951-280-9960 Fax: 951-280-9746
Toll Free: 800-CALVADA www.calvada.com

EST. 1989 JOB NO. 19684-2

City of Brea - Sewer Master Plan (November 2021)
Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A2807-A2801	A2807	A2801	8	155	0.0133	0.014417	0.000000	0.005338	1.48	0.06	0.09	0.014417	0.000000	0.005338	1.48	0.06	0.09	0.014417	0.000000	0.005338	1.48	0.06	0.09
A2808-A2807	A2808	A2807	8	260	0.0407	0.012663	0.000000	0.004636	2.10	0.04	0.06	0.012663	0.000000	0.004636	2.10	0.04	0.06	0.012663	0.000000	0.004636	2.10	0.04	0.06
A2809-A2808	A2809	A2808	8	371	0.0700	0.010209	0.000000	0.003668	2.38	0.03	0.05	0.010209	0.000000	0.003668	2.38	0.03	0.05	0.010209	0.000000	0.003668	2.38	0.03	0.05
A2810-A2809	A2810	A2809	8	371	0.0200	0.004816	0.000000	0.001621	1.22	0.03	0.05	0.004816	0.000000	0.001621	1.22	0.03	0.05	0.004816	0.000000	0.001621	1.22	0.03	0.05
A2811-A2807	A2811	A2807	8	234	0.0100	0.001433	0.000000	0.000434	0.66	0.02	0.03	0.001433	0.000000	0.000434	0.66	0.02	0.03	0.001433	0.000000	0.000434	0.66	0.02	0.03
A29-A30	A29	A30	12	140	0.0098	0.863093	0.000000	0.456140	4.19	0.43	0.43	0.863093	0.000000	0.456140	4.19	0.43	0.43	0.863093	0.000000	0.456140	4.19	0.43	0.43
A30-OUTLETA	A30	OUT_ASSOCIATED	12	245	0.0111	0.895326	0.000000	0.474686	4.43	0.42	0.42	0.966681	0.000000	0.515946	4.52	0.44	0.44	0.966681	0.000000	0.515946	4.52	0.44	0.44
B01-B02	B01	B02	8	313	0.0121	0.007979	0.000000	0.002806	1.20	0.05	0.07	0.007979	0.000000	0.002806	1.20	0.05	0.07	0.007979	0.000000	0.002806	1.20	0.05	0.07
B02-B03	B02	B03	8	237	0.0217	0.023910	0.000000	0.009251	2.05	0.07	0.10	0.023910	0.000000	0.009251	2.05	0.07	0.10	0.023910	0.000000	0.009251	2.05	0.07	0.10
B03-B04	B03	B04	8	274	0.0067	0.029845	0.000000	0.011772	1.45	0.10	0.15	0.029845	0.000000	0.011772	1.45	0.10	0.15	0.029845	0.000000	0.011772	1.45	0.10	0.15
B04-B05	B04	B05	8	182	0.0158	0.039876	0.000000	0.016130	2.14	0.09	0.14	0.083945	0.000000	0.036227	2.66	0.13	0.20	0.083945	0.000000	0.036227	2.66	0.13	0.20
B05-B06	B05	B06	8	182	0.0104	0.044180	0.000000	0.018031	1.90	0.11	0.16	0.087990	0.000000	0.038128	2.33	0.15	0.22	0.087990	0.000000	0.038128	2.33	0.15	0.22
B06-B07	B06	B07	8	216	0.0014	0.044180	0.000000	0.018031	0.93	0.18	0.26	0.087990	0.000000	0.038128	1.13	0.25	0.38	0.087990	0.000000	0.038128	1.13	0.25	0.38
B07-B08	B07	B08	8	148	0.0032	0.044180	0.000000	0.018031	1.26	0.14	0.21	0.087990	0.000000	0.038128	1.54	0.20	0.30	0.087990	0.000000	0.038128	1.54	0.20	0.30
B08-B09	B08	B09	8	48	0.0083	0.044180	0.000000	0.018031	1.76	0.11	0.17	0.087990	0.000000	0.038128	2.15	0.16	0.24	0.087990	0.000000	0.038128	2.15	0.16	0.24
B09-B10	B09	B10	8	43	0.0093	0.136239	0.000000	0.061323	2.54	0.19	0.29	0.178943	0.000000	0.082477	2.74	0.22	0.33	0.178943	0.000000	0.082477	2.74	0.22	0.33
B0901-B09	B0901	B09	8	179	0.0063	0.098897	0.000000	0.043292	2.02	0.18	0.27	0.101116	0.000000	0.044349	2.03	0.18	0.27	0.101116	0.000000	0.044349	2.03	0.18	0.27
B0902-B0901	B0902	B0901	8	308	0.0056	0.098018	0.000000	0.042874	1.93	0.18	0.28	0.100239	0.000000	0.043931	1.94	0.19	0.28	0.100239	0.000000	0.043931	1.94	0.19	0.28
B0903-B0902	B0903	B0902	8	420	0.0052	0.098018	0.000000	0.042874	1.88	0.19	0.28	0.100239	0.000000	0.043931	1.89	0.19	0.28	0.100239	0.000000	0.043931	1.89	0.19	0.28
B0904-B0903	B0904	B0903	8	366	0.0058	0.098018	0.000000	0.042874	1.95	0.18	0.27	0.100239	0.000000	0.043931	1.96	0.18	0.28	0.100239	0.000000	0.043931	1.96	0.18	0.28
B0905-B0904	B0905	B0904	8	217	0.0057	0.098018	0.000000	0.042874	1.94	0.18	0.28	0.100239	0.000000	0.043931	1.95	0.19	0.28	0.100239	0.000000	0.043931	1.95	0.19	0.28
B0906-B0905	B0906	B0905	8	179	0.0063	0.085928	0.000000	0.037158	1.93	0.17	0.25	0.088174	0.000000	0.038215	1.95	0.17	0.25	0.088174	0.000000	0.038215	1.95	0.17	0.25
B0907-B0906	B0907	B0906	8	500	0.0044	0.085928	0.000000	0.037158	1.70	0.18	0.28	0.088174	0.000000	0.038215	1.72	0.19	0.28	0.088174	0.000000	0.038215	1.72	0.19	0.28
B0908D-B0907	B0908D	B0907	8	248	0.0006	0.064555	0.000000	0.027230	0.77	0.27	0.40	0.066857	0.000000	0.028287	0.78	0.27	0.41	0.066857	0.000000	0.028287	0.78	0.27	0.41
B0909-B0908D	B0909	B0908D	8	19	0.0063	0.064555	0.000000	0.027230	1.78	0.14	0.22	0.066857	0.000000	0.028287	1.80	0.15	0.22	0.066857	0.000000	0.028287	1.80	0.15	0.22
B0911-B0920	B0911	B0920	8	151	0.0070	0.060687	0.000000	0.025461	1.81	0.14	0.21	0.063001	0.000000	0.026518	1.83	0.14	0.21	0.063001	0.000000	0.026518	1.83	0.14	0.21
B0912-B0911	B0912	B0911	8	20	0.0125	0.060129	0.000000	0.025207	2.22	0.12	0.18	0.062445	0.000000	0.026264	2.25	0.12	0.18	0.062445	0.000000	0.026264	2.25	0.12	0.18
B0913-B0912	B0913	B0912	8	337	0.0066	0.054107	0.000000	0.022475	1.72	0.13	0.20	0.056443	0.000000	0.023532	1.74	0.13	0.20	0.056443	0.000000	0.023532	1.74	0.13	0.20
B0914-B0913	B0914	B0913	8	6	0.0667	0.052250	0.000000	0.021638	3.83	0.07	0.11	0.054594	0.000000	0.022695	3.88	0.08	0.11	0.054594	0.000000	0.022695	3.88	0.08	0.11
B0915-B0914	B0915	B0914	8	378	0.0099	0.041672	0.000000	0.016921	1.84	0.10	0.16	0.044061	0.000000	0.017978	1.87	0.11	0.16	0.044061	0.000000	0.017978	1.87	0.11	0.16
B0916-B0915	B0916	B0915	8	371	0.0073	0.033643	0.000000	0.013409	1.55	0.10	0.15	0.036075	0.000000	0.014466	1.58	0.11	0.16	0.036075	0.000000	0.014466	1.58	0.11	0.16
B0917-B0914	B0917	B0914	8	213	0.0052	0.012866	0.000000	0.004717	1.03	0.07	0.10	0.012866	0.000000	0.004717	1.03	0.07	0.10	0.012866	0.000000	0.004717	1.03	0.07	0.10
B0918-B0917	B0918	B0917	8	268	0.0050	0.012866	0.000000	0.004717	1.02	0.07	0.11	0.012866	0.000000	0.004717	1.02	0.07	0.11	0.012866	0.000000	0.004717	1.02	0.07	0.11
B0919-B0914	B0919	B0914	6	172	0.0300	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
B0920-B0909	B0920	B0909	8	217	0.0067	0.064555	0.000000	0.027230	1.82	0.14	0.21	0.066857	0.000000	0.028287	1.84	0.15	0.22	0.066857	0.000000	0.028287	1.84	0.15	0.22
B0921-B0920	B0921	B0920	6	98	0.0626	0.004128	0.000000	0.001371	1.81	0.02	0.05	0.004128	0.000000	0.001371	1.81	0.02	0.05	0.004128	0.000000	0.001371	1.81	0.02	0.05
B0922-B0921	B0922	B0921	6	244	0.0148	0.003011	0.000000	0.000973	1.00	0.03	0.06	0.003011	0.000000	0.000973	1.00	0.03	0.06	0.003011	0.000000	0.000973	1.00	0.03	0.06
B10-B1001	B10	B1001	8	212	0.0057	0.156370	0.000000	0.071233	2.68	0.20	0.31	0.198632	0.000000	0.092387	2.86	0.23	0.35	0.198632	0.000000	0.092387	2.86	0.23	0.35
B1001-B11	B1001	B11	8	434	0.0073	0.160338	0.000000	0.073200	2.44	0.22	0.33	0.202520	0.000000	0.094354	2.60	0.25	0.38	0.202520	0.000000	0.094354	2.60	0.25	0.38
B11-B12	B11	B12	8	180	0.0258	0.244564	0.000000	0.115827	4.32	0.20	0.30	0.292548	0.000000	0.140728	4.54	0.22	0.33	0.292548	0.000000	0.140728	4.54	0.22	0.33
B1101-B11	B1101	B11	8	360	0.0083	0.085579	0.000000	0.036994	2.14	0.16	0.23	0.093523	0.000000	0.040741	2.19	0.16	0.24	0.093523	0.000000	0.040741	2.19	0.16	0.24
B1102-B1101	B1102	B1101	8	660	0.0099	0.080993	0.000000	0.034844	2.24	0.15	0.22	0.088972	0.000000	0.038591	2.30	0.15	0.23	0.088972	0.000000	0.038591	2.30	0.15	0.23
B1103-B1102	B1103	B1102	8	650	0.0072	0.070647	0.000000	0.030034	1.92	0.15	0.22	0.078717	0.000000	0.033781	1.98	0.15	0.23	0.078717	0.000000	0.033781	1.98	0.15	0.23
B1104-B1103	B1104	B1103	6	699	0.0068	0.047828	0.000000	0.019655	1.73	0.13	0.27	0.047828	0.000000	0.019655	1.73	0.13	0.27	0.047828	0.000000	0.019655	1.73	0.13	0.27
B1105-B1104	B1105	B1104	6	120	0.0070	0.019175	0.000000	0.007278	1.34	0.09	0.17	0.019175	0.000000	0.007278	1.34	0.09	0.17	0.019175	0.000000	0.007278	1.34	0.09	0.17

Worksheet for Proposed PDWF Condition - 8" VCP Sewer Main

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.0072 ft/ft
Diameter	8.0 in
Discharge	0.0857 MGD

Results	
Normal Depth	0.16 ft
Flow Area	0.1 ft²
Wetted Perimeter	0.7 ft
Hydraulic Radius	0.10 ft
Top Width	0.57 ft
Critical Depth	0.17 ft
Percent Full	24.3 %
Critical Slope	0.0065 ft/ft
Velocity	2.02 ft/s
Velocity Head	0.06 ft
Specific Energy	0.23 ft
Froude Number	1.053
Maximum Discharge	0.7134 MGD
Discharge Full	0.6632 MGD
Slope Full	0.0001 ft/ft
Flow Type	Supercritical

GVF Input Data	
Upstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Downstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	0.0 %
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	0.16 ft
Critical Depth	0.17 ft
Channel Slope	0.0072 ft/ft
Critical Slope	0.0065 ft/ft

Cross Section for Proposed PDWF Condition - 8" VCP Sewer Main

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.0072 ft/ft
Normal Depth	0.16 ft
Diameter	8.0 in
Discharge	0.0857 MGD

